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**On the Scaphisomatini (Coleoptera, Staphylinidae, Scaphidiinae)  
of the Philippines,  
IV: the genera *Sapitia* ACHARD and *Scaphisoma* LEACH**

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**A b s t r a c t :** On the Scaphisomatini (Coleoptera, Staphylinidae, Scaphidiinae) of the Philippines, IV: the genera *Sapitia* ACHARD and *Scaphisoma* LEACH. The Philippine species of *Sapitia* ACHARD, 1920 and *Scaphisoma* LEACH, 1815 are reviewed. Currently, a single species of *Sapitia* and 27 species of *Scaphisoma* recognized as valid have been reported from the Philippines. Additional 85 *Scaphisoma* species were distinguished within the studied collections, and the following are described as new in the present paper: *S. acutulium* nov.sp., *S. alticola* nov.sp., *S. angulosum* nov.sp., *S. apomontanum* nov.sp., *S. apomontium* nov.sp., *S. bicolor* nov.sp., *S. bicoloripenne* nov.sp., *S. bicuspidatum* nov.sp., *S. bilobum* nov.sp., *S. blefusca* nov.sp., *S. bolmarum* nov.sp., *S. breviatum* nov.sp., *S. casiguran* nov.sp., *S. caudatoides* nov.sp., *S. centripunctulum* nov.sp., *S. compactum* nov.sp., *S. conflictum* nov.sp., *S. confusum* nov.sp., *S. cuyunon* nov.sp., *S. deharvengi* nov.sp., *S. densepunctatum* nov.sp., *S. disparides* nov.sp., *S. dissymmetricum* nov.sp., *S. distinctum* nov.sp., *S. diversum* nov.sp., *S. duplex* nov.sp., *S. elpis* nov.sp., *S. furcatum* nov.sp., *S. furcigerum* nov.sp., *S. furcillatum* nov.sp., *S. glabrellum* nov.sp., *S. hamatum* nov.sp., *S. hexameroides* nov.sp., *S. hexamerum* nov.sp., *S. ilonggo* nov.sp., *S. inconvantum* nov.sp., *S. inexpectatum* nov.sp., *S. inflexum* nov.sp., *S. inopportunistum* nov.sp., *S. iridescens* nov.sp., *S. jankodadai* nov.sp., *S. kodadai* nov.sp., *S. lienhardi* nov.sp., *S. liliput* nov.sp., *S. lineare* nov.sp., *S. lunabianum* nov.sp., *S. maculosum* nov.sp., *S. maramag* nov.sp., *S. minutipenis* nov.sp., *S. mirum* nov.sp., *S. montivagum* nov.sp., *S. nabiluanum* nov.sp., *S. nanellum* nov.sp., *S. nishikawai* nov.sp., *S. obscurum* nov.sp., *S. ochropenne* nov.sp., *S. opacum* nov.sp., *S. oviforme* nov.sp., *S. pandanum* nov.sp., *S. pseudokalabitum* nov.sp., *S. pulchrum* nov.sp., *S. sagax* nov.sp., *S. scapulare* nov.sp., *S. scurriale* nov.sp., *S. signaticolle* nov.sp., *S. simplexoides* nov.sp., *S. sinuatum* nov.sp., *S. spatuloides* nov.sp., *S. subanun* nov.sp., *S. subgracile* nov.sp., *S. subplanatum* nov.sp., *S. subpunctulum* nov.sp., *S. tagalog* nov.sp., *S. transversale* nov.sp., *S. tricoloratum* nov.sp., *S. tricolorinotum* nov.sp., *S. tricoloripenne* nov.sp., *S. tridens* nov.sp., *S. trifurcatum* nov.sp., *S. trilobum* nov.sp., *S. trimaculatum* nov.sp., *S. werneri* nov.sp. *Scaphisoma javanum* LÖBL, *S. quadrimaculatum* PIC and *S. rufescens* (PIC) are reported for the first time from the Philippines. A lectotype is designated for *S. philippinense* OBERTHÜR. Additional diagnostic characters, new records and/or comments are given to most of the previously described species. A key to the Philippine species of *Scaphisoma* is provided.

**Key words :** Coleoptera, Staphylinidae, *Sapitia*, *Scaphisoma*, taxonomy, Philippines

## 1. Introduction

Whereas most of the genera of Scaphidiinae known to occur in the Philippine have been recently reviewed (LÖBL 2006, 2011a, 2011b, 2012), members of the *Scaphisoma* group (as defined in LESCHEN & LÖBL 2005), the more species-rich group of the scaphidiines, remained unstudied for 44 years. Currently, only two genera, *Sapitia* ACHARD, 1920, with a single species, and *Scaphisoma* LEACH, 1815, with 27 species recognized as valid have been reported from the Philippines (LÖBL 1972, 1997). The published data of almost all these species were based on material collected in the 19<sup>th</sup> and/or beginning of the 20<sup>th</sup> centuries, to large extent coming from single localities and often based on single specimens. In addition, a part of the old type material is preserved in poor condition, or consists of females though usually males possess reliable species-specific diagnostic characters. Thus, a need to fill gaps in the knowledge of the Philippine taxa appeared quite obvious.

Several major expeditions and a number of shorter collecting trips yield additional material of Philippines scaphidiines, some of them awaiting study for over 90 years. The present paper is based on these collections, as far as available for study. It gives an overview of the 113 species of *Sapitia* and *Scaphisoma* actually known to occur on these islands, including 82 species new to sciences.

## 2. Material and methods

The body length is measured from the anterior pronotal margin to the inner apical angle of the elytra. The maximal length and width ratios of the antennomeres are given, measured on antennae mounted in slides, at identical magnification. Characters of metanepisterna refer to their exposed parts. The abdominal ventrites are counted from the first visible one (i.e., the third morphological sternite). The statements about abdominal microsculpture does not refer to the intersegmental membranes. The sides of the aedeagi refer to their morphological sides, with the ostium situated dorsally, while it is in the resting position rotated 90°. The extruded parts of the internal sacs of the aedeagi are not considered in length measurements. The female secondary sexual characters are given only if obvious. Though the colour pattern provides often useful means for identification, it is of limited use in identification of teneral specimens.

The habitus images were taken by a single-lens reflex camera (CANON® EOS Kiss X7) with a macro photo lens (CANON® MP-E 65 mm Macro lens) attached to the stand (LPL® CSC-10), and then focus-stack images were created with Combine ZM.

The examined material and other material mentioned in the present study are housed in the following institutions:

- BZLA.....Biologiezentrum – Oberösterreichisches Landesmuseum, Linz, Austria
- EUMJ.....Ehime University Museum, Entomology, Matsuyama, Japan
- FMNH .....Field Museum of Natural History, Chicago, USA
- MHNG.....Muséum d'histoire naturelle, Geneva, Switzerland
- MNHN.....Muséum national d'Histoire naturelle, Paris, France
- MZBI.....Museum Zoologicum Bogoriense, Cibinong, Indonesia
- NHMW .....Naturhistorisches Museum, Wien, Austria

- NMPC.....National Museum, Praha, Czech Republic  
 NMNS .....National Museum of Nature and Science, Tokyo, Japan  
 SMNS .....Staatliches Museum für Naturkunde, Stuttgart, Germany  
 SMTD.....Staatliches Museum für Tierkunde, Dresden, Germany (Senckenberg  
 Naturhistorische Sammlungen Dresden)  
 ZMUB .....Museum für Naturkunde (Zoologisches Museum), Berlin, Germany  
 ZMUK .....Zoological Museum, University, Kobenhavn, Denmark

Specimens collected by late Masataka Satô have been deposited in MHNG following an agreement and exchange of material.

The labels under the primary types are reproduced verbatim, different labels under specimens are separated by a slash. Each holotype bears a printed red "HOLOTYPE" label, each paratype a printed yellow "paratype" label, and each specimen a respective printed or partly handwritten identification label. This information is not repeated under the sections "material examined", or under the locality data of the type material. The names of localities are given as on the respective labels or as previously published, even if currently changed (e.g., Dansalan for Marawi). Additional information from unpublished locality lists are given in square brackets.

Note: The type material of species described by M. Pic and represented in his collection (MNHN) by single specimens: these specimens were assumed to be holotypes (LÖBL 1970a, 1972), though M. Pic has not indicated the number of specimens on which his new species were based. Such "holotypes" are deemed to be lectotypes (ICZN 1999, Art. 74.6).

### 3. Taxonomy

The species of the *Scaphisoma* group possess submetacoxal lines, profemoral ctenidium and shortened, asymmetrical third antennomere. Most share also acute posterior angles of pronotum and anterior bead of pronotum obliterated in middle. The group includes the termitophilous genera *Collartium* PIC, 1928, *Mordelloscaphium* PIC, 1982, *Sapitia* ACHARD, 1920, *Termitoscaphium* LÖBL, 1982 and *Vituratella* REITTER, 1908, the rather enigmatic *Kathetopodium* LÖBL, 1982 and the free living *Scaphisoma* LEACH, 1815. Members of two of these genera, *Sapitia* and *Scaphisoma*, occur in the Philippines. While only three southeast Asian species of *Sapitia* are currently known, with the wide-spread *S. lombokiana* ACHARD, 1920 occurring also in the Philippines, *Scaphisoma* is species-rich, world-wide in distribution and its members may be uneasy to identify. In addition to the male genitalia which are diverse, the most useful characters are the coloration of the body, though inapplicable in general specimens, the length ratios of the antennomeres, the shape of the sutural striae of the elytra, the pattern of the body punctuation, the presence or absence of microsculpture, in particular on the first exposed sternite, the size of the submesocoxal and submetacoxal areas with respect to the intervals to the metacoxae or to the apical margin of the sternite 1, respectively, the presence or absence of antecoxal puncture rows on the metaventricle, and the length of the mesepimera. The male 6<sup>th</sup> sternite may bear diagnostic characters but is used exceptionally because often deformed by dissection. The spermatheca is membranous in *Scaphisoma* and has not yet

been used in taxonomy of the genus. New species represented by females only are therefore not described, unless possessing quite unusual and obvious morphological characters.

#### 4. Diversity

An examination of the Philippine material at hand revealed a remarkable diversity in the larger islands, suggesting "hotspots" (HEANEY & REGALADO 1998) also as far small mycophagous beetles concerned. A notable feature of the Philippine *Scaphisoma* is the high diversity of the *S. unicolor* (13 species), *S. rouyeri* (12 species) and *S. tricolor* (13 species) species groups. The latter possibly includes also *S. philippinense* OBERTHÜR, 1883, *S. vagenotatum* PIC, 1926 and *S. dentipenne* LÖBL, 1979 based on females that cannot be reliably associated with any of the subsequently examined species. Only three species, *Scaphisoma javanum* LÖBL, 1979, *S. quadrimaculatum* PIC, 1922 and *S. rufescens* (PIC, 1920), are known to be more widely distributed in southeast Asia, most of the remaining seem to be restricted in distribution to a single island or to few islands. Disregarding doubtful material, the islands with the greatest diversity are Mindanao (43, of them exclusive 32), Luzon (42; 30), Palawan (31; 20) and Leyte (14; 4), followed by Masbate (4; 2), Negros (2; 1), Dinagat (2; 0), Bucas Grande (2; 0), Biliran (1; 0), Bohol (1; 0), Panay (1; 0), Pandan (1; 1), and Balabac (1; 0). Thus, the studied material comes only from 13 of some 7600 islands of the Philippine archipelago. The true diversity of Philippine *Scaphisoma* is undoubtedly much greater, as inferred also from the considerable proportion of species known from a single locality and the fact that a significant portion of species have been collected in a few better prospected localities or areas of Luzon, Palawan, Leyte and Mindanao. Obviously, the "distributional pattern" of the Philippine Scaphisomatini as revealed by present data is less correlated with natural processes, such as dispersal or speciation events, but rather with the field activity of individuals, and, for more recent discoveries, with the degree of the pauperization of the still remaining natural sites in which mycophagous fauna may be found. The endemism, considered high in the Philippines (VALLEJO 2014) as a result of the complex history of the archipelago, and the relationships to Sundaland and Wallacea, are in Scaphisomatini poorly understood for the reasons mentioned above, and for inadequate knowledge of the Indonesian fauna. The taxonomic impediment, quantified as the time span between discoveries and descriptions of new species, possibly being about 21 years in average of living things (FONTAINE et al. 2012, KEMP 2015), is almost 44.7 years for the studied Philippine material. It points to inadequate support of descriptive taxonomy and to ill-founded regulations that hamper field work.

#### 5. Results

##### 5.1. *Sapitia* ACHARD, 1920

This genus includes three Southeast Asian species, presumably strictly associated with termites (LESCHEN & LÖBL 2005). The diagnostic characters of the genus and a key to the species are given in LÖBL 1978a. A single species is known to occur in the Philippines.

### 5.1.1. *Sapitia lombokiana* ACHARD, 1920

*Sapitia lombokiana* ACHARD, 1920a: 208. Lectotype ♀, MNHN; type locality: Indonesia, Lombok, Sapit. Lectotype designation and redescription LÖBL 1978a: 55, Figs 1, 2. Published record: Palawan: Pinigisan (LÖBL 1971a: 251, as incertain).

*Baoceridium sericeum* PIC, 1922: 2. Lectotype ♀, MNHN; type locality: Vietnam, Hoa Binh. Lectotype designation and synonymy: LÖBL 1978a: 55.

**A d d i t i o n a l m a t e r i a l :** Central Palawan, 5 km N Port Barton, 50 m, 29.XII.1996, leg. G. Cuccodoro, in forest above waterfalls, debris, 1 ♀ (MHNG).

**D i s t r i b u t i o n :** Indonesia: Lombok, Sumatra; Thailand, Vietnam; Philippines: Palawan.

## 5.2. *Scaphisoma* LEACH, 1815

The genus is almost world-wide in distribution with 640 described species and the most diverse of the subfamily. Its highest diversity is actually observed in the Oriental region though this may change when collections from other tropical regions will be adequately studied. Several species groups have been recognized, mostly based on male genital characters. The relationships are difficult to recognize in a number of species lacking clearly derived aedeagal characters, and species known in females only, remain unplaced.

### 5.2.1. Key to the Philippine species of *Scaphisoma* LEACH, 1815

- 1 Elytra with sutural striae starting posterior level of scutellar tip. Elytral punctation entirely or on parts of disc conspicuously coarse.....2
- Elytra with sutural striae starting at or anterior level of scutellar tip. Elytral punctation variable, often fine .....23
- 2 Elytra with coarse discal punctures to part arranged to form longitudinal or oblique rows .....3
- Elytra with discal punctures irregular, not arranged to form rows .....12
- 3 Elytra prevailing ochreous, each with dark transverse spot situated posterior elytral mid-length (Fig. 37).....*S. transversale* nov.sp.
- Colour pattern of elytra different .....4
- 4 Elytra uniformly ochreous, about as light as apical abdominal segments and lighter than thorax (Fig. 24). Pronotum slightly darkened along basal margin .....*S. ochropenne* nov.sp.
- Entire or prevailing elytral surface dark reddish-brown to blackish .....5
- 5 Apical sixth to third of elytra light, yellowish or ochreous, well delimited from prevailing dark elytra surface and usually impunctate or very finely punctate .....6
- Apical area of elytra about as dark as most of elytral disc, or distinctly darkened, or with very narrow light apical border, usually distinctly punctate .....10
- 6 Coarse elytral punctation abruptly ending at or slightly posterior elytral mid-length, punctation on most of apical halves of elytra very fine or absent (Fig. 29). Aedeagus with apical section of parameres expanded .....*S. rufescens* (PIC)
- Coarse elytra punctation reaching up to or onto apical third of elytra (Fig. 32). Aedeagus with parameres not expanded apically .....7
- 7 Aedeagus with internal sac bearing long, hook-like rod overlapping simple rod, and robust spine-like structures in basal part.....*S. stigmatipenne* HELLER
- Aedeagus with internal sac lacking rods, without robust basal spine-like structures.....8

- 8 Aedeagus with parameres curved, bearing membranous lobes, apical process of median lobe oblique in lateral view .....9
- Aedeagus with parameres sinuate, lacking membranous lobes, apical process of median lobe convex in lateral view (Figs 174, 175) .....*S. sinuatum* nov.sp.
- 9 Apex of median lobe acute (Fig. 167) ..... *S. luteopygidiale* (PIC)
- Apex of median lobe blunt (Fig. 161)..... *S. banguense* LÖBL
- 10 Aedeagus with apical halves of parameres broad (Fig. 171, 173). Prevailing surface of elytra reddish-brown, about as pronotum, each elytron with darkened transverse area anterior very narrow light apical rim (Fig. 28). Pronotal punctation conspicuously coarser and denser along basal margin than on remaining pronotal surface ..... *S. pseudokalabutum* nov.sp.
- Aedeagus with apical halves of parameres narrow. Elytra reddish-brown to blackish-brown, not or weakly darkened subapically, usually without light apical rim. ....11
- 11 Aedeagus with parameres abruptly narrowed proximally mid-length; apical process of median lobe gradually narrowed (Fig. 177). Pronotum with punctation denser and coarser along basal margin than on remaining surface ..... *S. surigaosum* PIC
- Aedeagus with parameres gradually narrowed toward mid-length; apical process of median lobe abruptly narrowed toward tip (Fig. 163). Pronotum with almost even, sparse and very fine punctation, or with somewhat coarser punctures on basomedian area ..... *S. inexpectatum* nov.sp.
- 12 Small species, with body 1.35-1.50 mm long. Punctation on prevailing surface of elytra coarse, with punctures to part larger than puncture intervals. Male mesotibiae not or hardly thicker than metatibiae. Females with apical sutural angle of elytra rounded.....13
- Body length exceeding 1.70 mm. Prevailing or entire surface of elytra with punctures smaller than, or as large as puncture intervals. Male mesotibiae usually distinctly thicker than metatibiae. Female elytra with apical sutural angle denticulate or rounded.....15
- 13 Hypomera with strigulate microsculpture. Metaventricle lacking antecoxal puncture rows ..... *S. furcatum* nov.sp.
- Hypomera lacking obvious microsculpture. Metaventricle with antecoxal puncture rows .....14
- 14 Parameres of aedeagus arcuate in apical halves (Fig. 204). Punctation on pronotal sides much coarser and denser than on mesal area .....*S. fuscigerum* nov.sp.
- Parameres sinuate in apical halves (Fig. 207). Punctation on pronotal sides and on pronotal middle similar.....*S. fucillatum* nov.sp.
- 15 Pronotal punctation conspicuously dense and fairly coarse, with many punctures about as large as puncture intervals. Mesanepisterna, often also epimera and metanepisterna with distinct, comparatively coarse punctation.....*S. signaticolle* nov.sp.
- Punctation on pronotum, epimera, mesanepisterna and metanepisterna fine, often hardly visible, or distinct on pronotal lobe, consisting of punctures much smaller than puncture intervals.....16
- 16 Elytra, in addition to light apical fourth, lightened on subhumeral areas, with or without lightened middle parts of disc. Pronotum in both sexes bicoloured.....17
- Elytra uniformly reddish-brown to blackish between bases and light apical areas. Pronotum bicoloured or unicoloured ..... 19
- 17 Female with inner apical margins of elytra rounded, not denticulate. Male with apical process of median lobe long, widened and truncate at tip (Figs 249, 250) .....  
..... *S. trifurcatum* nov.sp.
- Female with inner apical margins of elytra denticulate. Male with tip of apical process of median lobe acute (lateral view), or apical process very short .....18
- 18 Elytra each with large, well delimited light subhumeral spot. Basomedian area of pronotum conspicuously punctate. Female with apical margins of elytra weakly oblique .....*S. trimaculatum* nov.sp.

- Elytra each with light subhumeral area extended apically and joint or almost joint to light apical area. Punctuation on basomedian area of pronotum not or slightly coarser than that on remainder of pronotal disc. Female with apical margins of elytra conspicuously oblique .....*S. tricoloripenne* nov.sp.
- 19 Male pronotum uniformly dark brown or reddish-brown as anterior two thirds or three fourth of elytra, with or without small light laterobasal area .....20
- Male pronotum ochreous on prevailing surface.....21
- 20 Apical process of median lobe with ventral branch short, curved, acute at tip; dorsal branch reaching far posterior its mid-length (Fig. 245) ..... *S. tridens* nov.sp.
- Apical process of median lobe with ventral branch long, oblique, truncate at tip; dorsal branch reaching about to its mid-length (Fig. 252) .....*S. trilobum* nov.sp.
- 21 Male with pronotum narrowly darkened along basal margin, remaining pronotal surface as that of hypomera ochreous (Fig 38). Ventral branch of apical process of median lobe strongly inflexed ventrally, weakly curved and weakly narrowed toward blunt apex (Fig. 235) ..... *S. tricolor* HELLER
- Pronotum darkened along basal margin, with darkened area expanded mesally. Ventral branch of median lobe moderately inflexed ventrally, strongly curved and narrowed apically .....22
- 22 Pronotum with darkened area not or hardly extended anterior lobe. Ventral branch of median lobe of aedeagus abruptly bent, with truncate apex (Figs 238, 239) .....  
..... *S. tricoloratum* nov.sp.
- Pronotum with darkened mesal area extended at least to pronotal mid-length, or up to anterior pronotal margin (Fig. 40). Ventral branch of median lobe of aedeagus broadly bent and with acute tip (Figs 240, 241) ..... *S. tricolorinotum* nov.sp.
- 23 Elytra with sutural striae strongly converging from bases to apices, or from bases to mid-length, often angular near elytral bases; adsutural areas conspicuously broad near scutellum.....24
- Elytra with sutural striae parallel or weakly converging from level of scutellar tip to sutural mid-length or up to apices, not angular in anterior section, often curved near bases; adsutural areas narrow near scutellum ..... 32
- 24 Elytra with lateral margin striae conspicuously coarsely punctate .....25
- Elytra with lateral striae impunctate or finely punctate .....27
- 25 Submetacoxal areas very narrow, about as tenth of interval to apical margin; submetacoxal lines hardly convex. Elytra dark, each with light subapical area.....  
.....*S. subanun* nov.sp.
- Submetacoxal areas moderately large, about as fifth to fourth of interval to apical margin; submetacoxal lines distinctly convex. Elytral coloration different .....26
- 26 Elytra darkened along bases, in middle and along apices (Fig. 8). Metaventrte with one central and two apicomedian impressions..... *S. casiguran* nov.sp.
- Elytra uniformly reddish or blackish-brown, light apices excepted (Fig. 9). Metaventrte with apicomedian impressions, lacking central impression .....  
.....*S. cuyunon* nov.sp.
- 27 Metaventrte with antecoxal puncture row, microsculpture distinct on apicolateral parts or on entire lateral parts of metaventrte .....28
- Metaventrte without antecoxal puncture row, microsculpture evanescent near lateral margins of metaventrte .....29
- 28 Prevailing body colour ochreous, metaventrte and mesoventrite dark brown to blackish, elytra darkened along suture, sutural striae, at bases and usually also in middle areas. Mesanepisterna not microsculptured. Punctuation on basal part of elytra near sutural striae and on adsutural areas coarser than that on prevailing elytral surfaces.....30
- Prevailing body colour reddish-brown (Fig. 4). Mesanepisterna microsculptured. Punctuation on basal parts of elytra, near sutural striae and on adsutural areas not coarser than on prevailing elytral surfaces..... *S. bicoloripenne* nov.sp.

- 29 Basomedian parts of metaventricle and sternite 1 very finely punctate. Female with acute, prominent inner apical angles of elytra ..... *S. werneri* nov.sp.  
 - Basomedian parts of metaventricle and sternite 1 with fairly coarse punctures. Female with rounded, not prominent inner apical angles of elytra.....  
 ..... *S. biplagiatum* HELLER
- 30 Body light reddish-brown, apical fourth to third of elytra lighter than remaining elytral surface (Fig. 10) ..... *S. dispar* LÖBL  
 - Body dark reddish to blackish-brown, apical tenth to eighth of elytra lighter than remaining elytral surface .....31
- 31 Internal sac of aedeagus with mesal row of triangular sclerites, parameres widened apically, with inner margins notched..... *S. mindanaosum* PIC  
 - Internal sac of aedeagus lacking row of triangular sclerites, apical parts of parameres not widened and lacking subapical notches (Figs 196-198).....*S. disparides* nov.sp.
- 32 Elytra dull, microsculptured .....*S. opacum* nov.sp.  
 - Elytra shiny, not microsculptured.....33
- 33 Mesepimera fused, indistinct.....34  
 - Mesepimera distinct.....40
- 34 Abdominal sternite 1 with submetacoxal areas usually conspicuously large. Median part of metaventricle coarsely and densely punctate. Elytral disc often somewhat flattened, usually smooth at base and along lateral margin, often coarsely and conspicuously densely punctate posterior smooth basal area .....35  
 - Abdominal sternite 1 with submetacoxal areas moderately large, much shorter than intervals to apical margin. Median area of metaventricle lacking coarse punctures. Elytral disc convex, elytral punctation sparse and fine.....39
- 35 Abdominal sternite 1 with submetacoxal areas larger than intervals to apical margin. Antennomeres III and IV combined usually about as long as or shorter than V.....36  
 - Abdominal sternite 1 with submetacoxal areas as long as half of interval to apical margin. Antennomeres III and IV combined longer than V.....*S. simplex* LÖBL
- 36 Prevailing elytral punctation fine, about as fine as pronotal punctation; elytra coarsely punctate on small, flattened and elongate lateral area of elytral disc. Antennomeres IV short, about as long as III (Fig. 52)..... *S. subpunctulum* nov.sp.  
 - Prevailing elytral punctation much coarser than pronotal punctation. Antennomere IV usually distinctly longer than III.....37
- 37 Elytral disc with sharply delimited patch of coarse and conspicuously dense punctures; humeral areas and apical third of elytra very finely punctate, appearing impunctate. Aedeagus with base of apical process of median lobe fairly wide, gradually narrowed in dorsal view, not reaching level of apical third of parameres.....  
 ..... *S. subconvexum* PIC  
 - Elytral disc with punctures distinct near apical margin .....38
- 38 Aedeagus with parameres conspicuously long and narrow, extending beyond level of tip of median lobe, latter with apical process conspicuously narrow and long, parallel-sided in lateral view (Figs 48, 49) .....*S. subgracile* nov.sp.  
 - Aedeagus with parameres short and comparatively wide, widened at apices, not reaching level of tip of median lobe, latter with apical process moderately long and gradually narrowed in lateral view (Figs 50, 51) .....*S. subplanatum* nov.sp.
- 39 Aedeagus with symmetrical, lobed parameres (Figs 125, 126) .... *S. inconventum* nov.sp.  
 - Aedeagus with asymmetrical, not lobed parameres, left paramere strongly widened basally..... *S. imuganense* LÖBL
- 40 Elytra with sutural striae distinctly curved along margin of pronotal lobe and extended laterally along elytral bases to form basal striae.....41  
 - Elytra with sutural striae starting at margin of pronotal lobe, usually weakly curved, not extended along bases to form basal striae.....50



- 41 Antennomere VIII about as long as half of VII or IX and about 1.5 times as long as wide. Sternite 1 with submetacoxal lines and areas reduced, indistinct. Elytral and pronotal punctation similar, fine ..... *S. breviatum* nov.sp.
- Antennomere VIII much longer than half of VII or IX and more than twice as long as wide. Sternite 1 with submetacoxal lines and areas distinct. Elytral punctation often entirely or to large extend coarser than pronotal punctation .....42
- 42 Antennomere III and IV similar in length.....43
- Antennomere III much shorter than IV, both combined as long as or longer than V.....45
- 43 Antennomere VI slightly longer than III to V combined ..... *S. minutipenis* nov.sp.
- Antennomere VI shorter than III to V combined .....44
- 44 Abdomen with strigulate microsculpture ..... *S. kodadai* nov.sp.
- Abdomen not microsculptured ..... *S. elpis* nov.sp.
- 45 Apicolateral parts of metaventrite conspicuously coarsely and densely punctate. Body length 2.55 mm. Abdomen with distinct punctulate microsculpture .....  
..... *S. lienhardi* nov.sp.
- Body length 1.45-2.10 mm. Lateral parts of metaventrite very finely punctate.....46
- 46 Apical sixth to fourth of elytra conspicuously light, reddish to yellowish, or with transverse yellowish band, remainder of elytra dark brown to blackish .....47
- Elytra entirely reddish-brown or blackish-brown .....48
- 47 Body length 1.70-2.10 mm. Antennomeres III and IV combined longer than V, latter much shorter than VI ..... *S. scapulare* nov.sp.
- Body length 1.45-1.55 mm. Antennomeres III and IV combined about as long as V, latter as long as VI ..... *S. bicuspidatum* nov.sp.
- 48 Submetacoxal lines parallel. Apex of median lobe broadly rounded in dorsal view (Fig. 120) ..... *S. scurille* nov.sp.
- Submetacoxal lines convex. Apex of median lobe acute in dorsal view .....49
- 49 Median lobe without prominent articular process. Parameres gradually narrowed and arcuate in dorsal view, lacking membranous lobes ..... *S. biliranense* LÖBL
- Median lobe with prominent, narrow and curved articular process. Parameres sinuate, with inner membranous lobe (Figs 133, 134) ..... *S. pandanum* nov.sp.
- 50 Pronotum brown with large ochreous lateral spots. Hypomera ochreous. Body length 2.25 mm ..... *S. pulchrum* nov.sp.
- Pronotum lacking spots, pronotal colour similar to that of hypomera darker. Usually smaller species with body length inferior to 2.0 mm .....51
- 51 Pronotum dark brown to blackish. Elytra ochreous, each with well delimited dark central spot and darkened areas along base, suture, lateral margin and apex. Entire metaventrite with strigulate microsculpture ..... *S. mirum* nov.sp.
- Colour pattern of body different. Lateral parts of metaventrite or entire metaventrite often lacking microsculpture .....52
- 52 Thorax, hypomera excepted, and basal halves of elytra black or blackish, apical halves of elytra ochreous to yellowish, well delimited (Fig. 3) ..... *S. bicolor* nov.sp.
- Colour pattern of body different .....53
- 53 Thorax ochreous, anterior two thirds of elytra black, most of apical third of elytra yellowish. Elytral punctation hardly visible ..... *S. distinctum* nov.sp.
- Colour pattern of body different .....54
- 54 Prevailing elytral surface finely punctate, each elytron with small laterocentral area conspicuously coarsely and densely punctate .....55
- Elytral punctation different .....56
- 55 Apical areas of elytra slightly darkened. Mesepimera subtriangular, about as third of interval to mesocoxae ..... *S. tagalog* nov.sp.

- Apical areas of elytra not darkened. Mesepimera elongate, almost as intervals to mesocoxae ..... *S. centripunctulum* nov.sp.
- 56 Hypomera, mesanepisterna and metanepisterna conspicuously punctate, with punctures larger than pronotal punctures. Body blackish-brown.....*S. deharvengi* nov.sp.
- Hypomera, mesanepisterna and metanepisterna impunctate or very finely punctate, with punctures not larger than those on pronotum.....57
- 57 Body dark brown to black, elytra each with distinct subapical yellowish or ochreous fascia; area posterior subapical fascia brown to blackish, not or only somewhat lighter than middle of elytral disc (Fig. 17) .....58
- Colour pattern of body different .....60
- 58 Aedeagus with internal sac bearing rows of long, narrow, spine-like structures (Figs 91, 92)..... *S. lunabianum* nov.sp.
- Aedeagus with internal sac bearing membranous, minute, mostly very short denticular and scale-like structures.....59
- 59 Aedeagus with apical process of median lobe gradually narrowed in dorsal view, ventral side curved in lateral view, with apex acute (Figs 72, 73).....*S. binaluanum* PIC
- Aedeagus with apical process of median lobe widest posterior base, sinuate in lateral view, apex blunt (Figs 101, 102) ..... *S. nabiluanum* nov.sp.
- 60 Pronotal punctation coarse and very dense, with punctures well delimited, to part as large as puncture intervals and only slightly smaller than punctures on elytral disc. Antennomere IV short, about as long as III .....*S. hiekei* LÖBL
- Pronotal punctation entirely very fine, with punctures distinctly smaller than puncture intervals or punctures in middle of disc finer than near base; if pronotal and elytral punctation similar. Antennomere IV longer than III.....61
- 61 Submetacoxal areas reduced, about 0.02 mm wide; submetacoxal lines parallel, with coarse punctures; body length exceeding 1 mm .....62
- Submetacoxal areas usually exceeding 0.02 mm; submetacoxal lines entirely or at least partly convex, often finely punctate, if submetacoxal lines subparallel, body length not exceeding 1 mm.....66
- 62 Abdomen with well visible strigulate microsculpture. Metaventrte with two apicomedian impressions. Aedeagus symmetrical.....63
- Abdominal microsculpture punctulate. Metaventrte without apicomedian impressions. Aedeagus asymmetrical .....64
- 63 Body length inferior 1.35 mm, prevailing body colour blackish .... *S. compactum* nov.sp.
- Body length exceeding 1.80 mm, prevailing body colour ochreous .....*S. angulosum* nov.sp.
- 64 Aedeagus in dorsal view with right paramere evenly broad, truncate at apex (Fig. 127) ..... *S. inopportunum* nov.sp.
- Aedeagus in dorsal view with tip of right paramere expanded by membranose lobe ....65
- 65 Aedeagus in dorsal view with right paramere narrowed subapically, widened and rounded at tip (Fig. 131) .....*S. palawanum* PIC
- Aedeagus in dorsal view with right paramere gradually widener up to apical membranous lobe (Fig. 129)..... *S. oviforme* nov.sp.
- 66 Antennomere VI about as long as or longer than III to V combined .....67
- Antennomere VI shorter than antennomeres III to V combined .....68
- 67 Body length 1.15 mm, body light brown. Metaventrte with median impression .....*S. hexamerum* nov.sp.
- Body length 1.23 mm, body blackish. Metaventrte without impression .....*S. apomontium* nov.sp.

68	Elytra each with large reddish or ochreous subbasal spot, dark brown to blackish in middle of disc, either with entire apical area ochreous to yellowish, or with light subapical spot or fascia. Pronotum reddish-brown to blackish .....	69
-	Elytra with different colour pattern .....	71
69	Antennomere IV very short, slightly longer than III, V much longer than III and IV combined .....	<i>S. quadrimaculatum</i> PIC
-	Antennomere IV much longer than III, V not or slightly longer than III and IV combined .....	70
70	Entire apical third of elytra ochreous to yellowish (Fig. 18). Median lobe of aedeagus trifold.....	<i>S. luteomaculatum</i> PIC
	Elytra each with transverse, light, translucent fascia posterior mid-length and narrowly lightened apices, very dark in-between .....	<i>S. subfasciatum</i> PIC
71	Mesanepesterna, lateral parts of metaventrite and of sternite 1 iridescent, with distinct strigulate microsculpture. Body length 1.85 mm .....	<i>S. iridescens</i> nov.sp.
-	Ventral side of body not iridescent, mesanepesterna not microsculptured .....	72
72	Inner apical angle of elytra denticulate. Body length 1.9 mm. Abdomen with strigulate microsculpture .....	<i>S. dentipenne</i> LÖBL
-	Inner apical margins of elytra not denticulate. Body length usually inferior to 1.9 mm. Abdominal microsculpture present or absent .....	73
73	Body light brown, elytra each with large spot covering most of disc (Fig. 20). Small species 1.0-1.10 mm long, pronotal and elytral punctation very fine. Submesocoxal and submetacoxal areas similar, with strongly convex lines.....	<i>S. maculosum</i> nov.sp.
-	Colour pattern of body different. Species often larger than 1.1 mm, elytral punctation often distinctly coarser than pronotal punctation, submesocoxal and submetacoxal areas usually dissimilar, with moderately convex lines .....	74
74	Elytra dark brown to blackish, each with well delimited, yellowish transverse fascia situated posterior elytral mid-length .....	<i>S. fascipenne</i> nov.sp.
-	Colour pattern of elytra different .....	75
75	Abdomen with strigulate microsculpture. Metaventrite with or without microsculpture .....	76
-	Abdomen not microsculptured, or with punctulate microsculpture, metaventrite not microsculptured .....	99
76	Metaventrite with antecoxal puncture row.....	77
-	Metaventrite without antecoxal puncture row .....	86
77	Metaventrite with mesal stria .....	<i>S. hamatum</i> nov.sp.
-	Metaventrite without median stria .....	78
78	Elytra with punctures on middle part of disc coarse, to part as large or larger than puncture intervals. Elytra ochreous, lighter than pronotum, yellowish near apices .....	<i>S. confusum</i> nov.sp.
-	Elytral disc with discal punctures smaller than puncture intervals. Elytra often dark and not yellowish in apical section .....	79
79	Small species, body 1.0-1.30 mm long. Median lobe of aedeagus symmetrical, strongly bent apically, near tip vertical to aedeagal axis, parameres lobed.....	<i>S. javanum</i> LÖBL
-	Medium-sized species, body 1.5-1.8 mm long .....	80
80	Aedeagus with symmetrical median lobe .....	81
-	Aedeagus with asymmetrical median lobe .....	82
81	Median lobe bifid, with dorsal branch subtriangular, ventral branch gradually narrowed. Internal sac lacking apical bunch of long spines .....	<i>S. boettcheri</i> PIC
-	Median lobe trifold, with dorsal branches wide and weakly sclerotized, ventral branch abruptly narrower toward tip. Internal sac with bunch of long spines (Figs 180, 181).....	<i>S. acutulium</i> nov.sp.

- 82 Aedeagus with parameres lacking lobes, apical process of median lobe with asymmetrically bent tip (Figs 182, 183) ..... *S. apomontanum* nov.sp.  
 - Aedeagus with lobed parameres .....83
- 83 Apex of median lobe broad. Parameres each with subbasal and apical lobes .....84  
 - Apex of median lobe narrow. Parameres each with single, apical lobe .....85
- 84 Tip of apical process of median lobe vertical to axis of basal bulb; inner margin of parameres crenulate (Figs 225, 227)..... *S. spatuloides* nov.sp.  
 - Apical process of median lobe obliquely inflexed; inner margin of parameres not crenulate (Figs 219, 220).....*S. duplex* nov.sp.
- 85 Tip of apical process of median lobe narrowed, parameral base not wider than parameral lobe in lateral view (Figs 216, 217) ..... *S. bilobum* nov.sp.  
 - Tip of apical process of median lobe widened, parameral base wider than parameral lobe in lateral view (Figs 221, 222) ..... *S. nishikawai* nov.sp.
- 86 Male mesotarsomeres 1 about twice as wide as apices of mesotibiae. Punctures on elytral disc sharply delimited. Internal sac of aedeagus lacking sclerites (Figs 83, 84) .....*S. densepunctatum* nov.sp.  
 - Male mesotarsomeres 1 about as wide as, or narrower than apices of mesotibiae. Punctures on elytral disc often poorly delimited. Internal sac of aedeagus often bearing sclerites.....87
- 87 Elytral disc with patch of dense and coarse punctures, contrasting prevailing very fine and sparse elytral punctation .....88  
 - Elytra lacking distinctive patch of coarse punctures.....89 t
- 88 Elytral patch of coarse and dense punctures situated on lateral part of disc .....  
 .....*S. simplexoides* nov.sp.  
 - Elytral patch of dense and coarse punctation situated on on inner anterior and middle parts of disc .....*S. obscurum* nov.sp.
- 89 Antennomere VI as long as antennomeres IV and V combined and as long as VII.....  
 ..... *S. hexameroides* nov.sp.  
 - Antennomere VI shorter than antennomeres IV and V combined and usually either shorter or longer than shorter than VII .....90
- 90 Pronotum and most of elytra black, apical fourth of elytra yellowish .....91  
 - Pronotum and elytra blackish to ochreous, elytra uniformly or almost uniformly coloured.....92
- 91 Body length hardly 1.3 mm. Submetacoxal areas as fourth of intervals to apical margin of sternite 1..... *S. maramag* nov.sp.  
 - Body length hardly 1.9 mm. Submetacoxal areas as tenth of intervals to apical margin of sternite 1 ..... *S. alticola* nov.sp.
- 92 Body length 2.2 mm. Pronotal and elytral punctation evenly fine. Metaventricle lacking microsculpture .....*S. glabrellum* nov.sp.  
 - Body length 1.0-1.7 mm. Elytral punctation usually distinctly coarser than pronotal punctation. Mesal part of metaventricle often with strigulate microsculpture .....93
- 93 Aedeagus with asymmetrical parameres (Figs 155, 156) .....*S. dissymmetricum* nov.sp.  
 - Aedeagus with symmetrical parameres .....94
- 94 Aedeagus with conspicuously lobed parameres..... *S. laminatum* LÖBL  
 - Parameres of aedeagus not lobed.....95
- 95 Aedeagus minute, 0.28 mm long, with parameres strongly narrowed posterior basal third (dorsal view) (Fig. 99).....*S. montivagum* nov.sp.  
 - Aedeagus 0.46-0.90 mm long, with parameres usually not narrowed posterior basal third .....96
- 96 Apical process of aedeagus lacking subapical denticles .....97  
 - Apical process of aedeagus with two subapical denticles (lateral view).....98

- 97 Elytral disc punctation even fine, punctures not well delimited, much smaller than puncture intervals; internal sac of aedeagus with flagellum (Fig. 69).....  
..... *S. caudatoides* nov.sp.
- Elytral disc with punctation uneven, punctures near inner basal angles to part about as large as puncture intervals and much coarser than on apical halves; internal sac of aedeagus without flagellum (Fig. 74, 75) ..... *S. bolmarum* nov.sp.
- 98 Metaventrite with submesocoxal lines convex. Internal sac of aedeagus with two pairs of similar, horn-like sclerites (Fig. 215)..... *S. luzonicum* PIC
- Metaventrite with submesocoxal lines parallel. Internal sac of aedeagus with single pair of horn-like sclerites (Fig. 212) ..... *S. jankodadai* nov.sp.
- 99 Metaventrite with antecoxal rows of coarse puncture..... *S. conflictum* nov.sp.
- Metaventrite without antecoxal puncture rows ..... 100
- 100 Minute species, body length not exceeding 1.0 mm. Submetacoxal areas very narrow, smaller than submesocoxal areas. Elytra very finely punctate..... 101
- Body length exceeding 1.1 mm ..... 103
- 101 Antennomere IV about 1.3 times as long as III. Aedeagus in lateral view with straight parameres (Fig. 56)..... *S. blefusca* nov.sp.
- Antennomere IV about twice as long as III. Aedeagus in lateral view with curved parameres ..... 102
- 102 Aedeagus in dorsal view with parameres lobed subapically and abruptly narrowed near tip (Figs 59, 60) ..... *S. liliput* nov.sp.
- Aedeagus in dorsal view with parameres not lobed, gradually narrowed apically (Figs 63, 64) ..... *S. nanellum* nov.sp.
- 103 Punctuation on apical areas of elytra notably denser and coarser than on prevailing elytral surface. Aedeagus symmetrical, internal sac bearing robust sclerites (Figs 65, 66) ..... *S. lineare* nov.sp.
- Elytral punctation not becoming coarser and denser near apices. Aedeagus symmetrical or asymmetrical, internal sac lacking robust sclerites ..... 104
- 104 Sternite 1 with submetacoxal areas conspicuously large, as long as or exceeding interval to apical margin ..... *S. sagax* nov.sp.
- Sternite 1 with submetacoxal areas distinctly shorter than interval to apical margin... 105
- 105 Apical fourth of elytra, abdomen and appendages uniformly or almost uniformly ochreous, much lighter than thorax or elytra ..... *S. diversum* nov.sp.
- Colour pattern of body different ..... 106
- 106 Aedeagus symmetrical. Pronotum and elytra light reddish-brown or brown..... 107
- Aedeagus asymmetrical. Body colour dark brown or blackish..... 109
- 107 Elytral punctation notably coarser than pronotal punctation. Submesocoxal lines parallel. Mesepimera about twice as long as intervals to mesocoxae. Apical process of median lobe short (Figs 164, 165)..... *S. inflexum* nov.sp.
- Elytral punctation hardly coarser than pronotal punctation. Submesocoxal lines convex. Mesepimera about as long as or slightly shorter than intervals to mesocoxae. Apical process of median lobe long..... 108
- 108 Aedeagus with parameres very narrow, filiform, extended proximally to meet at proximal side of minute basal bulb..... *S. sexuelle* LÖBL
- Aedeagus with parameres fairly wide, not filiform and not extended proximally; basal bulb conspicuously elongate..... *S. ilonggo* nov.sp.
- 109 Aedeagus with parameres strongly expanded..... 110
- Aedeagus with parameres not expanded..... *S. duplicatum* LÖBL
- 110 Aedeagus with left paramere abruptly narrowed and curved in apical section ..... *S. anomalum* LÖBL
- Aedeagus with left paramere broad and oblique in apical section ..... *S. ramosum* LÖBL

### 5.2.2. The *Scaphisoma subconvexum* species group

Members of the group share fused or reduced mesepimera, in combination with comparatively weakly convex body, irregular, to part coarsely and densely punctate elytra, and usually large submetacoxal areas. The aedeagi are moderately sclerotized and symmetrical, with articular process usually prominent, and the internal sac simple, lacking flagellum and sclerotized pieces. The following Philippine species placed within this group: *S. simplex*, *S. simplexoides*, *S. subconvexum*, *S. subgracile*, *S. subplanatum*, and *S. subpunctum*.

#### 5.2.2.1. *Scaphisoma simplex* LÖBL, 1972

*Scaphisoma simplex* LÖBL, 1972: 88, Figs 21, 22. Holotype ♂, ZMUB; type locality: Luzon, Bangui; additional material unknown.

**Additional diagnostic characters:** Pronotum with lateral striae very finely punctate, elytra with lateral striae distinctly punctate. Hypomera smooth. Mesepimera fused. Mesanepisterna very finely punctate. Metaventricle lacking microsculpture, with coarse punctures in middle well delimited, to part about as large as punctures intervals. Submesocoxal areas 0.04 mm, almost as half of interval apical margin of metaventricle. Sternite 1 with microsculpture evanescent near lateral margins; submetacoxal lines strongly convex, submetacoxal areas 0.06 mm, as half of interval to apical margin.

**Distribution:** Philippines: Luzon.

#### 5.2.2.2. *Scaphisoma simplexoides* nov.sp. (Figs 46, 47)

**Type material:** Holotype ♂: Luzon: Lagunas Mt. Makiling, summit rd (SE Los Banos), 600m LLöbl, 21-22.XI.95 moss, epiph., bark on logs (MHNG).

**Description:** Length 1.12 mm, width 0.74 mm. Head and body reddish-brown, elytra lighter along apices and darkened on subapical areas. Apical abdominal segments light brown. Femora and tibiae light reddish-brown, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 8/8: IV 25/5: V 25/5: VI 28/7: VII 35/9: VIII 29/7: IX 37/10: X 37/10: XI 45/12. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae appearing impunctate. Exposed tip of scutellum minute. Elytra not flattened, with lateral margin carinae entirely and visible in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin somewhat raised, sutural striae fairly deep, bent at base, not extending along basal margin, parallel except near apices, distinctly punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae distinctly punctate. Elytral disc with punctation very fine, similar to that on pronotum on large humeral area and along lateral margin. Remaining punctation on basal halves of elytra coarse and very dense, with punctures to part larger than puncture intervals and well delimited; punctation becoming much finer and sparser posterior elytral mid-length. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera small, hardly twice as long as wide, shorter than intervals to mesocoxae. Metaventricle not microsculptured. Median part of metaventricle flattened, without impressions, finely and densely punctate, lateral parts of metaventricle with very fine and sparse punctation; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, almost as third of intervals to metacoxae, submesocoxal lines convex, coarsely punctate, punctures

not extended by striae. Metanepisternum flat, narrowed anteriorly, inner margin rounded, suture deep. Tibiae straight. Abdomen very finely and sparsely punctate, with strigulate microsculpture; submetacoxal areas 0.05 mm, about as two thirds of intervals to apical margin of sternite, submetacoxal lines strongly convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 46, 47) 0.29 mm long, moderately sclerotized, symmetrical. Basal bulb small. Articular processes large, prominent. Apical process of median lobe simple, long, much longer than basal bulb and strongly inflexed (lateral view), slightly narrowed in dorsal view, tapering and with acute tip in lateral view. Parameres strongly widened basally, with basal apophysis (lateral view), bent, without membranous inner margin lobe. Internal sac simple, tubular, with very short and fine spines-like structures.

**Etymology:** The species epithet derives from *simplex*; the Greek suffix *oides* means descendent.

**Comparative notes:** This new species is placed tentatively in the group because it has small but distinct mesepimera. Its aedeagus is similar to that in *S. simplex*, the shape of the ventral side of the basal bulb excepted. Both, *S. simplex* and *S. simplexoides*, differ drastically from other members assigned to the group by the wide parameres and the strongly curved apical process of the median lobe.

#### 5.2.2.3. *Scaphisoma subconvexum* PIC, 1926 (Fig. 34)

*Scaphosoma subconvexum* PIC, 1926: 1. Lectotype ♂, MNHN; type locality: Luzon, Los Banos. Lectotype designation, diagnostic characters and illustration of the aedeagus: LÖBL 1972: 105, 106, Figs 57, 58. Additional published record: Luzon: Bangui (LÖBL 1972: 108).

**Additional material examined:** Luzon, Lagunas Prov., Mt. Makiling, summit road (SE Los Banos) 600 m, 21-22.XI.95, fungi on large logs, bark, leg. I. Löbl, 12 ex. (MHNG).

**Distribution:** Philippines: Luzon.

#### 5.2.2.4. *Scaphisoma subgracile* nov.sp. (Figs 35, 48, 49)

**Type material:** Holotype ♂: Palawan: Central, Olangoan 18 km NE San Rafael, 5-6.XII.95 I. Löbl, fungi on logs, bark (MHNG). Paratypes: Palawan, with the same data as the holotype, 5♂♂, 9♀♀, 4 ex. sex not examined (MHNG, BZLA); Palawan Central, Sabang, trail to Underground River, sea level, 30.XI.1995, fungi on logs, leg. I. Löbl, 1♂ (MHNG); Palawan Central, Conception, sea level, I. Löbl, 6-7.XII.1995, fungi on logs, bark, 2♂♂, 2♀♀ (MHNG); Palawan Central, Conception, large logs across Conception River, NE San Rafael, ca 20 m, 8.XII.1995, leg. J. Kodada & B. Rigová, 2♂♂, 1♀ (MHNG); Palawan, Binaluan, 7♂♂, 11♀♀ (SMTD, MHNG); Luzon, Lagunas Prov., Mt. Makiling, summit road (SE Los Banos) 600 m, 21-22.XI.95, fungi on large logs, bark, leg. I. Löbl, 5♂♂, 4♀♀ (MHNG, BZLA); Luzon, Lagunas Prov., Mt. Makiling, 4 km S Los Banos, 11.IV.1977, leg. L.É. Watrous, 2 ex. (MHNG).

**Description:** Length 1.0-1.35 mm, width 0.71-0.97 mm. Head, thorax, elytra and abdominal sternite 1 dark reddish-brown. Apical abdominal segments light brown to yellowish. Femora light brown, tibiae, tarsi and antennae usually lighter than femora, yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 8/7: IV 12/6: V 22/8: VI 32/8: VII 50/13: VIII 30/9: IX 43/12: X 41/11: XI 57/12. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra somewhat flattened, with lateral margin carinae entirely and well visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not or somewhat raised, sutural striae fairly deep, bent at base, not extending along basal

margin, parallel except near apices, fairly coarsely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae distinctly punctate. Elytral disc with punctation very fine, similar to that on pronotum on large humeral area and along lateral margin. Remaining punctation conspicuously coarse and very dense, with punctures to part larger than puncture intervals and well delimited, becoming gradually finer and sparser posterior middle third of elytra. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera indistinct, fused. Metaventrite not microsculptured. Median part of metaventrite flattened, without impressions, fairly coarsely punctate, smooth between metacoxae, lateral parts of metaventrite with extremely fine and sparse punctation; antecoxal puncture rows absent. Submesocoxal areas 0.04-0.06 mm, about as half to two thirds of intervals to metacoxae, submesocoxal lines convex, fairly coarsely punctate, punctures not extended by striae. Metanepisternum flat, hardly narrowed anteriorly, inner margin almost straight, suture conspicuously deep. Tibiae straight. Abdominal sternite 1 lacking obvious microsculpture, very finely and sparsely punctate, except on small basomedian area bearing distinct punctures; submetacoxal areas 0.07-0.10 mm, as to twice as intervals to apical margin of sternite, submetacoxal lines strongly convex, distinctly punctate. Following ventrites with punctulate microsculpture.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 48, 49) 0.22-0.31 mm long, symmetrical, with basal bulb weakly sclerotized. Basal bulb very small. Articular processes large, prominent. Apical process of median lobe simple, long, at least twice as long as basal bulb, hardly inflexed, gradually narrowed or subparallel in dorsal view, subcylindrical and curved at tip in lateral view. Parameres narrow and long, weakly broadened apically in lateral view, almost evenly wide posterior bases in dorsal view, with membranous inner margin in basal third. Internal sac simple, with very narrow flagellum, spines and scale-like structures absent.

**Etymology:** The species epithet is derived from the Latin sub meaning below and gracile meaning slender, referring to the shape of the aedeagus.

**Comparative notes:** This species shares with *S. subconvexum* most diagnostic characters, in particular the large submetacoxal areas and indistinct, fused mesepimera, both being derived character states. The new species may be distinguished from *S. subconvexum* by its elytral punctation that becomes gradually finer toward apices, as in *S. simplex*, and by the very narrow apical process of the median lobe of the aedeagus. The aedeagus of *S. subgracile* is similar to that in the New Caledonian *S. nanulum* LÖBL, 1972 and *S. perpusillum* LÖBL, 1972.

#### **5.2.2.5. *Scaphisoma subplanatum* nov.sp. (Figs 50, 51)**

**Type material:** Holotype ♂: Meran, E. slope Mt. Apo, Davao Province, Mindanao 6000 ft; XI: 5: 1946 / Lot 100 on polypore ♂ 39 *Fomes applanatus* / CNHM-Philippine Zool. Exped. (1946-47) F.G. Werner leg. (FMNH). Paratypes: with the same data as the holotype, 1 ♂ (MHNG); with the same data but XI: 7: 46, 1 ♂ (FMNH); with the same data but XI: 8: 46, 1 ex. sex not examined (MHNG); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-9.I.1947, lot 167: on fermenting sap of freshly cut tree, leg. F.G. Werner, 1 ex. sex not examined (FMNH).

**Description:** Length 1.18-1.44 mm, width 0.87-1.07 mm. Body black or blackish-brown. Appendages brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 8/8: IV 12/7: V 20/8: VI 30/11: VII 47/16: VIII 23/11: IX 40/14: X 37/16: XI 45/16. Pronotum very finely and sparsely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal



view, lateral striae impunctate. Exposed tip of scutellum small. Elytra somewhat flattened, with lateral margin carinae visible near bases and posterior mid-length in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not or slightly raised, sutural striae fairly deep, bent at base, not extending along basal margin, parallel from level of scutellar tip to mid-length, converging posterior mid-length, fairly coarsely punctate; adsutural areas narrow, flat, each with single dense and coarse puncture row, lateral striae distinctly punctate. Elytral disc with punctation hardly visible on large humeral area and along lateral margin. Remaining punctation conspicuously coarse and very dense, with punctures to part larger than puncture intervals and well delimited, becoming finer and sparser near sutural striae. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera indistinct, fused. Metaventricle not microsculptured. Median part of metaventricle weakly convex, with two admesal impressions, punctation dense, fairly distinct in impressions, sparse and very fine on remaining surface of metaventricle; antecoxal puncture rows absent. Submesocoxal areas 0.07 mm, about as half of intervals to metacoxae, submesocoxal lines convex, finely punctate, punctures not extended by striae. Metanepisternum flat, narrowed anteriorly, inner margin curved, suture not conspicuously deep. Tibiae straight. Abdominal sternite 1 lacking obvious microsculpture, very finely and sparsely punctate, except on small basomedian area bearing distinct punctures; submetacoxal areas 0.14 mm, about twice as intervals to apical margin of sternite, submetacoxal lines strongly convex, distinctly punctate. Following ventrites with punctulate microsculpture.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 50, 51) 0.32 mm long, symmetrical, with basal bulb weakly sclerotized and very small. Median lobe with articular processes large, prominent, subglobular in lateral view. Apical process of median lobe simple, about as long as basal bulb, hardly inflexed, gradually narrowed in dorsal and lateral views. Parameres fairly wide and short, broadened apically in lateral view, narrowed posterior bases in dorsal and lateral views, with membranous apical parts. Internal sac simple, with very narrow flagellum, spines and scale-like structures absent.

**E t y m o l o g y :** The species epithet is derived from the Latin sub, meaning below, and the adjective planatum meaning flat.

**C o m p a r a t i v e n o t e s :** This species is very similar to *S. subgracile*. It differs by the darker coloration of the body, the fairly coarse punctation near elytral apices, the antennomere XI almost three times as long as wide, and, more significantly, by the aedeagus with short and apically widened parameres.

#### **5.2.2.6. *Scaphisoma subpunctulum* nov.sp. (Fig. 52)**

**T y p e m a t e r i a l :** Holotype ♀: Burungkot, Upi, Cotabato Prov., Mindanao Elev. 1500 ft. I, 1-9, 1947 / Lot 167; on fermenting sap of freshly cut tree / CNHM-Philippine Zool. Exped. (1946-47) F.G.Werner leg. (FMNH).

**D e s c r i p t i o n :** Length 1.10 mm, width 0.83 mm. Head and body, including apical abdominal segments evenly reddish-brown, appendages light brown to yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 6/6: IV 6/6: V 16/7: VI 29/8: VII 38/10: VIII 26/8: IX 33/10: X 35/11: XI 45/11 (Fig. 52). Pronotum very finely and sparsely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum small. Elytra not flattened, with lateral margin carinae not visible in dorsal view, apical margins rounded, inner apical angles not prominent, situ-

ated in level with outer angles; sutural margin raised, sutural striae deep, not extending along basal margin, in basal fifth strongly converging, posterior basal fifth gradually, weakly converging, finely punctate; adsutural areas fairly wide near bases, flat, each with single very fine puncture row, lateral striae impunctate. Elytral disc with punctation hardly visible and similar to pronotal on almost entire surface. Patch of dense and coarse puncture present on centrolateral, impressed areas. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera indistinct, fused. Metaventrite not microsculptured and very finely punctate. Median part of metaventrite weakly convex, with two admesal impressions; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as third of intervals to metacoxae, submesocoxal lines convex, very finely punctate, punctures not extended by striae. Metanepisternum flat, impressed, narrowed anteriorly, inner margin curved, suture deep. Tibiae straight. Abdomen lacking obvious microsculpture and very finely and sparsely punctate; sternite 1 with submetacoxal areas 0.08 mm, about 1.5 times as intervals to apical margin of sternite, submetacoxal lines strongly convex, very finely punctate.

**E t y m o l o g y :** The species epithet is derived from the Latin sub, meaning below, and punctulum, referring to small punctures.

**C o m p a r a t i v e n o t e s :** This species may be readily distinguished from members of the group as from all other Philippine congeners, with the exception of *S. centripunctulum*, by the elytral punctation. It is unique in having antennomeres III and IV evenly short in combination with impressed patch of coarse elytral punctures.

### 5.2.3. The *Scaphisoma aequatum* species group

This group is here established for four Melanesian species, *S. aequatum* LÖBL, 1977, *S. distans* LÖBL, 1977, *S. tannaense* LÖBL, 1978 and *S. zimmermanni* LÖBL, 1977, and the new Philippine *S. diversum* described below (see LÖBL 1977b, 1978b). These species have symmetrical aedeagi with long, narrow parameres each bearing a small apical membranous lobe. The internal sac is simple, with a flagellum. The New Guinean *S. dissimile* LÖBL, 1975 and *S. papuum* (LÖBL, 1975) and the Mascarene *S. gomyi* Löbl, 1977 possess similar aedeagi but differs drastically in other characters.

#### 5.2.3.1. *Scaphisoma diversum* nov.sp. (Figs 53, 54)

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Philippines Mt. Data (2300m) Mountain Prov. 26. VII. 1985 M. Sakai leg. (EUMJ). Paratypes: with the same data as the holotype, 1♂, 1♀ (EUMJ, MHNG).

**D e s c r i p t i o n :** Length 1.70-1.86 mm, width 1.24-1.32 mm. Head dark brown to blackish posterior eye level, becoming lighter anteriorly, near clypeus as mouth-parts ochreous. Thorax uniformly black or pronotum black, ventral side very dark reddish. Elytra black, with apical fourth ochreous, as abdomen and appendages; light apical parts of elytra well delimited. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 14/9: IV 16/9: V 26/9: VI 46/11: VII 54/18: VIII 37/13: IX 54/18: X 52/18: XI 55/18. Pronotum very finely and sparsely punctate, punctures hardly visible at 50 times magnification; lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae punctate. Exposed tip of scutellum minute. Elytra not flattened, with lateral margin carinae not visible in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated poste-

rior level of outer angles; sutural margin slightly raised, sutural striae shallow, curved along pronotal lobe, not extending along basal margin, parallel toward mid-length, converging in apical halves, impunctate; adsutural areas narrow, flat, each with single, very fine puncture row, lateral striae very finely punctate. Elytral disc with punctuation hardly visible, punctures only slightly larger than those on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as two thirds of intervals to mesocoxae and almost four times as long as wide. Metaventrite not microsculptured, with hardly visible punctuation. Median part of metaventrite convex, without impressions or stria; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as ninth to eighth of intervals to metacoxae, submesocoxal lines convex, finely punctate, punctures not extended by striae. Metanepisternum flat, not impressed, parallel-sided, inner margin curved at anterior angles, suture shallow. Tibiae straight. Abdomen with punctulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.03-0.05 mm, about as seventh to fourth of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 53, 54) 0.54-0.59 mm long, symmetrical, weakly sclerotized. Basal bulb very small. Apical process of median lobe narrow, elongate, weakly inflexed, with tip acute and bent. Parameres narrow, slightly extended beyond tip of median lobe, with membranous apical lobe. Internal sac with simple, almost straight flagellum.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning divers.

**C o m p a r a t i v e n o t e s :** This species may be readily distinguished from its allied by the colour pattern of the elytra and the larger body-size. It may be separated from the Philippine congeners, in addition to its male genital characters, by the very finely punctate body in combination with the punctulate abdominal microsculpture, the comparatively large size of the body, the colour pattern, and the shape of the sutural striae of the elytra, in combination.

#### 5.2.4. The *Scaphisoma blefusca* species group

This group is here established for four new, very similar species, *S. blefusca*, *S. ilonggo*, *S. liliput* and *S. nanellum*. They share symmetrical aedeagi with robust articular process, subapical ostium and flat flagellum partly surrounded by a vesicle bearing minute denticular or spine-like structures. These species are minute and have in common short antennae, very finely punctate elytra, and lack obvious metaventral and abdominal microsculpture.

##### 5.2.4.1. *Scaphisoma blefusca* nov.sp. (Figs 55, 56)

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Lagunas Mt. Makiling (summit rd) 600m, 21-22.XI.1995 I.Löbl, fungi on logs (MHNG). Paratypes: with the same data as the holotype, 1♂, 1♀ (MHNG); with the same data but 28.XI., 1♂ (MHNG); Luzon, Lagunas, Mt. Makiling 4 km SE Los Banos, 7.V.1977, leg. L.E. Watrous, 1♂, 4♀♀ (MHNG); with the same data but 9.IV., 2♂♂, 11.IV., 1♀ and 12.IV.1977, 2♂♂ (MHNG); Palawan central, Olangoan 18 km NE San Rafael, sea level, 5.-6.XI.1995, leg. I. Löbl, fungi on large logs, 11♂♂, 6♀♀ (MHNG, BZLA); Palawan central, Conception, sea level, 6.-7.XII.1995, leg. I. Löbl, fungi on large logs, 1♂ (MHNG); Palawan central, Sabang, trail to Underground River, sea level, 30.XI.1995, leg. I. Löbl, fungi on logs, 1♂ (MHNG); Palawan central, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995, leg. I. Löbl, 1♀ (MHNG).

**Description:** Length 0.86-0.98 mm, width 0.67-0.70 mm. Body reddish-brown to blackish-brown, femora and tibiae hardly lighter than body in light specimens, much lighter than body in dark specimens, tarsi, antennae and apical abdominal segments yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 6/5: IV 7/4: V 14/5: VI 15/5: VII 26/10: VIII 14/7: IX 20/10: X 20/9: XI 30/11. Pronotum with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate, punctation dense, very fine, hardly visible at 50 times magnification. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae not visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not or slightly raised, sutural striae deep, parallel or slightly converging apically, very finely punctate, bent at base, basal striae absent; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation sparse and very fine, almost as fine as that on pronotum, hardly visible at 50 times magnification. Hind wings fully developed. Hypomera, mesanepisterna, metaventrite and abdomen without obvious microsculpture. Mesepimera almost as long as intervals to mesocoxae and about twice as long as wide. Metaventrite extremely finely punctate. Median part of metaventrite flattened, lacking impressions or stria; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as half of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, wide, slightly narrowed anteriorly, inner margin almost straight, suture deep. Tibiae straight. Abdomen with punctation very fine and sparse, hardly visible; submetacoxal areas about 0.02 mm, as fourth of intervals to apical margin of sternite, submetacoxal lines slightly convex, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 55, 56) 0.37-0.38 mm long, symmetrical, moderately sclerotized. Median lobe with apical process about as long as narrow basal bulb, narrowed toward blunt tip, obliquely inflexed in apical third; articular process prominent. Parameres narrowed posterior basal third and curved in apical halves in dorsal view, straight and almost evenly broad in lateral view, lacking lobes. Internal sac with flagellum and subapical vesicle bearing minute denticular structures.

**Etymology:** The species epithet is a name of a fictional nation of minute people.

**Comparative notes:** This species may be readily distinguished from its Philippine congeners, *S. liliput* and *S. nanellum* described below excepted, by its external characters. Diagnostic is the minute body-size in combination with the very fine elytral punctation, the sutural striae of the elytra not extended along the basal margins, the absence of abdominal microsculpture, the antennomeres III and IV combined about as long as the antennomere V and the antennomere VIII twice as long as wide, in combination. The species differs drastically from *S. liliput* and *S. nanellum* by the shape of the parameres.

#### **5.2.4.2. *Scaphisoma ilonggo* nov.sp. (Figs 57, 58)**

**Type material:** Holotype ♂: Meran, E.slope Mt.Apo, Davao Province, Mindanao, 6000ft; XI: 5: 46 / Lot 100 on polypore 39 *Fomes applanatus* / CNHM-Philippine Zool.Exped. (1946-47) F.G.Werner leg. (FMNH).

**Description:** Length 1.25 mm, width 0.82 mm. Head, pronotum and elytra brown. Hypomera, most of abdomen and femora dark reddish-brown, mesoventrite and metaventrite blackish, apex of abdomen, tibiae, tarsi and antennae yellowish. Pronotum

and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 7/5: IV 10/5: V 19/6: VI 25/6: VII 36/11: VIII 19/7: IX 32/12: X 30/13: XI 40/13. Pronotum with lateral margins evenly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae punctate, punctation dense, very fine, hardly visible at 50 times magnification. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae hardly visible in dorsal view, apical margins oblique, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae deep, parallel or slightly converging apically, very finely punctate, bent at base, basal striae absent; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Elytral disc with punctation sparse and very fine, almost as fine as that on pronotum, hardly visible at 50 times magnification. Hind wings fully developed. Hypomera smooth, as mesanepisterna and metaventrite without obvious microsculpture. Mesepimera almost as long as intervals to mesocoxae and about three as long as wide. Metaventrite extremely finely punctate. Median part of metaventrite somewhat convex, with shallow apical impressions, lacking stria; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, almost as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, wide, slightly narrowed anteriorly, inner margin almost straight, suture deep. Tibiae straight. Abdomen with punctulate microsculpture, punctation very fine and sparse, hardly visible; submetacoxal areas about 0.03 mm, almost as halves of intervals to apical margin of sternite, submetacoxal lines convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 57, 58) 0.55 mm long, symmetrical, moderately sclerotized. Median lobe basal bulb conspicuously long, apical process shorter than basal bulb, narrowed toward tip, obliquely inflexed in apical third, with acute tip in lateral view; articular process indistinct. Parameres wide in basal halves, narrowed and curved in apical halves and acute at tip in dorsal view, almost evenly broad and sinuate in lateral view; lacking lobes. Internal sac with flagellum and subapical vesicle bearing denticular structures.

**E t y m o l o g y :** The species epithet is one of the Mindanao languages.

**C o m p a r a t i v e n o t e s :** This species may be readily distinguished from other members of the group by its larger body-size. The parameres seen in dorsal view resemble those in *S. nanellum*, but are quite distinctive in lateral view. See notes under *S. blefusca*.

#### **5.2.4.3. *Scaphisoma liliput* nov.sp. (Figs 59-62)**

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Lagunas Mt. Makiling (summit rd) 600m, 21-22.XI.1995 I.Löbl, fungi on logs (MHNG). Paratypes: with the same data as the holotype, 1♂ (MHNG); with the same data but 28.XI., 3♂, 3♀ (MHNG); Luzon, Lagunas, Mt. Makiling 4 km SE Los Banos, 7. V.1977, leg. L.E. Watrous, 2♂♂ (MHNG); with the same data but 9.IV., 1 and 12.IV.1977, 2 ex. (MHNG).

**D e s c r i p t i o n :** Length 0.90-1.0 mm, width 0.63-0.75 mm. Body reddish-brown, femora and tibiae hardly lighter than body, tarsi, antennae and apical abdominal segments yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 7/5: IV 14/4: V 18/5: VI 21/7: VII 26/9: VIII 20/8: IX 26/10: X 24/10: XI 38/10. Pronotum with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae punctate, punctation dense, very fine, hardly visible at 50 times magnification. Exposed tip of scutellum minute.

Elytra convex, with lateral margin carinae not visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not or slightly raised, sutural striae deep, converging apically from base to mid-third, parallel posterior basal third, very finely punctate, bent at base, basal striae absent; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Elytral disc with punctuation sparse and very fine, irregular, to part distinctly less fine than that on pronotum and visible at 20 times magnification. Hind wings fully developed. Hypomera, mesanepisterna, metaventricle and abdomen without obvious microsculpture. Mesepimera slightly longer than intervals to mesocoxae and almost three times as long as wide. Metaventricle extremely finely punctate. Median part of metaventricle flattened, lacking impressions or stria; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as half of intervals to metacoxae, submesocoxal lines convex, conspicuously coarsely punctate. Metanepisternum flat, wide, not or slightly narrowed anteriorly, inner margin almost straight, suture deep. Tibiae straight. Abdomen with punctuation very fine and sparse, hardly visible; submetacoxal areas about 0.02 mm, about as third of intervals to apical margin of sternite, submetacoxal lines hardly convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 59-62) 0.41-0.47 mm long, symmetrical, moderately sclerotized. Median lobe with very short, inflexed apical process and large, bulbous articular process. Parameres large, bearing ventral membranous lobes, strongly narrowed toward tip in dorsal view. Internal sac with tip of flagellum expanded.

**E t y m o l o g y :** The species epithet is a name of a fictional nation of minute people.

**C o m p a r a t i v e n o t e s :** This species may be distinguished from its congeners by the shape of the parameres. It differs from the very similar *S. blefusca* also by the longer antennae, with antennomeres III and IV combined longer than antennomere V, the more distinct elytral punctuation, the sutural striae of the elytra converging from bases to middle third, and the conspicuous punctures margining submesocoxal lines.

#### **5.2.4.4. *Scaphisoma nanellum* nov.sp. (Figs 63, 64)**

**T y p e m a t e r i a l :** Holotype ♂: Tarragona, Leyte I., Philippine Isls. VIII-IX: 1945 / Col. & pres. By C.L.Remington / On polypore fungi (FMNH). Paratype: with the same data as the holotype, 1 ♀ (MHNG).

**D e s c r i p t i o n :** Length 0.84-0.91 mm, width 0.62-0.65 mm. Head and dorsum of body dark brown, ventral side of body lighter, reddish-brown, appendages light, almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 5/5: IV 10/5: V 16/6: VI 16/6: VII 25/8: VIII 15/7: IX 27/12: X 22/12: XI 37/11. Pronotum with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate, punctuation dense, very fine, hardly visible at 50 times magnification. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae impunctate, visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated slightly posterior level of outer angles; sutural margin slightly raised, sutural striae deep, parallel from level of scutellar tip to apices, appearing impunctate, bent at base, basal striae absent; adsutural areas narrow, flat, with hardly visible puncture row. Elytral disc with punctuation sparse and about as fine as that on pronotum. Hind wings fully developed. Hypomera, mesanepisterna, metaventricle and abdomen without obvious microsculpture. Mesepimera slightly longer than halves of

intervals to mesocoxae and almost twice as long as wide. Metaventricle extremely finely punctate. Median part of metaventricle flattened, lacking impressions or stria; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, almost as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, wide, narrowed anteriorly, inner margin almost straight, suture deep. Tibiae straight. Abdomen with punctation very fine and sparse, hardly visible; submetacoxal areas hardly 0.02 mm, about as fourth of intervals to apical margin of sternite, submetacoxal lines hardly convex, with comparatively coarse marginal punctures.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 63, 64) 0.35 mm long, symmetrical, weakly sclerotized. Median lobe with apical process notably shorter than narrow basal bulb, narrowed toward tip, obliquely inflexed in apical third; articular process prominent, tip acute. Parameres widened toward mid-length and strongly narrowed apically in dorsal view, gradually narrowed from middle toward apices in lateral view. Internal sac with flagellum and subapical vesicle bearing minute spine-like structures.

**E t y m o l o g y :** The species epithet is an adjective, derived from Greek *nanos* meaning dwarf.

**C o m p a r a t i v e n o t e s :** This species may be readily distinguished from *S. blefusca* and *S. liliput* by the shape of the parameres. In addition, it differs distinctly from the allied species by the length ration of the antennomeres III to VI. See also notes under *S. ilonggo*.

### 5.2.5. The *Scaphisoma lineare* species group

This group is established for a single new species, *S. lineare*, that possesses following characters in combination: the elytra lacking basal striae, the thorax and abdomen lacking microsculpture, the apical process of the median lobe strongly shortened with apical ostium, the parameres bearing large lobes, the internal sac bearing robust sclerites, denticles and a flagellum.

#### 5.2.5.1. *Scaphisoma lineare* nov.sp. (Figs 65-68)

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Laganas Mt. Makiling (summit rd) 600m, 21-22.XI.1995, I.Löbl, fungi on logs (MHNG). Paratypes: with the same data as the holotype, 1♂, 1♀ (MHNG); with the same data but 28.XI., 1♂ (MHNG).

**D e s c r i p t i o n :** Length 1.12-1.23 mm, width 0.86-0.90 mm. Head, pronotum and elytra dark reddish-brown, ventral side of thorax and sternite 1 lighter than dorsum of body, apical abdominal segments and appendages light, almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 7/7: IV 11/6: V 20/8: VI 25/9: VII 39/14: VIII 24/9: IX 35/13: X 32/13: XI 45/14. Pronotum finely and densely punctate, punctures at 20 times magnification visible, lateral margins almost oblique, lateral margin carinae hardly visible in dorsal view, lateral striae punctate. Tip of scutellum exposed. Elytra convex, with lateral margin carinae visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not or slightly raised, sutural striae fairly deep, bent at base, not extended along basal margins, parallel between level of scutellar tip to apices; adsutural areas narrow, flat, with dense, distinct puncture row, lateral striae punctate. Elytral disc with punctation fine, punctures larger than those on

pronotum, mostly poorly delimited, with puncture intervals about twice to three times as puncture diameters, punctures near apices distinctly denser and coarser, fairly well delimited and only slightly smaller than puncture intervals. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as three quarters of intervals to mesocoxae, about three times as long as wide. Metaventrite not microsculptured, very fine punctate, lacking impressions or striae; antecoxal puncture rows absent. Submesocoxal areas about 0.02 mm, about as sixth to seventh of intervals to metacoxae, submesocoxal lines parallel, finely punctate, punctures not extended by striae. Metanepisternum flat, hardly narrowed anteriorly, inner margin straight, suture fairly deep. Tibiae straight. Abdomen not microsculptured and very finely and sparsely punctate; submetacoxal areas 0.04-0.05 mm, about as halves of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 slightly widened. Aedeagus (Figs 65-68) 0.63-0.70 mm long, symmetrical. Median lobe with large, oval, fairly sclerotized basal bulb. Apical process very short, bent ventrally, with broad apical ostium. Articular process large, prominent ventrally. Parameres broad, sclerotized in basal section and at dorsal edges, with large membranous lobes very densely strigulate. Internal sac with large, elongate basal sclerites, elongate tuft of denticles and flattened flagellum extruded in repos.

**Etymology:** The species epithet is a Latin adjective meaning linear.

**Comparative notes:** This species resembles in habitus members of the *S. blefusca* group, though it is larger and differs notably by the elytral punctation. Its aedeagal characters are, however, distinctive.

### 5.2.6. The *Scaphisoma caudatum* species group

This group is established for two species, *S. caudatum* LÖBL, 1975 from Singapore and a new species described below. They possess symmetrical aedeagi with prominent articular processes, large basal bulb and a complex internal sac with a flagellum extruded in repos.

#### 5.2.6.1. *Scaphisoma caudatoides* nov.sp. (Fig. 69)

**Type material:** Holotype ♂: Philippines Central Palawan 4 km N Port Barton 29.xii.1996 50 m, G. Cuccodoro sifting moist & lush leaf litter and vegetable debris in forest above waterfalls (MHNG).

**Description:** Length 1.20 mm, width 0.83 mm. Head and body very dark reddish-brown, apices of elytra and apical abdominal segments lighter, femora and tibiae light reddish-brown, tarsi and antennae almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/7: IV 33/5: V 43/6: VI 36/6: VII 42/11: VIII 38/8: IX 46/10: X 43/10: XI 57/11. Pronotum with lateral margins evenly rounded, lateral margin carinae almost throughout visible in dorsal view, lateral striae punctate, punctation dense, very fine, hardly visible at 50 times magnification. Tip of scutellum exposed. Elytra convex, with lateral margin carinae entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin raised, sutural striae deep, parallel, very finely punctate, barely bent at base, basal striae absent; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Elytral disc with punctation sparse and very fine, near bases about as fine as that on pronotum, on pre-



vailing surface coarser, punctures intervals mostly about twice to four times as large as puncture intervals. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat longer than intervals to mesocoxae, about four times as long as wide. Metaventrite not microsculptured, very finely punctate, lacking antecoxal puncture row. Median part of metaventrite slightly convex, without impressions or stria. Submesocoxal areas 0.05 mm, almost as half of intervals to metacoxae, submesocoxal lines convex, finely punctate. Metanepisternum flat, weakly narrowed anteriorly, with inner margin straight, rounded at angles, hardly impressed below margin of metaventrite, suture deep. Tibiae straight. Abdomen with strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.04 mm, about as third of intervals to apical margin of sternite, submetacoxal lines convex, finely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Fig. 69) 0.46 mm long, symmetrical, moderately sclerotized. Median lobe with prominent articular processes, apical process slightly shorter than basal bulb, gradually narrowed and with acute tip. Parameres narrowed toward apical third, curved posterior mid-length. Internal sac bulbous in proximal part, with very finely scale-like structures, rows of larger teeth, short marginal denticles and flagellum extruded apically.

**Etymology:** The species epithet derives from *S. caudatum*; the Greek suffix *oides* means descendent.

**Comparative notes:** The new species may be distinguished from *S. caudatum* LÖBL, 1975 by the shape of the parameres which are narrowed at apices (distinctly seen in dorsal view) in the latter species, and by the internal sac with rows of larger teeth. The submetacoxal areas are in *S. caudatoides* shorter than the submesocoxal areas, whereas they are longer than the latter in *S. caudatum*.

### 5.2.7. The *Scaphisoma binaluanum* species group

The members of this group possess symmetrical aedeagi with distinct articular processes and narrow apical processes of the median lobe, parameres lacking membranous lobes and internal sacs tubular, often very long and convoluted, lacking flagellum or sclerites (e.g., as in the Sulawesi *S. bugi* LÖBL, 1983 and in *S. invertum* LÖBL, 2000 from Sichuan). Three species, *S. binaluanum*, *S. lunabianum* and *S. nabiluanum* share most diagnostic characters, including a conspicuous colour pattern. The following Philippine species: *S. apomontium*, *S. bolmarum*, *S. casiguran*, *S. compactum*, *S. deharvengi*, *S. densepunctatum*, *S. hexamerum*, *S. kodadai*, *S. maculosum*, *S. maramag*, *S. minutipenis*, *S. sagax*, *S. subanun*, and *S. subfasciatum* possess similar aedeagi as *S. binaluanum*, but differs in external characters and are therefore placed tentatively within this group.

#### 5.2.7.1. *Scaphisoma apomontium* nov.sp. (Figs 70, 71)

**Type material:** Holotype ♂: Mainit Riv. Mt Apo / Mindanao IX 2430 P.I. / Coll. by C.F. Clagg / Field Mus. (F. Psota Coll.) (FMNH).

**Description:** Length 1.23 mm, 0.86 width mm. Head and body very dark, blackish, apical abdominal segments and appendage ochreous to yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 7/8: IV 15/7: V 22/8: VI 50/9: VII 52/12: VIII 43/9: IX 49/10: X 45/12: XI 48/14. Pronotum very finely and densely punctate, with lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae punctate. Exposed tip of scutel-

lum minute. Elytra with lateral margin visible in dorsal view, apical margins weakly rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae deep, slightly bent at base, not extending along basal margin, parallel between level of scutellar tip and mid-length, somewhat converging toward apices; adsutural areas flat, densely and finely punctate; lateral striae punctate. Elytral disc with punctuation fairly fine and dense, punctures well delimited, puncture intervals mostly about three times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as halves of intervals to mesocoxae, about twice as long as wide. Metaventrite very finely punctate; median part convex, without impressions or stria, with strigulate microsculpture; lateral parts not microsculptured; antecoxal puncture rows absent. Submesocoxal areas 0.02 mm, about as seventh of intervals to metacoxae, submesocoxal lines parallel, distinctly punctate. Metanepisternum flat, not narrowed anteriorly, inner margin straight, suture deep. Tibiae straight. Abdomen with strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.05 mm, about as half intervals to apical margin of sternite 1, submetacoxal lines convex, fairly coarsely punctate.

**Male:** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 70, 71) 0.32 mm long, symmetrical, fairly sclerotized. Articular processes large, prominent. Apical process of median lobe fairly long, inflexed, tapering, with acute tip. Parameres in lateral view oblique, almost evenly wide posterior bases, in dorsal view narrowed posterior mid-length, weakly curved and evenly narrow in apical third. Internal sac tubular, lacking sclerites, without flagellum.

**Etymology:** The species epithet is an adjective derived from the type locality, Mount Apo.

**Comparative notes:** The aedeagus of *S. apomontium* is similar to that of *S. hexamerum* described below, and both share also conspicuously elongate antennomeres VI. These two species may be readily distinguished by the body-colour, blackish in *S. apomontium*, light brown in *S. heramerum*. *Scaphisoma bolmarum* possesses an aedeagus quite similar but differs in external characters, in particular by the uneven elytral punctuation, the length ratio of the antennomeres, and the metaventrite lacking microsculpture.

#### 5.2.7.2. *Scaphisoma binaluanum* PIC, 1947 (Figs 72, 73)

*Scaphosoma binaluanum* PIC, 1947: 3. Lectotype ♂, MNHN; type locality: Palawan, Binaluan. Lectotype designation and redescription: LÖBL 1972: 105, Figs 53-54.

**Additional material examined:** Palawan, Sabang, trail to Underground River, sea level, 30.XI.1995, fungi on log, leg. I. Löbl, 2 ex. (MHNG); Palawan, Binaluan, 1924, 1 ex. (SMTD); Luzon, Lagunas Prov., Mt. Makiling, ca 600 m (SE Los Banos), 28.XI.1995, fungi on large logs, leg. I. Löbl, 5 ex. (MHNG, BZLA); Luzon, Lagunas Prov., Mt. Makiling, above Mad Springs, 400-700 m, 19-22.XI.1995, leg. J. Kodada, 1 ex. (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 4 km SE Los Banos, 9. and 11.IV.1977, leg. L.E. Watrous, 5 ex. (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 400 m, 12.IX.1985, leg. M. Sakai, 1 ex. (EUMJ); Luzon, Lagunas Prov., Mt. Banahaw near school about 1 km from Kinabuhayan, 500 m, 28.XI.1995, leg. J. Kodada, 1 ex. (MHNG); Luzon, Mountain Prov., near Sagada, St. Joseph Resthouse, 15-19.XII.1979, leg. L. Deharveng & J. Orousset, ♂47, 1 ex. (MHNG); Luzon, Mountain Prov., Mt. Data Lodge, 2200-2300 m, 22-23.XII.1979, leg. L. Deharveng & J. Orousset, ♂95, 2 ex. (MHNG); Luzon, Mountain Prov., Mt. Data Lodge, 2250 m, 14.VII.1985, leg. M. Sakai, 1 ex. (EUMJ); same data but 25.VII., 3 ex. (EUMJ, MHNG); same data but 2300 m, 26.VII., 2 ex. (EUMJ, MHNG); Luzon, Mountain Prov., Mt. Puguis 1800-1900 m, 17.VII.1985, leg. M. Sakai, 2

ex. (EUMJ, MHNG); Luzon, Mountain Prov., Bontoc, Mt. Pangao, 2400 m, 30.V.1970, leg. M. Sató, 1 ex. (MHNG); Luzon, Benguet Prov., Sayangan, 2300 m, 10.VII.1985, M. Sakai leg., 1 ex. (EUMJ); Negros, Mt. Canla-on, 5.XI.1995, leg. L. Monagan, 2 ex. (MHNG); Leyte, Visca N Baybay, 100-200 m, 22.II.1991, leg. G. Schawaller & al., 2 ex. (SMNS); Mindanao, 30 km E of Malaybalay, Busdi, 1000 m, 5-9.V.1996, leg. Bolm, 10 ex. (SMNS, MHNG); Mindanao, 25 km NW of Zamboanga, 800 m, Camp Susana, 28-30.IV.1996, leg. Bolm, 1 ex. (SMNS); Mindanao, Misamis Occ. Don Victoriano, 1700 m, 1-3.V.1996, leg. Bolm, 6 ex. (SMNS, MHNG); Mindanao, Mt. Apo, Ilomavis, 1400 m, 18-19.V.1996, leg. Bolm, 1 ex. (SMNS).

**D i s t r i b u t i o n :** Philippines: Palawan, Luzon, Negros, Leyte, Mindanao.

**C o m p a r a t i v e n o t e s :** The basal bulb of the aedeagus is often weakly sclerotized and may be deformed by dissections, as in the lectotype. The species has typically a shorter basal bulb and a longer apical process of the median lobe than shown in the redescription (LÖBL 1972). Therefore, new illustrations of the aedeagus (Figs 72, 73) are given in the present paper. Specimens collected in Palawan and Negros have elytral punctation coarser than that in specimens coming from Luzon.

### 5.2.7.3. *Scaphisoma bolmarum* nov.sp. (Figs 74, 75)

**T y p e m a t e r i a l :** Holotype ♂: Mindanao, Mt. Apo Ilomavis, 1400 m 18.-19. Mai 1996 Bolm lgt. (SMNS).

**D e s c r i p t i o n :** Length 1.45 mm, width 1.03 mm. Head and most of body blackish, apices of elytra narrowly brown, abdomen dark brown with apical segment ochreous, femora and tibiae ochreous, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 11/7: IV 24/5: V 29/6: VI 33/7: VII 40/14: VIII 33/11: IX 40/12: X 42/13: XI 52/13. Pronotum very finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae punctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin slightly raised posterior basal third, sutural striae deep, somewhat bent at base, not extended along basal margins, parallel along suture except near apices, finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Most of elytral disc with punctation fine and sparse, distinctly coarser than that of pronotum and with puncture interval about three to four times larger than puncture diameters; punctation on basal third of elytra coarse and dense, with most puncture intervals about as large to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as long as halves of intervals to mesocoxae and about twice as long as wide. Metaventricle not microsculptured, extremely finely punctate. Median part of metaventricle impressed, with apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.05 mm, almost as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, not narrowed anteriorly, inner margin almost straight, suture deep. Tibiae straight. Abdomen with strigulate microsculpture, punctation very fine and sparse, hardly visible; submetacoxal areas 0.04 mm, submetacoxal lines convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 74, 75) 0.47 mm long, symmetrical, fairly strongly sclerotized. Median lobe with ventrally prominent articular process; apical process about as long as basal bulb, strongly inflexed and oblique, except for its bent apical section; tip acute in lateral view, blunt in dorsal view. Parameres

straight, narrowed toward middle third, almost evenly narrow from mid-length to apices. Internal sac bearing dense denticulate and spine-like structures, lacking flagellum or sclerotized pieces.

**E t y m o l o g y :** The species is named in honour of its collectors.

**C o m p a r a t i v e n o t e s :** The aedeagus characters suggest relationships with *S. apomontium* and *S. hexamerum*, see notes under *S. apomontium*.

#### **5.2.7.4. *Scaphisoma casiguran* nov.sp. (Figs 8, 76, 77)**

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Lagunas Mt. Makiling, summit rd (SE Los Banos) 600 m I. Löbl, 21-22.XI.95, moss, epiph., bark on logs (MHNG). Paratypes: with the same data as the holotype, 2 ♀ ♀ (MHNG).

**D e s c r i p t i o n :** Length 1.28-1.43 mm, width 0.87-0.95 mm. Head, thorax, most of elytra and abdomen reddish-brown, elytra with lighter, not clearly delimited subhumeral spot and with broad light subapical areas contrasting with dark apices. Appendages light reddish or yellowish-brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 23/5: V 34/6: VI 36/7: VII 45/11: VIII 41/8: IX 45/10: X 45/10: XI 52/13. Pronotum very finely and densely punctate, with lateral contours evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical margins weakly rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin raised, sutural striae deep, bent at base, not extending along basal margin, strongly converging toward apices, coarsely punctate in anterior halves, almost impunctate in apical halves; adsutural areas conspicuously broad anteriorly, at least twice as wide at level of scutellar tip as at mid-length, flat, densely and coarsely punctate anterior mid-length, with punctures about as large as puncture intervals and larger than most punctures on elytral disc. Adsutural areas narrow and appearing impunctate near apices. Lateral striae distinctly punctate between bases and mid-length. Elytral disc with punctation fairly coarse and very dense near anterior section of sutural striae, becoming very fine toward lateral and apical margins. Hind wings fully developed. Hypomera smooth. Mesanepisterna with strigulate microsculpture. Mesepimera shorter than intervals to mesocoxae, about three times as long as wide. Median part of metaventrite slightly convex, with one central and two apicomeral impressions, strigulate microsculpture evanescent near lateral margins, punctation on prevailing surface of extremely fine and sparse; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as fifth to fourth of intervals to metacoxae, submesocoxal lines parallel, coarsely punctate. Metanepisternum flat, slightly narrowed anteriorly, inner margin evenly rounded, suture deep. Tibiae straight. Abdomen with strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.03-0.04 mm, about as fourth of intervals to apical margin of sternite 1, submetacoxal lines weakly convex, finely punctate.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 76, 77) 0.52 mm long, symmetrical, with basal bulb narrow, weakly sclerotized. Articular processes large, prominent. Apical process of median lobe fairly long, inflexed, tapering, with acute tip. Parameres in lateral view evenly curved and gradually narrowed, in dorsal view narrowed towards mid-length, weakly curved and evenly narrow in apical third. Internal sac tubular, with minute central denticular tube, single spine and minute sclerites situated apically when extruded.

**E t y m o l o g y :** The species epithet is a name of one of the Luzon languages.

**C o m p a r a t i v e n o t e s :** The aedeagal characters of *S. casiguran* are similar to those of the sympatric *S. subfasciatum* PIC, 1926, though the articular processes are smaller and the apical process of the median lobe is less inflexed. These two species differ drastically by the sutural striae of the elytra which are in *S. subfasciatum* parallel in the anterior two thirds of the sutural length while they are strongly converging apically in *S. casiguran*.

#### **5.2.7.5. *Scaphisoma compactum* nov.sp. (Figs 78, 79)**

**T y p e m a t e r i a l :** Holotype ♂: Palawan: Roxas Region of Matalangao, 80m, 1983, leg. S. Nagai & C. Lienhard, 83/86 (MHNG). Paratype: with the same data as the holotype, 1 ♂ (MHNG).

**D e s c r i p t i o n :** Length 1.28-1.32 mm, width 0.90-0.93 mm. Head and most of body blackish-brown to black, elytra lighter along apical margins, sternites 1 and 2 brown, followings sternites light reddish-brown, femora reddish-brown, darker than apical abdominal segments, tibiae, tarsi and antennae lighter, almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/7: IV 27/5: V 37/5: VI 30/6: VII 44/11: VIII 37/10: IX 44/12: X 42/12: XI 47/12. Pronotum very finely and densely punctate, punctures visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin raised, sutural striae deep, hardly bent at base, not extending along basal margins, weakly converging from level of tip of scutellum toward apices, finely punctate; adsutural areas narrow, finely punctate. Lateral striae appearing comparatively coarsely punctate. Elytral disc with punctation very fine and dense, on prevailing surface about as fine as than that on pronotum, consisting of not well delimited punctures, punctation distinctly coarser and denser on inner halves of anterior third of elytral disc. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera slightly shorter than intervals to mesocoxae and about 2.5 times as long as wide. Metaventrite very finely punctate, lacking microsculpture. Median part of metaventrite flattened, with two apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as third of intervals to metacoxae, submesocoxal lines parallel, coarsely punctate. Metanepisternum flat, not narrowed anteriorly, inner margin straight, suture deep. Tibiae straight. Abdomen with distinct strigulate microsculpture and very finely punctate. Sternite 1 with submetacoxal areas about 0.02 mm, about as eighth of intervals to apical margin, submetacoxal lines parallel, with coarse marginal punctures.

**M a l e :** Protarsomeres 1 to 3 slightly widened. Aedeagus (Figs 78, 79) 0.44-0.47 mm long, symmetrical, fairly strongly sclerotized. Median lobe with prominent articular processes, apical process inflexed, gradually narrowed apically, with blunt tip. Parameres straight, oblique in lateral view, throughout evenly wide. Internal sac with very dense, compact spines forming large bulbous structure and very fine, narrow apical tube.

**E t y m o l o g y :** The species is a Latin adjective meaning compact and referring to the compact spine-like structures of the internal sac.

**C o m p a r a t i v e n o t e s :** The median lobe and the parameres of the aedeagus of this species are similar to those in *S. apomontium* and *S. sagax*. The new species may be

distinguished from its allied by the very compact spine-like structures of the internal sac. It differs drastically from these two species by the narrow submetacoxal areas and from *S. sagax* by the coarsely punctate submetacoxal lines.

#### 5.2.7.6. *Scaphisoma deharvengi* nov.sp. (Figs 80-82)

**Type material:** Holotype ♂: Luzon: Mountain Prov. Mount Data Lodge 2200-2300m, 23-24.XII.79 L. Deharveng & J. Orousset (MHNG).

**Description:** Length 1.55 mm, width 1.07 mm. Head and most of body blackish-brown, elytra dark brown in apical two fifth, apical abdominal segments and legs reddish-brown, antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 28/5: V 38/6: VI 40/8 (remaining antennomeres broken off and missing). Pronotum finely and densely punctate, punctures well visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae exposed in dorsal view, apical margins truncate, inner apical angles not prominent, situated in level with outer angles; sutural margin slightly raised, sutural striae fairly deep, hardly bent at base, not extending along basal margins, almost parallel from level of tip of scutellum toward apical third, converging near apices, finely punctate; adsutural areas narrow, finely punctate. Lateral striae appearing impunctate. Elytral disc with punctation near bases fine and very dense, similar to pronotal, punctation on remaining surfaces coarser than that on pronotum, punctures not well delimited, as large as or smaller than intervals between them. Hind wings fully developed. Hypomera, mesanepisterna and metanepisterna lacking microsculpture, distinctly punctate, punctures larger than those on pronotum or on metaventrite. Mesepimera about as long as intervals to mesocoxae and about four times as long as wide. Metaventrite very finely punctate, without microsculpture on lateral parts, with strigulate microsculpture on median area and between mesocoxae and metacoxae. Median part of metaventrite somewhat convex, with two shallow apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, wide, not narrowed anteriorly, inner margin straight, suture deep. Tibiae straight. Abdomen with distinct strigulate microsculpture and very finely punctate. Sternite 1 with submetacoxal areas about 0.05 mm, about as fourth of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 80-82) 0.62 mm long, symmetrical, fairly strongly sclerotized. Apical process of median lobe almost as long as basal bulb, inflexed, with ventral side straight except near tip, in lateral view gradually narrowed and with acute tip, in dorsal view with blunt tip; articular processes large, prominent. Parameres narrowed from bases to mid-length, posterior mid-length widened, abruptly notched subapically in dorsal view, straight with narrowed, curved apices in lateral view, reaching beyond tip of median lobe. Internal sac without rods or flagellum, with weakly sclerotized, short denticle and scale-like structures.

**Etymology:** The species is named in honour of Louis Deharveng, Paris, France.

**Comparative notes:** This species may be readily distinguished by the distinctly punctate hypomera, mesanepisterna and metanepisterna, and by the shape of the parameres. Nonetheless, the aedeagal characters, in particular the shape of the

median lobe with dorsal lamellar valve and the well developed articular processes suggest relationships with *S. binaluanum* and its allied described above.

**5.2.7.7. *Scaphisoma densepunctatum* nov.sp. (Figs 83, 84)**

**Type material:** Holotype ♂: Mindanao, 30km NW of Maramag, 13.-17.May Bagongsilang, 1700m Bolm lgt., 1996 (SMNS).

**Description:** Length 2.05 mm, width 1.35 mm. Head and thorax blackish-brown, elytra dark reddish-brown, becoming lighter posterior mid-length. Abdomen dark reddish-brown, with apical segments lighter. Femora and tibiae light, ochreous, tarsi yellowish. Pronotum and elytra not microsculptured and not iridescent. Antennomeres with length/width ratio as: III 15/10: IV 30/8: V 40/9: VI 60/11: VII 60/15: VIII 46/11: IX 54/13: X 52/12: XI 70/13. Pronotum finely and densely punctate, punctures sharply delimited, distinct at 20 times magnification; lateral contours rounded, lateral margin carinae visible in dorsal view except near basis, lateral striae impunctate. Tip of scutellum exposed. Elytra with lateral margin carinae exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae fairly deep, somewhat bent at base, not extending laterally, parallel from level of tip of scutellum toward apical third, punctate as elytral disc; adsutural areas narrow, finely and densely punctate. Lateral striae appearing impunctate. Elytra with discal punctation fine and dense, coarser than pronotal punctation, punctures sharply delimited, with diameters mostly about as large as halves of puncture intervals. Hind wings fully developed. Hypomera and mesanepisterna smooth, not microsculptured. Mesepimera about as long as two thirds of intervals to mesocoxae and about twice as long as wide. Metaventrite lacking microsculpture; median area convex, impressed between metacoxae, very finely and densely punctate; punctation becoming sparser near lateral margins; antecoxal puncture row absent. Submesocoxal areas about 0.04 mm, as fifth of intervals to metacoxae; submesocoxal lines convex, distinctly punctate. Metanepisterna flat, weakly narrowed anteriorly, not impressed along straight suture. Tibiae straight. Abdomen with strigulate microsculpture; sternite 1 very finely punctate; submetacoxal areas 0.05 mm long, about as fourth of intervals to apical margin; submesocoxal lines convex, distinctly punctate.

**Male:** [Protarsi broken off and missing]. Mesotarsomeres 1 to 3 conspicuously enlarged, with segments I about twice as wide as, segments II as wide as, and segments III somewhat narrower than apices of mesotibiae. Aedeagus (Figs 83, 84) 1.10 mm long, symmetrical, strongly sclerotized. Apical process of median lobe almost much shorter than basal bulb, inflexed, with oblique ventral side, tapering, with acute tip; articular processes large, prominent. Parameres narrowed toward apical third and curved in dorsal view and almost straight, reaching beyond tip of median lobe; almost straight, evenly wide in middle section in lateral view. Internal sac tubular, without rods or flagellum, with minute denticular structures.

**Etymology:** The species epithet is a Latin adjective meaning densely punctate.

**Comparative notes:** This species may be readily distinguished by the strongly enlarged mesotarsomeres 1 and 2. Its aedeagal characters suggest relationships with *S. binaluanum* Pic, though the aedeagus is notably larger and stronger sclerotized.

**5.2.7.8. *Scaphisoma hexamerum* nov.sp. (Figs 85, 86)**

**Type material:** Holotype ♂: Luzon: Lagunas Mt. Banahaw, above Kinabuhayan, 600-700m, I. Löbl, 24.XI.95, degraded rainforest floor litter (MHNG).

**Description:** Length 1.15 mm, width 0.83 mm. Head and body light brown, appendages lighter than body, yellowish. Pronotum and elytra not microsculptured and not iridescent. Antennomeres with length/width ratio as: III 11/5: IV 13/5: V 22/6: VI 48/7: VII 52/10: VIII 36/8: IX 43/10: X 45/11: XI 45/13. Pronotum finely and densely punctate, punctures well visible at 30 times magnification; lateral contours rounded, lateral margin carinae barely visible in dorsal view, lateral striae punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not exposed in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae fairly shallow, somewhat bent at base, not extending laterally, parallel from level of tip of scutellum toward apices, very finely punctate; adsutural areas narrow, very finely punctate. Lateral striae appearing impunctate. Elytra with discal punctation fine and dense, less fine than pronotal punctation, punctures comparatively well delimited, with puncture intervals mostly twice to three times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth, not microsculptured. Mesepimera about as long as intervals to mesocoxae and about three times as long as wide. Metaventrite very finely punctate, flattened and microsculptured in middle, with a fovea-like mesal impression, lateral parts lacking microsculpture; antecoxal puncture rows absent. Submesocoxal areas 0.02 mm, about as seventh of intervals to metacoxae, submesocoxal lines parallel, distinctly punctate. Metanepisternum flat, wide, parallel-sided, inner margin straight, suture deep. Tibiae straight. Abdomen with distinct strigulate microsculpture, very finely punctate. Sternite 1 with submetacoxal areas about 0.05 mm, about as halves of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 85, 86) 0.43 mm long, symmetrical, moderately sclerotized. Apical process of median lobe much shorter than basal bulb, inflexed, with concave ventral side, tapering, tip blunt in dorsal view, acute in lateral view; articular processes prominent, notched. Parameres straight in basal halves, narrowed subapically and bent in apical section in dorsal view, reaching beyond tip of median lobe. Internal sac tubular, with dense spine-like structures.

**Etymology:** The species epithet is Latinized Greek meaning consisting of six parts and referring to the conspicuous antennomere VI.

**Comparative notes:** This species is well characterized and may be easily distinguished from most of the Philippine congeners by its conspicuously elongate antennomere VI, *S. minutipenis*, *S. apomontium* and *S. hexameroides* excepted. *Scaphisoma minutipenis* differs drastically by the sutural striae of elytra extended along base to form basal striae and by the aedeagal characters. *Scaphisoma hexameroides* may be distinguished by its larger body-size, the metaventrite lacking mesal impression and the very distinctive aedeagus. *Scaphisoma discretum* LÖBL, 1986 from Assam possesses similar antennae though its distal antennomere is longer than the preceding segment. The latter may be easily distinguished by the submetacoxal areas which are much larger and by the internal sac of the aedeagus lacking distinct spine-like structures. See also notes under *S. apomontium*.

#### **5.2.7.9. *Scaphisoma kodadai* nov.sp. (Figs 87, 88)**

**Type material:** Holotype ♂: Philippines, Luzon: Lagunas, Mt. Banahaw above Kinabuhayan, 600-700m, trail to Crystalino, 24.XI.1995, leg. J. Kodada & B. Rigová (MHNG). Paratype: Luzon: Lagunas, Mt. Banahaw above Kinabuhayan, 600-700 m, 24.XI.1995, leg. I. Löbl, 1 ex. (MHNG).

**Description:** Length 1.35 mm, width 0.98 mm. Head and body brown, append-



ages lighter than body, yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 10/7: IV 12/6: V 35/8: VI 37/9: VII 45/14: VIII 40/8: IX 43/10: X 45/10: XI 60/15. Pronotum finely and densely punctate, punctures well visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae fairly deep, bent at base, not extending along basal margins, parallel from level of scutellar tip to apices; adsutural areas narrow, very finely punctate. Lateral striae appearing impunctate. Elytral disc with punctation fine and dense, coarser than pronotal punctation, puncture intervals mostly twice to three times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna lacking obvious microsculpture. Mesepimera about as long as intervals to mesocoxae and about four times as long as wide. Metaventricle lacking obvious microsculpture, very finely punctate. Median part of metaventricle convex, lacking impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as fourth of intervals to metacoxae, submesocoxal lines weakly convex, distinctly punctate. Metanepisternum flat, narrow, narrowed anteriorly, inner margin arcuate, suture shallow. Tibiae straight. Abdomen with distinct strigulate microsculpture. Sternite 1 with submetacoxal areas about 0.03 mm, about as fifth of intervals to apical margin, submetacoxal lines weakly convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 87, 88) 0.38 mm long, symmetrical, moderately sclerotized. Apical process of median lobe almost as long as basal bulb, inflexed, with concave ventral side, narrowed in apical section, with blunt tip; articular processes small, not prominent. Parameres evenly narrow and almost straight in both, dorsal and lateral views, reaching beyond tip of median lobe. Internal sac without rods or flagellum, with dense spine-like structures, latter larger and more sclerotized along left margin.

**E t y m o l o g y :** The species is named in honour of a friend of the senior author, Jan Kodada, Bratislava, Slovakia, who collected this and a number of other new species.

**C o m p a r a t i v e n o t e s :** The aedeagal characters suggest relationships with *S. binaluanum* and its allied described above. It differs from these species by the sutural striae extended along basal margins of the elytra and by the much shorter antennomere IV. The paratype is teneral.

#### **5.2.7.10. *Scaphisoma lunabianum* nov.sp. (Fig. 17, 89, 90)**

**T y p e m a t e r i a l :** Holotype ♂: Lake Linau, N. slope Mt. Apo, Davao Prov., Mindanao. El. 6000ft. mossy forest. XI-2-1946 / under bark / CNHM-Philippine Zool. Exped. (1946-47) H. Hoogstrall leg. (FMNH). Paratypes: Mindanao, Davao Prov., Metran E. slope Mt. Apo, 6000 ft. 5.XI.1946, on decaying fleshy, gilled fungi, original forest, leg. F.G. Werner, 3♂♂, 2♀♀ (FMNH, MHNG, BZLA); Davao Prov., E. slope Mt. Kinley, 7000 ft., mossy forest, 23.IX.1946, leg. H. Hoogstrall, 1♂ (MHNG); Mindanao, Eagle Centre, Baracatan, 1100 m, north slope of Mt. Apo, 5.VIII.1985, leg. M. Sakai, 2♂♂ (EUMJ, MHNG); Mindanao, Mainit Hot Spring, 28.VII.1970, leg. M. Satô, 1♂, 1♀ (MHNG); Mindanao, Baracatan, 1500 m, 27-29.VII.1977, leg. M. Satô, 1♂ (MHNG).

**D e s c r i p t i o n :** Length 1.42-1.85 mm, width 0.92-1.18 mm. Head and most of body very dark reddish-brown to blackish-brown, elytra often slightly lighter than pronotum, each elytron with yellowish or ochreous transverse subapical band usually

well delimited and about as wide as or wider than dark apical area. Subapical bands slightly oblique, with irregular anterior and posterior margins. Apical abdominal segments, femora and tibiae reddish-brown, somewhat lighter than most of body, tarsi and antennae lighter and tibiae. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 18/6: V 30/6: VI 43/8: VII 47/14: VIII 40/9: IX 41/12: X 43/12: XI 53/14. Pronotum very finely and densely punctate, punctures hardly visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae very finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae usually not exposed in dorsal view, apical margins slightly rounded to truncate, inner apical angles not prominent, situated in level with outer angles or posterior outer angles; sutural margin slightly raised, sutural striae fairly deep, hardly bent at base, not extending along basal margins, almost parallel from level of tip of scutellum toward apical third, converging near apices, finely punctate; adsutural areas narrow, finely punctate. Lateral striae punctate. Basal fourth to third of elytral disc with punctation very fine and very dense, similar to pronotal punctation. Remaining discal punctation coarser than that on pronotum, punctures not well delimited, puncture intervals mostly about as large as to three times larger than puncture diameters. Hind wings fully developed. Ventral side of thorax lacking microsculpture, very finely punctate. Mesepimera about as long as intervals to mesocoxae and about four times as long as wide. Median part of metaventrite somewhat convex, with two distinct apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, wide, not or barely narrowed anteriorly, inner margin straight, suture deep. Tibiae straight. Abdomen with distinct strigulate microsculpture and very finely punctate. Sternite 1 with submetacoxal areas about 0.05 mm, about as fourth to third of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 89, 90) 0.55-0.69 mm long, symmetrical, fairly strongly sclerotized. Apical process of median lobe almost as long as basal bulb, inflexed, with ventral side straight except near tip, in lateral view gradually narrowed and with acute tip, in dorsal view with blunt tip; articular processes large, prominent. Parameres narrowed from bases to mid-length, posterior mid-length widened, abruptly notched subapically in dorsal view, straight with narrowed, curved apices in lateral view, reaching beyond tip of median lobe. Internal sac tubular, without rods or flagellum, with short, weakly sclerotized denticle and scale-like structures.

**E t y m o l o g y :** The species epithet is an anagram of the name of *binaluanum*.

**C o m p a r a t i v e n o t e s :** This species shares most diagnostic characters with *S. binaluanum* PIC. It may be reliably distinguished only by its aedeagal features. The body-size of this species is unusually variable.

#### **5.2.7.11. *Scaphisoma maculosum* nov.sp. (Figs 20, 91, 92)**

**T y p e m a t e r i a l :** Holotype ♂: Palawan: Central Cabayugan nr. Lion's Cave, sea level, 1.XII. 95 I. Löbl, fungi on logs (MHNG). Paratypes: with the same data as the holotype, 7♂♂, 2♀♀ (MHNG, BZLA).

**D e s c r i p t i o n :** Length 1.0-1.10 mm, width 0.75-0.82 mm. Head and most of body light brown. Elytra each with large, yellowish, not well delimited spot covering most of discal surface; areas along margins and sutural striae about as pronotum. Mesoventrite,

metaventrite and sternite 1 usually darkened, apical abdominal segments and appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/6: IV 27/5: V 35/5: VI 29/6: VII 45/9: VIII 40/7: IX 48/8: X 45/8: XI 53/9. Pronotum very finely and densely punctate, punctures hardly visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae barely visible in dorsal view, lateral striae very finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not or barely visible in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae shallow, shortly bent at base, not extending along basal margins, almost parallel from level of tip of scutellum to apices, impunctate; adsutural areas narrow, with few very fine punctures. Lateral striae very finely punctate. Discal punctation very fine, similar to pronotal punctation. Hypomera smooth. Hind wings well developed. Mesepimera slightly longer than intervals to mesocoxae, and about three times as long as wide. Metaventrite very finely punctate, not microsculptured, in median part flattened, lacking apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.07 mm, slightly shorter than intervals to apical margin, submesocoxal lines strongly convex, indistinctly punctate. Metanepisterna flat, wide, not narrowed anteriorly, inner margin straight, suture deep. Tibiae straight. Abdomen with distinct strigulate microsculpture, very finely punctate. Sternite 1 with submetacoxal areas about 0.08 mm, about as intervals to apical margin, submetacoxal lines strongly convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 91, 92) 0.32-0.34 mm long, symmetrical, weakly sclerotized. Apical processes of median lobe much shorter than basal bulb, inflexed, with ventral side concave, tapering and with acute tip in lateral view, in dorsal view parallel-sided posterior basal bulb, narrowed apically, with blunt apex; articular processes prominent, angular in lateral view, notched in dorsal view. Parameres short, reaching beyond tip of median lobe, almost evenly wide and straight with in lateral view, narrowed in subapical section in dorsal view. Internal sac tubular, with fine denticular structures forming dense rows along lateral margins.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning maculate.

**C o m p a r a t i v e n o t e s :** This species may be easily distinguished from allied by its small body-size, combined with the elytral coloration and the comparatively very large submesocoxal and submetacoxal areas.

#### **5.2.7.12. *Scaphisoma maramag* nov.sp. (Figs 93, 94)**

**Type material:** Holotype ♂: Mindanao, 30 km NW Maramag, 13.-17.May Bagongsilang, 1700m Bolm lgt., 1996 (SMNS).

**Description:** Length 1.28 mm, width 0.85 mm. Head, thorax and most of elytra black, apical fourth of elytra yellowish. Abdomen brown, femora and tibiae ochreous. Tarsi and antennae yellowish to light brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/7: IV 30/6: V 45/6: VI 36/6: VII 47/11: VIII 40/9: IX 50/13: X 48/15: XI 64/16. Pronotum very finely and densely punctate, punctures hardly visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not visible in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated

in level with outer angles; sutural margin somewhat raised; sutural striae fairly deep, bent along pronotal lobe, not extending along basal margins to form basal striae, parallel from level of tip of scutellum toward apices, punctate; adsutural areas narrow, finely punctate. Lateral striae impunctate. Discal punctation very fine, sparse, hardly coarser than pronotal punctation, most puncture intervals at least three times as large as puncture diameters, punctation near basal and apical margins much finer. Hind wings well developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat shorter than intervals to mesocoxae and about four times as long as wide. Metaventrite not microsculptured, with punctuation hardly visible at 50 times magnification, in middle part weakly convex, with two distinct apicomedian impressions, lacking mesal stria. Submesocoxal areas 0.04 mm, about as third of intervals to apical margin, submesocoxal lines convex, conspicuously punctate, with punctures extending laterally along anterior margin of metaventrite. Metanepisterna flat, narrow, slightly narrowed anteriorly, inner margins straight, sutures deep. Tibiae straight. Abdomen with distinct strigulate microsculpture and very fine punctation. Sternite 1 with submetacoxal areas about 0.03 mm, about as fourth of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 93, 94) 0.40 mm long, symmetrical, well sclerotized. Apical process of median lobe obliquely inflexed, shorter than basal bulb, with blunt tip and dorsally split valves; articular process inconspicuous. Parameres almost evenly wide between bases and apices, slightly bent in dorsal view, straight in lateral view. Internal sac lacking sclerites, vesicular, bearing very dense, minute spine-like structures.

**Etymology:** The species epithet is the name of the municipality Maramag in Mindanao.

**Comparative notes:** This species may be distinguished from its congeners of similar body-size having sutural striae parallel, not extending along elytral bases, and strigulate abdominal microsculpture, by the conspicuous elytral colour pattern in combination with the coarse puncture row margining the submesocoxal lines and extending laterad mesocoxae.

#### **5.2.7.13. *Scaphisoma minutipenis* nov.sp. (Figs 95, 96)**

**Type material:** Holotype ♂: Burungkot, Upi, Cotabato Prov., Mindanao Elev. 1500ft. I.1-9,1947 / Lot. ♂ 154 taken on polypores / CNHM-Philippine Zool. Exped. (1946-47) F.G.Werner leg. (FMNH).

**Description:** Length 1.50 mm, width 1.07 mm. Head, pronotum and basal halves of elytra uniformly fairly light ochreous, elytra posterior middle slightly lighter, on subapical area somewhat darkened, near apical margins yellowish. Ventral side of thorax, femora and tibiae as pronotum, abdomen somewhat lighter, with yellowish apical segments. Tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 10/7: IV 10/7: V 27/8: VI 43/12: VII 45/15: VIII 37/14: IX 45/15: X 45/15: XI 55/15. Pronotum very finely and densely punctate, punctures hardly visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae very finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not visible in dorsal view; apical margins slightly rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae fairly

deep, bent at base, extending along basal margins to form short basal striae not reaching mid-width of basal margins, parallel from level of tip of scutellum toward apices, punctate; adsutural areas narrow, finely punctate; lateral striae densely punctate. Discal punctation fairly fine and dense, on prevailing surface coarser than pronotal punctation, most puncture intervals about twice as large as puncture diameters, punctation near basal and apical margins much finer. Hind wings well developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat shorter than intervals to mesocoxae and about three times as long as wide. Median part of metaventrite flat, lacking impressions or stria, densely and distinctly punctate; lateral parts of metaventrite sparsely and very finely punctate; antecoxal puncture rows and microsculpture absent. Submesocoxal areas 0.04 mm, about as fifth of intervals to apical margin, submesocoxal lines convex, very finely punctate. Metanepisterna flat, wide, narrowed anteriorly, inner margins rounded in posterior halves, sutures deep. Tibiae straight. Abdomen with distinct strigulate microsculpture. Sternite 1 with punctation distinct on most of median area, very fine on lateral areas; submetacoxal areas about 0.05 mm, about as fourth of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 95, 96) 0.29 mm long, symmetrical, weakly sclerotized. Apical processes of median lobe shorter than basal bulb, almost in same plan as basal bulb, with ventral side straight, almost evenly thick and with blunt tip in lateral and dorsal views; articular processes comparatively small, not prominent. Parameres weakly narrowed from bases to mid-third and evenly wide in apical two thirds in dorsal view, almost evenly wide and straight in lateral view, reaching somewhat beyond tip of median lobe. Internal sac without rods or flagellum, with weakly sclerotized, minute denticles.

**Etymology:** The species epithet is a Latin noun, referring to the small size of the aedeagus.

**Comparative notes:** This species may be distinguished from its Philippine congeners possessing evenly short antennomeres III and IV by the elytral colour pattern, in combination with the presence of strigulate abdominal microsculpture, the lack of antecoxal puncture rows, and the shape of the median lobe of the aedeagus.

#### 5.2.7.14. *Scaphisoma mirum* nov.sp. (Figs 22, 97, 98)

**Type material:** Holotype ♂: Meran, E. slope of Mt. McKinley, Davao Province Mindanao, 6000 ft; IX: 5: 46 / CNHM-Philippine Zool.Exped. (1946-47) F.G. Werner leg. / on decaying fleshy, gilled bracket fungi / original forest (FMNH). Paratypes: with the same data as the holotype, 11 ♂♂, 8 ♀♀ (FMNH, MHNG, BZLA); with the same data but lot 100 on polypore 39 *Fomes applanatus*, 1 ♂ (MHNG); Mindanao, Davao Prov., E. slope of Mt. McKinley, 6400 ft., 2.IX.1946, mossy forest, leg. F.G. Werner, 1 ♀ (FMNH); same but 22.VIII. lot 10 polypore; Mindanao, Davao Prov., E. slope of Mt. McKinley, 3200 ft., 7-8.IX.1946, beating, lot. ♂ 54, leg. F.G. Werner, 1 ♂ (FMNH); Mindanao, Davao Prov., Baclayan, E. slope of Mt. Apo, 6500 ft., 10-13.XI.1946, original forest sifting humus, 1 ♂ (MHNG); Mindanao, Davao Prov., E. slope of Mt. McKinley, 3200 ft., 7-8.IX.1946, beating, lot 54, leg. F.G. Werner, 1 ♀ (FMNH); Mindanao, Davao Prov., Lake Linau, N. slope of Mt. Apo, 7900 ft., 2.XI.1946, mossy forest, leg. H. Hoogstraal, 1 ♂ (FMNH); Todaya, 30.VII.1970, leg. M. Sató, 1 ♂ (MHNG).

**Description:** Length 1.90-2.10, width 1.28-1.40. Head, pronotum, ventral side of thorax and basal sternites dark brown to blackish. Elytra ochreous, with narrowly darkened bases, lateral margins, adsutural areas; each elytron with darkened band along anterior half of sutural stria, central, well delimited dark spot narrowed laterally and often reaching lateral margin, and darkened apical eighth, latter usually reaching apical

margin. Legs and apical abdominal segments ochreous, antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/9: IV 30/7: V 40/8: VI 60/8: VII 65/16: VIII 60/13: IX 62/16: X 58/17: XI 67/18. Pronotum very finely and conspicuously densely punctate, punctures well visible at 50 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view. Exposed tip of scutellum minute. Elytra with anterior section of lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae deep, bent at base, not extending along basal margins to form basal striae, parallel from level of tip of scutellum toward apices, very finely punctate; adsutural areas narrow, very finely punctate. Lateral striae impunctate. Elytral disc with punctation very fine and very dense, similar to that on pronotum, punctures comparatively well delimited, smaller than intervals between them. Hind wings fully developed. Hypomera and mesanepisterna lacking obvious microsculpture. Mesepimera about as long as intervals to mesocoxae and about four times as long as wide. Metaventrite and abdomen with strigulate microsculpture, very finely punctate. Median part of metaventrite convex, impressed apically; antecoxal puncture rows absent. Submesocoxal areas 0.03-0.04 mm, about as sixth to eighth of intervals to metacoxae, submesocoxal lines hardly convex, finely punctate. Metanepisternum flat, narrow, slightly or not narrowed anteriorly, inner margin straight, suture shallow. Protibiae straight, mesotibiae and metatibiae slightly curved. Sternite 1 with submetacoxal areas about 0.04-0.05 mm, about as fifth of interval to apical margin, submetacoxal lines convex, with fine marginal punctures.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened. Aedeagus (Figs 97, 98) 0.94-0.96 mm long, symmetrical, strongly sclerotized. Apical process of median lobe longer than basal bulb, almost evenly narrow in dorsal view, except near apex, inflexed and gradually narrowed in lateral view, with apical section rather abruptly bent. Apex of median lobe acute, articular processes robust and prominent. Parameres slightly extending behind level of apex of median lobe, narrowed toward mid-length, widened in apical third and weakly curved posterior mid-length in dorsal view, almost straight and evenly broad in lateral view. Internal sac simple, without sclerotized parts, with covered dense denticular structures.

**Etymology:** The species epithet is a Latin adjective meaning conspicuous.

**Comparative notes:** This species may be readily distinguished from its Philippine congeners by the elytral coloration. In addition, it differs notably by the very dense pronotal and elytral punctation and the aedeagal characters. The aedeagus is similar to that in *S. stictum* LÖBL, 1977, but differs drastically by the median lobe lacking a sclerotized dorsal valve.

#### **5.2.7.15. *Scaphisoma montivagum* nov.sp. (Figs 99, 100)**

**Type material:** Holotype ♂: Philippines: Luzon Mount Data Lodge 2200-2300 m 22-23.XII.79 Deharveng-Orousset / ♂ 100 (MHNG).

**Description:** Length 1.50 mm, width 0.97 mm. Head, thorax and elytra dark reddish-brown, subapical areas of elytra somewhat darkened, sternites 1 to 4, femora and tibiae somewhat lighter, tarsi and antennae lighter than tibiae, almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antenno-

meres as: III 12/7: IV 20/6: V 24/8: VI 31/9: VII 42/12: VIII 32/9: IX 39/12: X 38/11: XI 40/12. Pronotum very finely and densely punctate, punctures distinct at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not visible in dorsal view; apical margins slightly rounded, inner apical angles rounded, not prominent, situated in level with outer angles; sutural margin not raised, sutural striae fairly deep, shortly bent at base, not extending along basal margins, parallel from level of scutellar tip toward apical third, slightly converging apices, punctate; adsutural areas narrow, finely punctate; lateral striae appearing impunctate. Discal punctation fine and fairly dense, coarser than pronotal punctation, most puncture intervals about twice to four times as large as puncture diameters, punctation distinctly coarser on small lateral area anterior middle third of lateral length. Hind wings well developed. Hypomera and mesanepisterna smooth. Mesepimera distinctly shorter than intervals to mesocoxae and about three times as long as wide. Median part of metaventrite slightly convex, lacking impressions or stria, densely and fairly coarsely punctate; lateral parts of metaventrite sparsely and very finely punctate; antecoxal puncture rows and microsculpture absent. Submesocoxal areas 0.05 mm, about as third of intervals to apical margin, submesocoxal lines convex, very finely punctate. Metanepisterna flat, wide, narrowed anteriorly, with rounded inner margins, sutures deep. Tibiae straight. Abdomen with distinct strigulate microsculpture absent from basolateral areas of sternite 1; punctation sparse and very fine; submetacoxal areas about 0.04 mm, about as fourth of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 99, 100) 0.28 mm long, symmetrical, weakly sclerotized. Apical processes of median lobe almost as long as basal bulb, inflexed, with ventral side weakly concave, almost evenly thick and with blunt tip in dorsal view; articular processes prominent. Parameres wide in basal halves and strongly narrowed posterior mid-length (dorsal view), almost evenly wide posterior basal part and straight in lateral view, reaching somewhat beyond tip of median lobe. Internal sac without rods or flagellum, with weakly sclerotized, minute spines.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning walking in mountains.

**C o m p a r a t i v e n o t e s :** This species may be distinguished from its congeners of similar body-size and colour by the strigulate abdominal microsculpture, the median part of the metaventrite notably coarser punctate than the lateral parts or the abdomen, the convex subcoxal lines, the elongate antennomere IV and the minute aedeagus, in combination.

#### **5.2.7.16. *Scaphisoma nabiluanum* nov.sp. (Fig. 23, 101, 102)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines Mt. Polis, 1900m Ifugao Prov., Luzon / June, 5, 1977 Y. Kurosawa leg. (NMNS). Paratypes: Luzon, with the same data as the holotype, 8♂♂, 3♀♀ (NMNS, MHNG, BZLA); Luzon, Mountain Prov., Mt. Puguis, 1900-2000 m, 18.VII.1985, leg. M. Sakai, 1♂ (EUMJ); with same data but 1950 m, 16.VII.1985, 1♂ (MHNG); same data but 1800-1900 m, 17.VII.1985, leg. M. Sakai, 3♂♂ (EUMJ, MHNG).

**D e s c r i p t i o n :** Length 1.40-1.60 mm, width 1.0-1.11 mm. Head and most of body blackish-brown to black, each elytron with yellowish or ochreous transverse subapical band usually well delimited and about as wide as or wider than dark apical area, latter

usually somewhat lighter than most of elytral surfaces. Subapical bands not or hardly oblique, with well delimited, irregular anterior and posterior margins. Apical abdominal segments, femora and tibiae ochreous, much lighter than most of body, tarsi and antennae ochreous or yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 13/6: IV 19/6: V 30/7: VI 43/10: VII 44/15: VIII 37/11: IX 44/13: X 45/13: XI 55/16. Pronotum very finely and densely punctate, punctures hardly visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae very finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae not or hardly visible in dorsal view, apical margins slightly rounded to truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin slightly raised posterior basal third, sutural striae fairly deep, shortly bent at base, not extending along basal margins, almost parallel from level of tip of scutellum toward apical half, converging toward apices, impunctate; adsutural areas narrow, finely punctate. Lateral striae impunctate. Discal punctation usually similar to pronotal punctation, very fine, dense, in some specimens distinctly coarser than on pronotum. Hind wings well developed. Hypomera smooth. Mesepimera about as long as intervals to mesocoxae and about three times as long as wide. Metaventrite very finely punctate, with strigulate microsculpture limited onto apicomedian area. Median part of metaventrite somewhat convex, with two distinct apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as sixth of intervals to apical margin. Metanepisterna flat, wide, not or barely narrowed anteriorly, inner margins almost straight, sutures deep. Tibiae straight. Abdomen with distinct strigulate microsculpture and very finely punctate. Sternite 1 with submetacoxal areas about 0.04-0.05 mm, about as third of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**M a l e :** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 101, 102) 0.49-0.62 mm long, symmetrical, fairly strongly sclerotized. Apical processes of median lobe shorter than basal bulb, inflexed, almost evenly thick, with ventral side sinuate and blunt tip in lateral view, in dorsal view narrowed posterior basal bulb, widest in apical half, with apical margin broadly rounded; articular processes comparatively small, hardly prominent. Parameres narrowed from bases to apical third and evenly wide in apical third in dorsal view, almost evenly wide and straight with curved apical section in lateral view, reaching beyond tip of median lobe. Internal sac without rods or flagellum, with weakly sclerotized, minute denticles.

**E t y m o l o g y :** The species epithet is an anagram of the name *binaluanum*.

**C o m p a r a t i v e n o t e s :** This species is very similar to *S. binaluanum* and *S. lunabianum*. It may be reliably distinguished from them by the shape of the median lobe, and from *S. lunabianum* also by the internal sac bearing only very fine, minute denticular structures.

#### **5.2.7.17. *Scaphisoma obscurum* nov.sp. (Figs 103, 104)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines, Palawan central, Sabang, sea level, at light 30.XI.1995, Kodada lgt. (MHNG). Paratype: Palawan, Sabang, N. of Mt. St. Paul, 11-13.VII.1977, leg. M. Satô, 1 ♂ (MHNG).

**D e s c r i p t i o n :** Length 1.23-1.25 mm, width 0.86-0.88 mm. Head, thorax, elytra and abdominal sternite 1 dark reddish-brown, elytra slightly darkened near apices. Apical abdominal segments light brown to yellowish. Femora light brown, tibiae, tarsi and



antennae lighter than femora, yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/8: IV 20/6: V 38/7: VI 45/8: VII 53/14: VIII 49/9: IX 53/13: X 52/12: XI 65/13. Pronotum very finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Scutellum completely covered by pronotal lobe. Elytra not flattened, with lateral margin carinae entirely visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin raised except near base, sutural striae fairly deep, hardly bent at base, not extending along basal margin, slightly converging apically, very finely punctate; adsutural areas narrow, flat, each with single row of very fine punctures, lateral striae distinctly punctate. Elytral disc with punctation very fine, similar to that on pronotum on large humeral area and posterior lateral mid-length along lateral margins. Punctation conspicuously coarse and very dense on inner anterior and middle parts of elytra, punctures there well delimited, to part larger than puncture intervals, becoming gradually finer and sparser posterior middle third of elytra. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as long as intervals to mesocoxae, four times as long as wide. Median part of metaventricle flattened, without impressions, coarsely and densely punctate, with punctures to part about as large as puncture intervals, smooth between metacoxae; lateral parts of metaventricle with strigulate microsculpture, punctation extremely fine and sparse; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, somewhat less than half of intervals to metacoxae, submesocoxal lines convex, finely punctate, punctures not extended by striae. Metanepisternum flat, weakly narrowed anteriorly, inner margin straight in middle section, rounded near angles, suture deep. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate. Abdominal sternite 1 with submetacoxal areas 0.05 mm, about as half of intervals to apical margin, submetacoxal lines strongly convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 103, 104) 0.45- 0.47 mm long, symmetrical, with basal bulb weakly sclerotized. Basal bulb comparatively large. Articular processes small, not prominent. Apical process of median lobe simple, shorter than basal bulb, strongly inflexed, subparallel and with truncate apex in dorsal view, subcylindrical and strongly inflexed, with acute tip and oblique apical margin in lateral view. Parameres gradually narrowed to apical third and moderately curved in dorsal view, almost evenly wide between bases apical third in lateral view, without membranous inner margin. Internal sac simple, without flagellum or sclerotized pieces, with very fine scale-like structures, its apical part excepted.

**Etymology:** The species epithet is a Latin adjective meaning dark.

**Comparative notes:** This species may be confused with *S. subgracile* because of its conspicuous elytral punctation. It differs notably from the latter by the elytra darkened apically, the distinct mesepimera, the microsculptured metaventricle, the abdomen with smaller submetacoxal areas, and the length/width ratios of the antennomeres. The shape of the apex of the median lobe of *S. obscurum* is diagnostic.

### 5.2.7.18. *Scaphisoma quadrimaculatum* PIC, 1922

*Scaphosoma quadrimaculatum* PIC, 1922: 1. Syntype 1♀, MNHN; type locality: Vietnam, Lac Tho. redescription:: LÖBL 1981b: 105, Figs 1, 2.

**Additional material examined:** Philippines, Palawan, Matalangao, 150 m, nr. Roxas, 29.VIII.1985, leg. M. Sakai, 1♂ (EUMJ)

**Distribution:** India: Assam; Vietnam: Indonesia: Sumatra: Philippines: Palawan.

**5.2.7. 19. *Scaphisoma sagax* nov.sp. (Figs 105-107)**

**Type material:** Holotype ♂: Palawan: Central Cabayugan nr. Lyons Cave, sea level, 1.XII.95 I.Löbl, fungi on logs (MHNG). Paratype: with the same data as the holotype, 1♂ (MHNG).

**Description:** Length 1.05 mm, width 0.80 mm. Head and body light ochreous or yellowish-brown, appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 29/5: V 35/6: VI 31/6: VII 47/8: VIII 38/6: IX 47/8: X 43/7: XI 50/8. Pronotum sparsely, very finely punctured, punctures hardly visible at 30 times magnification, lateral contours weakly rounded, lateral margin carinae visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae shallow, parallel from level of scutellar tip to apices, slightly bent at bases, not extended along basal margins, very finely punctate; adsutural areas flat, appearing impunctate; lateral striae punctate. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera almost twice as long as intervals to mesocoxae and about three times as long as wide. Metaventricle not microsculptured, very finely punctate; antecoxal puncture rows absent. Median part of metaventricle flattened, without impressions or stria. Submesocoxal areas 0.08 mm, about as intervals to metacoxae, submesocoxal strongly hardly convex, finely punctate. Metanepisternum flat, not narrowed anteriorly, inner margin straight, suture shallow. Tibiae straight. Abdomen not microsculptured. Sternite 1 with submetacoxal areas about 0.08 mm, slightly longer than intervals to apical margin, submetacoxal lines strongly parallel, with very fine marginal punctures.

**Male:** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 105-107) 0.33 mm long, symmetrical, fairly weakly sclerotized. Apical process of median lobe strongly shorter than basal bulb, inflexed, with blunt tip; articular process robust, not prominent. Parameres evenly wide, near apices weakly bent in dorsal view, oblique and slightly widened posterior basal halves in lateral view. Internal sack lacking sclerotized pieces, without flagellum, membranous spine-like and denticular structures very dense.

**Etymology:** The species epithet comes from Greek sagio and ax, meaning quick perception.

**Comparative notes:** This species may be distinguished from congener with similar aedeagus by the long and narrow antennomeres, in combination with the very fine punctation of the elytra and large, strongly convex submesocoxal and submetacoxal areas. Its aedeagal characters suggest relationships with *S. apomontanum* and *S. compactum*, though the articular processes of the median lobe are not prominent.

**5.2.7.20. *Scaphisoma subanun* nov.sp. (Figs 33, 108, 109)**

**Type material:** Holotype ♂: Mindanao Pt. Banga / 1924 / Staatl. Museum Tierkunde Dresden (SMTD). Paratypes: Mindanao, Davao Prov., E. slope Mt. McKinley, 3300 ft., 28.VIII.1946, sweeping air at dusk, leg. F.G. Werner, 1♂ (FMNH); Mindanao, Malaybalay, Busdi, 1000 m, 5.-9.V.1996, leg. Bolm, 3♀ (SMNS, MHNG).

**Description:** Length 1.33-1.55 mm, width 0.88-1.01 mm. Head and most of body dark brown to blackish with weak reddish shine. Elytra each lighter between middle third and apical fifth, with light area almost yellowish, forming or not forming transverse band; apical tenth to fifth of elytra as dark as, or lighter than anterior surface of elytra. Femora almost as dark as body, tibiae, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 10/8: IV 32/6: V 34/8: VI 35/8: VII 47/12: VIII 37/9: IX 48/13: X 49/13: XI 60/14. Pronotum sparsely, very finely punctured, punctures hardly visible at 30 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae exposed in dorsal view, apical margins hardly rounded, inner apical angles not prominent, situated in or posterior level of outer angles; sutural margin raised except near scutellum, sutural striae deep, oblique and angular in anterior section, not bent at and not extended along basal margins, strongly converging toward apices, distinctly punctate; adsutural areas very wide at base, posterior level of basal sixth of sutural length half as wide as at base, then gradually narrowed, densely punctate. Lateral striae coarsely punctate. Middle of elytral disc with punctation fairly fine and dense, coarser than that on pronotum, with punctures poorly delimited, mostly smaller than intervals between them, apical part of elytra very finely punctate. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat longer than intervals to mesocoxae and about four times as long as wide. Metaventrite very finely punctate, not microsculptured on lateral areas; antecoxal puncture rows absent. Median part of metaventrite convex, with two apicomedian impressions, strigulate microsculpture; submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae, submesocoxal lines hardly convex, finely punctate. Metanepisternum flat, narrow, slightly narrowed anteriorly, inner margin rounded, suture shallow. Tibiae straight. Abdomen with distinct strigulate microsculpture. Sternite 1 with submetacoxal areas about 0.02 mm, about as tenth of intervals to apical margin, submetacoxal lines subparallel, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 moderately widened. Aedeagus (Figs 108, 109) 0.40 mm long, symmetrical, fairly strongly sclerotized. Apical process of median lobe shorter than basal bulb, inflexed, with ventral side concave, almost evenly thick in middle section and with acute tip in lateral view, in dorsal view with subparallel margins, narrowed apical section excepted; articular processes large, strongly prominent. Parameres gradually narrowed apically in dorsal view, almost evenly wide and weakly curved in lateral view, reaching beyond tip of median lobe. Internal sac with membranes covered by minute, hardly visible denticles.

**Etymology:** The species epithet is a name of one of the Mindanao languages.

**Comparative notes:** This species differs drastically from its allied by the elytra with very wide adsutural areas and angular, strongly converging sutural striae. It shares with *S. binaluanum* and *S. lunabianum* large articular processes of the median lobe of the aedeagus, and with *S. binaluanum* also the internal sac lacking distinct denticulate structures. The shape of the parameres as seen in lateral view is diagnostic for this new species.

### 5.2.7.21. *Scaphisoma subfasciatum* PIC

*Scaphosoma subfasciatum* PIC, 1926: 2. Lectotype ♂, MNHN; type locality: Luzon, Los Banos. Lectotype designation and redescription: LÖBL 1972: 105, Figs 55, 56.

**D i s t r i b u t i o n :** Philippines: Luzon.

**Comments:** This species is characterized by the strongly prominent articular processes of the median lobe, as illustrated in LÖBL 1972. The species is not present in the new collections available for study.

### 5.2.8. The *Scaphisoma breviatum* species group

Two new species are placed here, *S. breviatum* and *S. opacum*. They possess aedeagi similar to those in members of the *S. binaluanum* group, differ however by a tubular sclerotized structure in the proximal part of the internal sac.

#### 5.2.8.1. *Scaphisoma breviatum* nov.sp. (Figs 110, 111)

**Type material:** Holotype ♂: Luzon: Philippines Mt. Pangao (2350m) nr. Data Ifugao Pv. 14.VII.1985 M. Sakai leg. (EUMJ). Paratypes: Luzon, with the same data as the holotype, 5♂♂, 6♀♀ (EUMJ, MHNG, BZLA); Luzon, Mountain Prov., Mt. Data, 2250 m, 25.VII.1985, leg. M. Sakai, 1♂, 1♀ (EUMJ, MHNG); Luzon, Mountain Prov. Mount Data, 8.I.80, leg. L. Deharveng & J. Orousset, 1♂ (MHNG).

**Description:** Length 1.22-1.48 mm, width 0.86-1.12 mm. Head, pronotum, elytra, meso- and metaventrite very dark, reddish-brown to black, hypomera, femora, tibiae and sternite 1 lighter, reddish-brown, antennae brown, tarsi and apical abdominal segments light reddish or yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 9/6: IV 13/5: V 22/7: VI 20/9: VII 33/13: VIII 15/10: IX 30/15: X 30/14: XI 42/15. Pronotum very finely and sparsely punctate, punctures hardly visible at 50 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae each with distinct puncture row. Exposed tip of scutellum minute. Elytra with lateral margin carinae not visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin raised, sutural striae shallow, bent at base, extending along basal margin to form basal striae reaching outer third of basal width, parallel from level of tip of scutellum toward apices, impunctate; adsutural areas narrow, extremely finely punctate. Lateral striae appearing impunctate. Elytral disc with punctation very fine and sparse, as that of pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as long as intervals to mesocoxae and about twice as long as wide. Metaventrite not microsculptured, extremely finely punctate. Median part of metaventrite convex, without impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as fifth to sixth of intervals to metacoxae, submesocoxal lines convex, finely but distinctly punctate. Metanepisternum flat, broad, slightly narrowed anteriorly, inner margin almost straight, suture deep. Pro-tibiae straight, mesotibiae and metatibiae slightly curved. Abdomen without obvious microsculpture, punctation very fine and sparse, hardly visible; submetacoxal areas reduced, submetacoxal lines indistinct, with marginal punctures situated at basal margin of sternite 1.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 110, 111) 0.35-0.42 mm long, symmetrical, weakly sclerotized. Median lobe with flattened basal bulb, small,

hardly prominent articular processes and long apical process. Latter almost in axis with basal bulb, shortly curved near blunt apex. Parameres lacking membranous lobes, weakly curved in dorsal and lateral views. Internal sac with two narrow rods and spine-like structures distinct in its middle part, in dorsal view.

**Etymology** The species epithet is a Latin adjective meaning shortened, referring to the short antennae.

**Comparative notes:** The shape of the submetacoxal lines is polymorphic in *Scaphisoma*, nonetheless these lines are distinctly separated from basal margin of the sternite I in almost all so far examined species, *S. brevium*, and a few members of the *S. unicolor* group excepted.

#### 5.2.8.2. *Scaphisoma opacum* nov.sp. (Figs 25, 112, 113)

**Type material:** Holotype ♂: E. slope of Mt. McKinley, Davao Prov., Mindanao, Elev.3200ft. lot 54 IX, 7-8, 1946; beating / CNHM-Philippine Zool.Exped.(1946-47) F.G. Werner leg. (FMNH). Paratypes: with the same data as the holotype, 2♀ (FMNH, MHNG); Mindanao, Davao Prov., Baracatan, N. slope of Mt. Apo, Eagle Centre, 1100 m, 5.VIII.1985, leg. M. Sakai, 1♂ (MHNG); Mindanao, 30 km E of Malaybalay, Busdi, 1000 m, 5-9.V.1996, leg. Bolm, 1♀ (SMNS); Mindanao, Misamis occ., Don Victoriano, 1700 m, 1-3.V.1996, leg. Bolm, 1♂ (MHNG).

**Description:** Length 1.44-1.73 mm, width 1.03-1.12 mm. Head, body and appendages reddish-brown, appendages and apical abdominal segments lighter than most of body in darker specimens. Head and pronotum not microsculptured and not iridescent, elytra with distinct strigulate microsculpture and conspicuously dull. Length/width ratio of antennomeres as: III 12/7: IV 15/6: V 30/8: VI 43/10: VII 48/14: VIII 43/13: IX 49/12: X 49/13: XI 65/13. Pronotum very finely and densely punctate, punctures hardly visible at 50 times magnification, lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae shallow, bent at base, extending along basal margins to form basal striae reaching about elytral mid-width, parallel from level of tip of scutellum toward apices, impunctate; adsutural areas narrow, impunctate. Lateral striae impunctate. Elytral disc with punctation very fine and sparse, as that of pronotum. Hind wings fully developed. Hypomera, mesanepisterna, metaventrite and abdomen with strigulate microsculpture. Mesepimera longer than intervals to mesocoxae and about four times as long as wide. Metaventrite extremely finely punctate. Median part of metaventrite flattened, with fairly deep, elongate mesal impression; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum flat, narrow, slightly or not narrowed anteriorly, inner margin almost straight, suture shallow. Protibiae straight, mesotibiae and metatibiae slightly curved. Abdomen with punctation very fine and sparse, hardly visible; submetacoxal areas about 0.03 mm, as fifth of intervals to apical margin of sternite, submetacoxal lines convex, with fairly coarse marginal punctures.

**Male:** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 102, 113) 0.40-0.42 mm long, symmetrical, fairly sclerotized. Apical process of median lobe shorter than basal bulb, gradually narrowed in dorsal view, almost tubular and weakly inflexed in lateral view, its narrowed and bent apical section excepted. Apex of median lobe blunt, articular processes not prominent. Parameres extended behind level of apex of median

lobe, weakly curved in dorsal view, almost straight in lateral view, widened apically. Internal sac simple, with basal tube, membranes covered by denticular structures.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning dull.

**C o m p a r a t i v e n o t e s :** The sole so far known Asian species of *Scaphisoma* possessing dull elytra are *S. pecki* LÖBL, 1982 from Japan and *S. apparatus* LÖBL, 2015 from Kalimantan. These species may be, however, readily distinguished: *Scaphisoma pecki* is 1.9 mm long, and has the pronotum clearly darker than the elytra, the elytral microsculpture consisting of meshes, the antennomeres IX to XI equally long, the sutural striae extended along basal margins of elytra, the metaventrite lacking microsculpture and bearing two apicomedian impressions, and the median parts of the metaventrite and sternite 1 bearing patches of dense and coarse punctures. Unlike *S. pecki*, *S. opacum* is about 1.4-1.7 mm long, has its body uniformly reddish-brown, the antennomere XI notably longer than the antennomeres IX or X, the elytral microsculpture consisting of striae, the sutural striae not extended along basal margins of the elytra, the metaventrite bearing a single, elongate mesal impression and strigulate microsculpture, and punctation entirely very fine, as that of sternite 1. The new species may be readily distinguished from *S. apparatus* by the short antennomere IV (in *S. apparatus* about twice as long as III), and the not darkened centre of elytra. The aedeagal characters of *S. opacum* suggest relationships with *S. brevium*.

### 5.2.9. The *Scaphisoma elpis* species group

This group is established for a single Palawan new species, *S. elpis*, characterized by strongly asymmetrical median lobe with its right side lamellar and strongly sclerotized, and the apical process placed at its left side. The parameres are symmetrical, not lobed and the internal sac is compact, lacking flagellum or sclerotized pieces. The aedeagal characters suggest relationships with the Indian *S. diabolium* LÖBL, 1986.

#### 5.2.9.1. *Scaphisoma elpis* nov.sp. (Figs 114, 115)

**T y p e m a t e r i a l :** Holotype ♂: Philippines, Palawan central Sabang 50-100m, degraded rainforest on slope 30. XI. 1995, Kodada lgt. (MHNG).

**D e s c r i p t i o n :** Length 1.28 mm, width 0.94 mm. Head, body, femora and tibiae almost uniformly light brown, elytra near apices, apical abdominal segments tarsi and antennae lighter than remainder of body. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 10/7: IV 11/6: V 20/6: VI 35/9: VII 40/14: VIII 32/12: IX 40/15: X 35/15: XI 40/14. Pronotum very finely and densely punctate, punctures at 50 times magnification hardly visible, lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae concealed in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae fairly deep, bent at base and extended along pronotal lobe almost to basal mid-width, slightly converging apically, impunctate; adsutural areas narrow, flat, with hardly visible punctures, lateral striae impunctate. Elytral disc with punctation very fine, punctures larger than those on pronotum, poorly delimited, visible at 30 times magnification. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as halves of intervals to mesocoxae, about four times as long as wide. Metaventrite not microsculptured; mesal

area weakly convex, with fairly dense, very fine punctation, lacking impressions or stria; lateral areas sparsely and very finely punctate; antecoxal puncture rows absent. Submesocoxal areas 0.02 mm, about as seventh of intervals to metacoxae, submesocoxal lines convex, finely punctate, punctures not extended by striae. Metanepisternum flat, strongly narrowed anteriorly, inner margin rounded, suture fairly deep. Tibiae straight. Abdomen not microsculptured and very finely and sparsely punctate; submetacoxal areas 0.04 mm, almost as fourth of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres hardly widened. Aedeagus (Figs 114, 115) with median lobe strongly asymmetrical, bearing large, sclerotized lamina on left side, apical process situated at right side, inflexed and strongly narrowed apically, tip acute. Articular process prominent. Parameres symmetrical, arcuate, almost evenly wide, not lobed. Internal sac bulbous, with compact spine-like and denticular structures.

**E t y m o l o g y :** The species epithet is the name of the goddess of hope in Greek mythology.

**C o m p a r a t i v e n o t e s :** The species possesses a unique shape of aedeagus and its relationships are unknown. It may be readily distinguished from congeners possessing elytra with basal striae by the absence of abdominal microsculpture, in combination with the small body-size and the length ratios of the antennomeres III to IV. The weakly sclerotized basal bulb of the aedeagus was damaged by dissection. Therefore, the total length of the aedeagus is unknown.

#### **5.2.10. The *Scaphisoma alticola* species group**

The group is here established for *S. alticola* described below, and for *S. heissi* LÖBL, 1982 from Sumatra. It is characterized a symmetrical aedeagus with a gutter-like apical process of the median lobe, in combination with strongly widened, lobed parameres; both species have a complex internal sac, lacking a flagellum or sclerotized pieces.

##### **5.2.10.1. *Scaphisoma alticola* nov.sp. (Figs 116, 117)**

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Philippines Paoya (2400m) nr. Sayangan Benguet Prov. 11.VII.1985 M. Sakai leg. (EUMJ).

**D e s c r i p t i o n :** Length 1.90 mm, width 1.35 mm. Head, thorax, most of elytra and sternites 1 to 3 dark reddish-brown, apical third of elytra yellowish, apical abdominal segments and appendages light reddish-brown, antennae brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/9: IV 50/7: V 54/8: VI 40/8: VII 52/15: VIII 40/12: IX 52/17: X 49/15: XI 55/15. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae with hardly visible punctures. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae concealed in dorsal view, apical margins truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin slightly not raised, sutural striae deep, hardly bent at base and not extended along basal margins, parallel along suture except near apices, impunctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation very fine, somewhat coarser than that of pronotum, punctures poorly delimited. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat shorter than intervals to mesocoxae, about four times as long as

wide. Metaventricle with strigulate microsculpture on impressed apicomedian part and between mesocoxae and metacoxae, not microsculptured on lateral parts; punctation very fine and dense on convex area between mesocoxae, very fine and sparse on lateral areas, coarse and dense on apicomedian surface; antecoxal puncture rows absent. Submesocoxal areas 0.05 mm, almost as third of intervals to metacoxae, submesocoxal lines convex, coarsely punctate, punctures not extended by striae. Metanepisternum flat, narrowed anteriorly, inner margin rounded, suture deep. Tibiae straight. Abdomen with strigulate microsculpture and very finely and sparsely punctate; submetacoxal areas 0.02 mm, about as tenth of intervals to apical margin of sternite, submetacoxal lines slightly convex, distinctly punctate.

**Male:** Protarsomeres and mesotarsomeres 1 to 3 strongly widened, narrower than apices of respective tibiae. Sternite 6 concavely notched laterally small, triangular mesal lobe. Aedeagus (Figs 116, 117) 1.16 mm long, symmetrical, with most of basal bulb weakly sclerotized, apical process strongly sclerotized. Median lobe with apical process about as long as basal bulb, gutter-like, strongly curved ventrally, acute at tip. Ventral side of apical process almost evenly concave. Articular process sharply delimited by notch. Parameres strongly widened, with lobes very densely striate. Internal sac bearing mesal row of teeth, dense spines in apical section and very fine and dense denticulate structures.

**Etymology:** The species epithet is a noun meaning living in high altitudes, and referring to the type locality.

**Comparative notes:** The species differs notably from the related *S. heissi* LÖBL, 1982 by the gradually narrowed apical process of the aedeagus and the internal sac with a mesal row of tooth. Both may be readily distinguished in external characters by the uniformly dark reddish-brown elytra in *S. heissi*, and by the presence of the metaventral antecoxal punctures rows and the larger submetacoxal areas in the latter species. See also LÖBL 1982: 12-14.

### 5.2.11. The *Scaphisoma sexuale* species group

This group is characterized by very narrow, elongate aedeagus with parameres extended proximally to surround the basal bulb and lacking apical membranous apophyses. The internal sac is simple, tubular. It contains a single Philippine species. The Australian *S. funereum* LÖBL, 1977, *S. leai* LÖBL, 1977 and *S. glabripenne* LÖBL, 1977 have similar median lobes of the aedeagi, simple internal sacs and parameres extended proximally, but differ by the membranous apical parameral apophyses (LÖBL 1977a).

#### 5.2.11.1. *Scaphisoma sexuale* LÖBL, 1972

*Scaphisoma sexuale* LÖBL, 1972: 86, Figs 17, 18. Holotype ♂, ZMUB; type locality: Palawan, Binaluan.

**Additional material examined:** Palawan, Olanguan, 0-50 m, between Puerto Princesa and Roxas, 1.IX.1985, leg. M. Sakai, 2 ex. (EUMJ, MHNG).

**Distribution:** Philippines: Palawan.

**Comments:** The species may be readily distinguished from the Philippine congeners by the shape of the aedeagus. The very narrow and long parameres extended proximally and almost meeting at the proximal side of the basal bulb are diagnostic.



### 5.2.12. The *Scaphisoma scurrile* species group

The group is established for two species having the apical process of the median lobe split in two asymmetrical dorsal and ventral valves, a large ostium, and a flagellum broadened apically.

#### 5.2.12.1. *Scaphisoma bicuspidatum* nov.sp. (Figs 5, 118, 119)

**Type material:** Holotype ♂: Philippines: Luzon Mt. Makiling, 400m 19.XI.1995, I. Löbl summit road, litter (MHNG). Paratypes: with the same data as the holotype, 2♂♂, 5♀♀ (MHNG); Lagunas Prov., Mt. Makiling, 4 km Los Banos, 8.IV.1977, leg. L. Watrous, 2♀♀ (MHNG); Luzon, Lagunas Prov., Mt. Makiling, above Mad Spring, 400-700 m, 19-22.XI.1995, leg. J. Kodada, 2♂♂, 4♀♀ (MHNG).

**Description:** Length 1.45-1.55 mm, width 1.05-1.10 mm. Head and most of body blackish-brown to black. Apical fifth to fourth of elytra yellowish, narrowly dark brown apices excepted. Apical abdominal segments, femora and tibiae reddish-brown, antennae and tarsi yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 11/7: IV 28/6: V 40/7: VI 40/6: VII 50/12: VIII 38/8: IX 48/12: X 50/12: XI 52/13. Pronotum finely and very densely punctate, puncture diameters to part about as puncture intervals, with lateral margins evenly rounded, lateral margin carinae partly exposed in dorsal view, lateral striae very finely punctate. Visible tip of scutellum minute. Elytra not flattened, with lateral margin carinae entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, bent at base, extended along basal margin to form basal striae almost reaching basal mid-width, parallel posterior level of scutellar tip except near apices, impunctate; adsutural areas narrow, flat, each with single puncture row, lateral striae distinctly punctate. Elytral disc with punctation fine and dense, mostly coarser than that of pronotum, with some punctures about as large as puncture intervals, punctation near bases and lateral margins similar to that on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as long as intervals to mesocoxae, hardly three times as long as wide. Metaventricle not microsculptured, extremely finely punctate, few larger punctures on apicomedian area excepted. Median part of metaventricle flattened, apically somewhat impressed; antecoxal puncture rows absent. Submesocoxal areas 0.05 mm, about as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate, punctures not extended by striae. Metanepisternum flat, weakly narrowed anteriorly, inner margin arcuate, suture deep. Tibiae straight. Abdominal sternite 1 lacking obvious microsculpture, very finely and sparsely punctate; submeta-coxal areas 0.04 mm, about as fourth of intervals to apical margin of sternite, submeta-coxal lines convex, distinctly punctate. Following ventrites with punctulate microsculpture.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 distinctly widened. Aedeagus (Figs 118, 119) 0.71 mm long, fairly sclerotized, asymmetrical. Median lobe narrow, with strongly sclerotized dorsal valve and abruptly inflexed apical section, ostium large, dorsal, tip truncate and with acute angles in lateral view. Articular processes robust, not prominent. Parameres with strongly extended bases, widest about in middle in lateral view, with narrowly membranous inner margins seen in dorsal view. Internal sac strongly sinuate, flattened, sclerotized except in apical section, latter extruded in resting position, lacking denticular or spine-like structures.

**E t y m o l o g y :** The species epithet is a Latin adjective, meaning double-pointed and referring to the shape of the apex of the median lobe, seen in lateral view.

**C o m p a r a t i v e n o t e s :** This species possesses a unique shape of the median lobe and internal sac. It may be, however, related with *S. scurrile* with which it shares a large dorsal ostium, and the internal sac strongly sclerotized and in resting position extruded, lacking denticular or spinous structures.

#### **5.2.12.2. *Scaphisoma scurrile* nov.sp. (Figs 120-122)**

**T y p e m a t e r i a l :** Holotype ♂: Palawan (central) Olangoan, sea level, 18 km NE San Rafael, sea level I. Löbl, 5-6-XII.1995, fungi on large logs, bark (MHNG). Paratypes: Palawan, with the same data as the holotype, 1 ♂ (MHNG); Palawan, Olanguan [sic], 0-50 m, between Puerto Princesa & Roxas, 1.IX.1985, leg. M. Sakai, 1 ♀ (EUMJ); Palawan, Matalangao, 150 m, nr. Roxas, 29.VIII.1985, leg. M. Sakai, 1 ♂ (MHNG); Palawan, Binaluan, 1924, 1 ♂, 1 ♀ (SMND, MHNG); Palawan, Binaluan, leg. G. Böttcher, 1 ♀ (ZMUB).

**D e s c r i p t i o n :** Length 1.70-1.95 mm, width 1.23-1.45 mm. Head, thorax, elytra and abdomen dark reddish-brown to blackish-brown. Legs reddish-brown, antennae lighter than legs, almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 14/9: IV 29/7: V 37/9: VI 45/10: VII 54/14: VIII 48/11: IX 60/13: X 60/13: XI 72/14. Pronotum distinctly and densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae hardly visible near base or entirely concealed in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin hardly raised, sutural striae deep, bent at base, extended along basal margins to form basal striae basal reaching mid-width or outer third of basal width, parallel posteriad except near apices, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Elytral disc with punctation fairly coarse, dense, coarser than that of pronotum, many punctures about as large as puncture intervals. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera distinctly shorter than intervals to mesocoxae, hardly three times as long as wide. Metaventricle not microsculptured. Median part of metaventricle weakly convex, without impressions, coarsely punctate on narrow apical area, remainder of metaventricle with extremely fine and sparse punctation; antecoxal puncture rows absent. Submesocoxal areas 0.03-0.04 mm, about as sixth or seventh of intervals to metacoxae, submesocoxal lines parallel, coarsely punctate, punctures not extended by striae. Metanepisternum convex, narrowed anteriorly, inner margin rounded, suture deep. Tibiae straight. Abdomen with distinct strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.03-0.04 mm, about as sixth of intervals to apical margin of sternite, submetacoxal lines parallel, coarsely punctate.

**M a l e :** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 120-122) 0.73-0.76 mm long, strongly sclerotized. Basal bulb fairly large. Articular processes small, not prominent. Apical process of median lobe longer than basal bulb, split into two asymmetrical valves joined apically, with large dorsal ostium. Ventral valve long, rounded apically in dorsal view, with acute tip in lateral view. Parameres narrow posteriad bases, lacking membranous margins, weakly bent in apical part in dorsal view, appearing straight in lateral view. Internal sac with robust, strongly sclerotized and apically extruded rod, vesiculate proximally; spines and scale-like structures absent.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning foolish, referring to the unusual shape of the aedeagus.

**C o m p a r a t i v e n o t e s :** The species may be distinguished by the aedeagal characters, in particular by the shape of the broad apex of the median lobe seen in dorsal view and the narrow, almost straight parameres from its congener possessing elytra with basal striae, strigulate abdominal microsculpture and parallel, coarsely punctate sub-metacoxal lines,

### **5.2.13. The *Scaphisoma unicolor* species group**

The group was established for two Japanese species (LÖBL 1970b). It includes at present a number of Asian species. They possess aedeagi with asymmetrical, narrow and elongate median lobe, usually have robust, prominent articular process and a small basal bulb. The parameres may be symmetrical or asymmetrical, usually lacking membranous lobes, and the internal sac is simple, consisting of a long flagellum, often to part extruded in repos.

#### **5.2.13.1. *Scaphisoma anomalum* LÖBL, 1972 (Fig. 1)**

*Scaphisoma anomalum* LÖBL, 1972: 91, Figs 29, 30. Holotype ♂, ZMUB; type locality: Mindanao, Surigao.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Mindanao, Davao Prov., 25 km NW of New Bataan, 1200 m, 20-22.V.1996, leg. Bolm, 3 ex. (SMNS, MHNG); Leyte, Visca N Baybay, prim. forest 200-500 m, 22.II.1991, leg. W. Schawaller et al. 1 ex. (MHNG).

**D i s t r i b u t i o n :** Philippines: Mindanao, Leyte.

**C o m p a r a t i v e n o t e s :** This species may be easily distinguished by the aedeagal characters, in particular by the strongly widened and flattened parameres. It lacks obvious abdominal microsculpture, as most of its allied. The sub-metacoxal plates of the sternite 1 are about 0.03-0.04 mm, as fifth to fourth of intervals to apical margin, the sub-metacoxal lines are weakly convex, coarsely and sparsely punctate, these punctures forming an uninterrupted row in the middle of the sternite.

#### **5.2.13.2. *Scaphisoma biliranense* LÖBL (Fig. 2)**

*Scaphisoma biliranense* LÖBL, 1972: 86, Figs 19, 20. Holotype ♂, ZMUB; type locality: Biliran.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Leyte, Visca N Baybay, 200-500 m, prim. forest, 22.II.-10.III.1991, leg. W. Schawaller et al., 4♂♂, 1♀ (SMNS, MHNG); Leyte, SW Abuyog, 8.III.1991 forest, 100-300 m, leg. W. Schawaller et al., 5♂♂, 2♀♀ (SMNS, MHNG).

**D i s t r i b u t i o n :** Philippines: Biliran, Leyte.

**Comments:** The description of this species was based on a single male from Biliran and on a female from Leyte, both lacking more detailed locality data. The examined specimens listed above are with 1.60 mm body length and 1.15 mm width larger than the holotype, and have the aedeagus 0.67 mm long. The following characters complete the original description: Pronotum with lateral margins evenly rounded, lateral margin carinae visible in dorsal view, except near anterior angles, lateral striae impunctate. Elytra convex, with anterior third of lateral margin carinae visible in dorsal view, inner apical angles not prominent. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera almost twice as long as intervals to mesocoxae, about three times as long as wide. Antecoxal puncture rows absent. Submesocoxal areas 0.05 mm, about as

half of intervals to metacoxae, submesocoxal lines convex, finely punctate, punctures not extended by striae. Tibiae straight. Abdomen with submetacoxal areas 0.05 mm, about as third of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**5.2.13.3. *Scaphisoma centripunctulum* nov.sp. (Figs 123, 124)**

**Type material:** Holotype ♂: Burungkot, Upi, Cotabato Prov., Mindanao Elev. 1500 ft. I, 1-9, 1947 / Lot 154: taken on polypores / CNHM-Philippine Zool. Exped. (1946-47) F.G.Werner leg. (FMNH).

**Description:** Length 1.45 mm, width 0.93 mm. Head and body dark reddish-brown, metaventricle darker, almost blackish, sternite 1 light reddish-brown, following sternites and apical tergites lighter, ochreous, about as appendages. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/8: IV 18/7: V 30/8: VI 35/10: VII 46/15: VIII 33/9: IX 48/12: X 46/12: XI 60/12. Pronotum very finely and sparsely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae hardly exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin raised, sutural striae deep, almost angular near base, not extended along basal margins to form basal striae, strongly converging in basal fifth, moderately, gradually converging posteriad basal fifth to apices, very finely punctate; adsutural areas broad at bases, flat, each with single row of very fine punctures, lateral striae finely punctate. Prevailing surface of elytral disc with punctation very fine, shallow, poorly delimited, to part as fine as that on pronotum; punctation on small, elongate laterocentral areas conspicuously dense and coarse, partly confluent. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera slightly shorter than intervals to mesocoxae, about three times as long as wide. Metaventricle not microsculptured. Median part of metaventricle slightly convex, lacking impressions, densely, finely punctate. Lateral parts of metaventricle with extremely fine and sparse punctation; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as third of intervals to metacoxae, submesocoxal lines convex, very finely punctate, punctures not extended by striae. Metanepisternum flat, not narrowed anteriorly, straight except at rounded posterior angles, sutures deep. Tibiae straight. Abdomen with punctulate microsculpture and very finely and sparsely punctate; submetacoxal areas 0.04 mm, about as fourth of intervals to apical margin of sternite, submetacoxal lines convex, very finely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 123, 124) 0.41 mm, strongly sclerotized. Median lobe asymmetrical, with small basal bulb, robust and prominent articular process and long, narrow apical process. Latter strongly inflexed and curved in lateral view, subparallel and with rounded apex in dorsal view. Parameres symmetrical, slightly sinuate and in apical halves somewhat narrowed in lateral view, almost regularly curved in dorsal view. Internal sac simple, with flagellum.

**Etymology:** The species epithet is a Latin adjective, referring to the pattern of elytral punctation.

**Comparative notes:** The aedeagal characters suggest close relationships of *S. centripunctulum* and *S. biliranense*. The new species may be readily distinguished from *S. biliranense*, as from other Philippine congeners, *S. subpunctulum* excepted, by its unusual pattern of elytral punctation. Besides, it differs clearly by the gradually widened

antennomeres IV to VII, the sutural striae not extended along basal margins of the elytra and sternite 1 lacking microsculpture.

#### 5.2.13.4. *Scaphisoma duplicatum* LÖBL, 1972

*Scaphisoma duplicatum* LÖBL, 1972: 89, Figs 25, 26. Holotype ♂, ZMUB; type locality: Masbate, Aroroy. Additional material unknown.

**D i s t r i b u t i o n** : Philippines: Masbate.

#### 5.2.13.5. *Scaphisoma imuganense* LÖBL, 1972

*Scaphisoma imuganense* LÖBL, 1972: 91, Figs 27, 28. Holotype ♂, ZMUB; type locality: Imugan.

**A d d i t i o n a l m a t e r i a l e x a m i n e d** : Luzon, Ilicos Norte Prov., Bangui, I.1918, leg. G. Böttcher, 1 ex. (ZMUB); Luzon, Mountain Prov., Sayangan, 2300 m, 10. and 12.VII.1985, leg. M. Sakai, 8 ex. (EUMJ, MHNG); Luzon, Mountain Prov., near Sagada, 15-19.XII.1970, leg. L. Deharveng & J. Orousset, 12 ex. (MHNG, BZLA); Luzon, Mountain Prov., Sagada, Latipan Cave, 15.XII.1979, leg. L. Deharveng & J. Orousset, 1 ex. (MHNG); Luzon, Mountain Prov., near Latan Underground River, 24.XII.1979, leg. L. Deharveng & J. Orousset, 1 ex. (MHNG); Luzon, Benguet Prov., Baguio, 1500 m, near Crystal Caves, 1-2.I.1980, leg. L. Deharveng & J. Orousset, 1 ex. (MHNG).

**D i s t r i b u t i o n** : Philippines: Luzon.

**Comments.** This may be readily distinguished from other members of the group by the fused mesepimera.

#### 5.2.13.6. *Scaphisoma inconventum* nov.sp. (Figs 125, 126)

**Type material** : Holotype ♂: Philippines: Luzon Mount Data n. Lodge 8.I.80 Deharveng-Orousset 156 (MHNG). Paratypes: Luzon, Mountain Prov., env. Sagada nr. Ambasing, 15-19.XII.79, leg. L. Deharveng & J. Orousset 41, 1 ♀ (MHNG); Luzon, Mountain Prov., env. Sagada Ambasing, 1460 m, 16.XII.79, leg. L. Deharveng & J. Orousset 27, 1 ♀ (MHNG); Luzon, Mountain Prov., Mt. Puguis, 2000 m, 19.VII.1985, leg. M. Sakai, 1 ♂ (MHNG); Luzon, Benguet Prov., Sayangan, 2300 m, 10.VII.1985, leg. M. Sakai, 1 ♂ (EUMJ); with the same data but 12.VII.1985, 1 ♀ (EUMJ); Luzon, Benguet Prov., nr. Sayangan, Paoay 2400 m, 11.VII.1985, leg. M. Sakai, 1 ♂, 1 ♀ (EUMJ, MHNG).

**Description** : Length 1.33-1.42 mm, width 0.93-0.98 mm. Head and most of body brown to blackish-brown, mesoventrite and metaventrite darkened in lighter specimens, appendages lighter than body, ochreous. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 10/7: IV 27/6: V 25/7: VI 27/8: VII 35/9: VIII 27/8: IX 35/10: X 32/10: XI 37/12. Pronotum with punctation very fine, lateral margins evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral striae very finely punctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae usually exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, shortly bent at base, not extended along basal margins, parallel posteriad, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation fine and sparse, well visible, punctures usually somewhat larger than those on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera fused. Metaventrite not microsculptured, with barely visible punctate. Median part of metaventrite convex, without two deep apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.05 mm, about as half of intervals to metacoxae, submesocoxal lines convex, coarsely punctate, punctures not extended by striae. Meta-

nepisternum flat, narrowed anteriorly, inner margin oblique. Tibiae straight. Abdomen lacking microsculpture, very finely punctate, sternite 1 with submetacoxal areas 0.04 mm, about as third of intervals to apical margin of sternite, submetacoxal lines convex, coarsely punctate.

**Male:** Protarsomeres 1 to 3 slightly widened. Aedeagus (Figs 125, 126) 0.31 mm long, symmetrical, weakly sclerotized. Median lobe with comparatively large basal bulb and robust articular process, apical process moderately curved, gradually narrowed in dorsal view, with acute tip. Parameres strongly widened basally, narrow in apical halves, with membranous inner margins. Proximal part of flagellum widened.

**Etymology:** The species epithet is Latin adjective, meaning not joint.

**Comparative notes:** This species is quite similar to *S. palawanum* PIC. It may be readily distinguished from the latter and other allied species by the fused mesepimera. In addition, the shape of its median lobe and of the parameres is diagnostic.

### 5.2.13.7. *Scaphisoma inopportunum* nov.sp. (Figs 16, 127, 128)

**Type material:** Holotype ♂: Luzon: Lagunas Mt. Banahaw, ca 1 km from Kinabuhayan, 500m, 25.XI.1995, I. Löbl, fungi on logs, under bark, degr. rainforest (MHNG). Paratypes: with the same data as the holotype, 4♂♂, 5♀♀ (MHNG, BZLA); same but above Kinabuhayan, 600-700 m, 24.XI.1995, 1♂, 2♀♀ (MHNG); Luzon, Lagunas, Mt. Makiling, 4 km S Los Banos, 7.V.1977, leg. L.E. Watrous, 3 ex., and with the same data but 11.IV.1977, 1♂, 1♀ (MHNG); Luzon, Los Banos / 1924, 1♂ (SMTD); Luzon, Lagunas Mt. Makiling, summit road 600 m, 21-22.XI.1995, leg. I. Löbl, 1♀ (MHNG); Luzon, Lagunas Mt. Makiling, 430 m, 17-18.VI.1977, leg. M. Satô, 3♀♀ (EUMJ).

**Description:** Length 1.45-1.70 mm, width 1.05-1.23 mm. Head and body reddish-brown to blackish, mesoventrite and metaventrite often darkened, femora and tibiae reddish-brown, lighter than body, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/8: IV 16/6: V 23/8: VI 38/9: VII 48/15: VIII 32/10: IX 45/14: X 39/14: XI 48/16. Pronotum with punctuation very fine, lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae very finely punctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae usually exposed in dorsal view, apical margins truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, shortly bent at base, not extended along basal margins, parallel posteriorly, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctuation fine, well visible, punctures usually somewhat larger than those on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about three times as long as wide. Metaventrite not microsculptured, very finely and sparsely punctate. Median part of metaventrite convex, without stria or impressions; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as thirds of intervals to metacoxae, submesocoxal lines convex, coarsely punctate, punctures not extended by striae. Metanepisternum hardly convex, slightly narrowed anteriorly, inner margin rounded at angles, almost straight in-between, impressed, suture deep. Tibiae straight. Abdomen with sternite 1 lacking microsculpture, very finely punctate, submetacoxal areas 0.02 mm, about as eighth of intervals to apical margin of sternite, submetacoxal lines parallel, coarsely punctate. Following sternites with punctulate microsculpture.

**Male:** Protarsomeres and mesotarsomeres 1 to 3 slightly widened. Aedeagus (Figs

127, 128) 0.32-0.37 mm long, asymmetrical, weakly sclerotized. Basal bulb oval, with inconspicuous articular process. Apical process inflexed, arcuate, gradually narrowed, with acute tip. Parameres strongly asymmetrical. Left parameres wide in basal part, abruptly in middle and irregularly curved, very narrow in apical section. Right paramere shorter than left parameres, evenly wide, bent and with truncate apex in dorsal view, irregularly curved and widened posterior mid-length in lateral view. Internal sac simple, with thin flagellum.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning inopportune.

**Comparative notes.** This species shares most diagnostic characters with *S. palawanum* and *S. oviforme* described below. It may be distinguished by its aedeagal features, in particular by the shape of the parameres.

### **5.2.13.8. *Scaphisoma oviforme* nov.sp. (Figs 129, 130)**

**Type material:** Holotype ♂: Burungkot, Upi, Cotabato Prov., Mindanao El. 1500ft. I-6-1947 / CNHM-Philippine Zool.Exped. (1946-47) F.G.Werner leg. (FMNH).

**Description:** Length 1.60 mm, width 1.08 mm. Head, dorsal side of body and femora uniformly dark reddish-brown, upper part of hypomera lighter than pronotum, mesoventrite and metaventrite darker than pronotum, apical abdominal segments, tibiae, tarsi and antennae lighter reddish-brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/8: IV 20/7: V 29/8: VI 37/8: VII 43/14: VIII 30/10: IX 45/14: X 46/14: XI 55/15. Pronotum very finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Scutellum concealed. Elytra convex, with lateral margin carinae not exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae shallow, bent at base, not extended along basal margins, parallel posteriad except near apices, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation very fine, coarser than that on pronotum, dense. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as halves of intervals to mesocoxae and about three times as long as wide. Metaventrite not microsculptured, very finely and sparsely punctate. Median part of metaventrite slightly convex, without stria or impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae, submesocoxal lines parallel, punctate, punctures not extended by striae. Metanepisternum flat, slightly narrowed anteriad, inner margin almost straight, impressed. Tibiae straight. Abdomen with punctulate microsculpture, very finely punctate. Sternite 1 with submetacoxal areas hardly 0.02 mm, about as eleventh of intervals to apical margin of sternite, submetacoxal lines parallel, coarsely punctate.

**Male:** Protarsomeres 1 to 3 slightly widened. Aedeagus (Figs 129, 130) 0.40 mm long, asymmetrical, weakly sclerotized. Median lobe with small, oviform basal bulb (dorsal view), convex articular process, very narrow and strongly curved apical process, apical section of latter filiform. Parameres strongly asymmetrical, right parameres widest in subapical section (lateral view), very narrow in apical section. Left parameres strongly widened apically, in apical section membranous. Flagellum of internal sac very narrow.

**E t y m o l o g y :** The species epithet refers to the egg-like shape of the basal bulb of the aedeagus, in dorsal view.

**Comparative notes:** This species shares with *S. palawanum* and *S. inopportunum* reduced submetacoxal areas, with parallel lines. It may be distinguished from these species, as from other members of the group by the aedeagal characters.

**5.2.13.9. *Scaphisoma palawanum* PIC, 1926 (Figs 26, 131, 132)**

*Scaphisoma palawanum* PIC, 1926: 1. Lectotype ♂, MNHN; type locality: Palawan, Binaluan. Lectotype designation, diagnostic characters and illustration of the aedeagus: LÖBL 1972: 103, Figs 23, 24.

**Additional material examined:** Palawan, Roxas, region of Matalangao, 80 m, 5.IV.1983, leg. S. Nagai & C. Lienhard, 1♂ (MHNG); Palawan, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995, leg. I. Löbl, 5♂♂, 1♀, with the same data but leg. J. Kodada, 1♂ (MHNG, BZLA); Palawan, Binaluan, 4♂♂, 2♀♀ (SMTD); Palawan, Sabang, 50-100 m, 30.XI.1995, leg. J. Kodada, 3♀♀ (MHNG); same data but sea level, 1♀ (MHNG); same data but leg. I. Löbl, 1 ex. (MHNG); Palawan, Sabang, N of Mt. St. Paul, 11-13.VII.1977, leg. M. Sató, 1♂ (MHNG); Palawan, Olangoan, 18 km NE San Rafael, sea level, 5-6.XII.1995, leg. I. Löbl, 1♂ (MHNG); Palawan, Olangoan, 76 km N. of Puerto Princesa, 26.VIII.1985, leg. M. Sakai, 2♀♀ (EUMJ).

**Distribution:** Philippines: Palawan.

**Comments:** The aedeagus of the lectotype illustrated by LÖBL (1972) was weakly sclerotized and deformed by dissection. Therefore, new illustrations (Figs 131, 132) are given in the present paper.

**5.2.13.10. *Scaphisoma pandanum* nov.sp. (Figs 27, 133, 134)**

**Type material:** Holotype ♂: Philippines Occident. Mindoro North Pandan Island G. Cuccodoro 7.i.1997 10 m: sifting leaf & fermenting fruits in forest (MHNG). Paratypes: with the same data as the holotype, 35♂♂, 63♀♀ (MHNG, BZLA).

**Description:** Length 1.34-1.43 mm, width 1.05-1.08 mm. Head, body and femora uniformly, fairly light reddish-brown, apical abdominal segments, tibiae, tarsi and antennae lighter, yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/7: IV 27/7: V 31/7: VI 29/8: VII 40/14: VIII 25/9: IX 40/13: X 40/14: XI 50/15. Pronotum very finely and sparsely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae hardly exposed in dorsal view, apical margins truncate, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae shallow, bent at base, extended along basal margins to form basal striae reaching basal mid-width, parallel posteriad except near apices, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation very fine, almost as that on pronotum, dense. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as long as intervals to mesocoxae, about twice as long as wide. Metaventrite not microsculptured. Median part of metaventrite flattened, without impressions, distinctly punctate, punctures between mesocoxae fairly sparse, posterior level of mesocoxae dense and coarse, bearing conspicuous pubescence. Lateral parts of metaventrite with extremely fine and sparse punctation; antecoxal puncture rows absent. Submesocoxal areas 0.06 mm, about as two thirds of intervals to metacoxae, submesocoxal lines convex, distinctly punctate, punctures not extended by striae. Metanepisternum flat, narrowed anteriorly, inner margin rounded, suture deep. Tibiae straight. Abdomen with distinct or hardly visible punctulate microsculpture, punctation very fine and sparse, except on median area of sternite 1 bearing distinct punctures and conspicuous pubescence; submetacoxal areas 0.06-



0.07 mm, almost as half of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 132, 133) 0.53-0.71 mm long, asymmetrical, strongly sclerotized. Basal bulb fairly large. Articular processes large, not prominent. Apical process of median lobe split into two laminae, with large ostium in-between. Right lamina about as long as basal bulb, inflexed, subcylindrical in dorsal view and with acute tip, left lamina short. Parameres narrowed and with membranous inner margins in apical halves, denticular at mid-length (dorsal view). Internal sac with robust, strongly sclerotized flagellum proximally bent and hook-like, dilated and shovel-like at apex; spines and scale-like structures absent.

**E t y m o l o g y :** The species epithet is the name of the island where this new species was found.

**C o m p a r a t i v e n o t e s :** This species resembles *S. biliranense* in external characters though its body colour is notably lighter. It differs drastically by the aedeagal characters.

#### **5.2.13.11. *Scaphisoma ramosum* LÖBL, 1972**

*Scaphisoma ramosum* LÖBL, 1972: 93, Fig 31. Holotype ♂, ZMUB; type locality: Masbate, Aroroy. Additional material unknown.

**D i s t r i b u t i o n :** Philippines: Masbate.

Comments: This species is very similar to *S. anomalum*.

#### **5.2.13.12. *Scaphisoma scapulare* nov.sp. (Figs 30, 135-137)**

**T y p e m a t e r i a l :** Holotype ♂: Luzon: Philippines Mt. Puguis (1900m) nr. Bontoc Mountain Pk. 20.VII.1985 M. Sakai leg. (EUMJ). Paratypes: Luzon, Mountain Prov., Mt. Data Lodge, 2200-2300 m, 22-23.XII.79, L. Deharveng & J. Orousset, 1♂ (MHNG); Luzon, Mountain Prov., Mt. Data, 2250 m, 13.VII.1985, leg. M. Sakai, 1♂ (EUMJ); with the same data but 25.VII., 4♂♂, 6♀♀ (EUMJ, MHNG, BZLA); with the same data but 15.VII., 1♂ (EUMJ); with the same data but 2300 m, 26.VII., 3♂♂, 5♀♀ (EUMJ, MHNG); Luzon, Mountain Prov., Mt. Puguis, 1800-1900 m, 17.VII.1985, leg. M. Sakai, 2♂♂, 6♀♀ (EUMJ, MHNG); Mt. Puguis, 2000 m, 5-6.VI.1977, leg. M. Satô, 2♂♂ (MHNG); Mt. Pangao, 2400 m, 30.V.1977, leg. M. Satô, 1♂, 2♀♀ (MHNG); Luzon, Benguet Prov., Paoay, 11.VII.1985, leg. M. Sakai, 2♀♀ (EUMJ); Luzon, Bangui, 1♂ (SMTD).

**D e s c r i p t i o n :** Length 1.70-2.10 mm, width 1.10-1.50 mm. Head, thorax, most of elytra, and abdomen dark reddish-brown to blackish-brown. Apical fourth of elytra light, reddish. Femora reddish-brown, tibiae, tarsi and antennae lighter than femora, almost yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/11: IV 30/8: V 35/9: VI 47/10: VII 55/14: VIII 33/12: IX 50/16: X 50/20: XI 65/23. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae hardly visible near base or entirely concealed in dorsal view, apical margins truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin slightly raised, sutural striae shallow, bent at base, extended along basal margins to form basal striae reaching basal mid-width or outer third of basal width, parallel along suture except near apices, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctuation very fine, similar to that on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth.

Mesepimera about as long as intervals to mesocoxae, about four or five times as long as wide. Metaventricle not microsculptured. Median part of metaventricle flattened, without impressions, distinctly punctate, lateral parts of metaventricle with extremely fine and sparse punctation; antecoxal puncture rows absent. Submesocoxal areas 0.06-0.08 mm, about as thirds of intervals to metacoxae, submesocoxal lines convex, distinctly punctate, punctures not extended by striae. Metanepisternum flat, narrowed anteriorly, inner margin rounded, suture deep. Tibiae straight. Abdomen with hardly visible or evanescent strigulate microsculpture, and very finely and sparsely punctate, except on small basomedian area of sternite 1 bearing distinct punctures; submetacoxal areas 0.05-0.07 mm, about as third to half of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 distinctly widened. Aedeagus (Figs 135-137) 0.53-0.71 mm long, asymmetrical, strongly sclerotized. Basal bulb fairly large. Articular processes large, not prominent. Apical process of median lobe split into two laminae, with large ostium in-between. Right lamina about as long as basal bulb, inflexed, subcylindrical in dorsal view and with acute tip, left lamina short. Parameres narrowed and with membranous inner margins in apical halves, denticular at mid-length (dorsal view). Internal sac with robust, strongly sclerotized flagellum proximally bent and hook-like, dilated and shovel-like at apex; spines and scale-like structures absent.

**Etymology:** The species epithet is a Latin adjective referring to the shovel-like apex of the internal sac of the aedeagus.

**Comparative notes:** The aedeagal characters suggest relationships with *S. biliranense* LÖBL, though the flagellum is not hook-like and the parameres are almost gradually narrowed in the latter species. This new species may be easily distinguished from *S. biliranense* by the larger body-size and light apical fourth of the elytra.

### **5.2.13.13. *Scaphisoma tagalog* nov.sp. (Figs 138, 139)**

**Type material:** Holotype ♂: Burungkot, Upi, Cotabato Prov., Mindanao El. 1500ft. I, 1-6, 1947 /under bark of smooth barked soft log / CNHM-Philippine Zool.Exped. (1946-47) F.G.Werner leg. (FMNH).

**Description:** Length 1.72 mm, width 1.17 mm. Head and body reddish-brown, apical fourth of elytra somewhat darkened, narrow area anterior apical fourth lighter than remaining elytral surfaces; ventral side of thorax hardly lighter than pronotum and elytra, abdomen distinctly lighter, with apical segment almost yellowish, appendages light reddish-brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/9: IV 17/7: V 30/9: VI 35/13: VII 50/16: VIII 30/13: IX 49/17: X 45/16: XI 55/16. Pronotum finely and densely punctate, punctures distinct at 25 times magnification, lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae with hardly visible punctures. Scutellum completely concealed. Elytra convex, with lateral margin carinae not exposed in dorsal view, apical margins truncate, inner apical angles not prominent, situated in level with outer angles; sutural margin raised, sutural striae deep, bent at base, not extended along basal margins, converging apically, finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Elytral disc with punctation fine, coarser than that on pronotum and dense, on small lateral areas anterior mid-length conspicuously denser and coarser, with punctures about as large as puncture intervals.

Hind wings fully developed. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat shorter than half of intervals to mesocoxae, subtriangular, about 1.5 times as long as wide. Metaventrite not microsculptured. Median part of metaventrite flattened, densely and fairly coarsely punctate posterior level of mesocoxae, with punctures to part about as large as puncture intervals, punctures between mesocoxae and lateral parts of metaventrite with very fine and sparse punctation; setal patch and antecoxal puncture rows absent. Submesocoxal areas 0.05 mm, about as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate, punctures not extended by striae. Metanepisternum flat, narrowed anteriorly, inner margin rounded near apical angle, almost straight in middle, suture deep. Tibiae straight. Abdomen not microsculptured, punctation very fine and sparse, except on median area of sternite 1 bearing distinct punctures; submetacoxal areas 0.07 mm, about as half of intervals to apical margin of sternite, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 138, 139) 0.53 mm long, asymmetrical, strongly sclerotized. Median lobe with fairly large basal bulb and prominent, robust articular process. Apical process of median lobe tubular, with subapical ostium, conspicuously notched ventrally (lateral view). Parameres almost evenly wide posterior bases and curved, with very narrowly membranous inner margins. Internal sac with strongly sclerotized, simple flagellum; spines and scale-like structures absent.

**E t y m o l o g y :** The species epithet is the name of one of Philippine languages.

**C o m p a r a t i v e n o t e s :** The aedeagus with a deep ventral notch and the short subtriangular mesepimera are diagnostic. The species may be distinguished also by the elytra darkened apically and bearing a lateral patch of coarse punctures, in combination with the antennomere IV notably longer than III.

#### 5.2.14. The *Scaphisoma pictum* species group

Members of the group share with the Palaearctic *S. assimile* Erichson, 1845 and its allied species a bilobed apical process of the median lobe, but usually differ drastically by the broadly lobed parameres. The elytra, unlike those in members of the *S. assimile* group, lack basal striae (LÖBL 1971b: 962). *Scaphisoma cuyunon*, *S. hexameroides* and *S. iridescens* which have basally broadened but not lobed parameres are tentatively placed in this group.

##### 5.2.14.1. *Scaphisoma angulosum* nov.sp. (Figs 140, 141)

**T y p e m a t e r i a l :** Holotype ♂: Philippines: Leyte Visca N Baybay, 1991 prim. forest, 200-500m leg. Schawaller et al. / 2.3.91 (SMNS).

**D e s c r i p t i o n :** Length 1.83 mm, width 1.25 mm. Head, most of body and appendages uniformly ochreous, apical fifth of elytra lighter, yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 11/8: IV 45/7: V 64/8: VI 44/9: VII 55/14: VIII 40/9: IX 53/14: X 53/13: XI 67/14. Pronotum with lateral margins evenly rounded, lateral margin carinae almost throughout visible in dorsal view, lateral striae impunctate, punctation dense, very fine, hardly visible at 50 times magnification. Tip of scutellum exposed. Elytra convex, with lateral margin carinae almost entirely visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae deep, slightly converging apically, very finely punctate, not bent at

base, basal striae absent; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation sparse and very fine, less fine than that of pronotum, punctures intervals mostly about twice to three times as large as puncture intervals. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than halves of intervals to mesocoxae, hardly twice times as long as wide. Metaventricle not microsculptured, very finely punctate, lacking antecoxal puncture row. Median part of metaventricle weakly convex, with two apicomedian impressions. Submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae, submesocoxal lines parallel, coarsely punctate, punctures not extended by striae. Metanepisternum flat, weakly narrowed anteriorly, with inner margin straight, hardly rounded at angles, impressed below margin of metaventricle, suture deep. Protibiae and mesotibiae slightly curved, metatibiae straight, thickened in apical parts. Abdomen with distinct strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.02 mm, about tenth of intervals to apical margin of sternite, submetacoxal lines parallel, coarsely punctate.

**M a l e :** Protarsomeres and mesotarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 140, 141) 1.0 mm long, fairly strongly sclerotized, symmetrical. Median lobe with basal bulb fairly small, somewhat longer than apical process, articular process ventrally prominent, apical process slightly narrowed toward apical section, in apical section abruptly tapering, in lateral view moderately inflexed. Parameres each with conspicuous subbasal notch, bearing ventral, very finely striate lobe. Internal sac consisting of very dense scale-like and denticular structures, and with row of fairly small teeth.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning angulate.

**C o m p a r a t i v e n o t e s :** The species shares with *S. palawanum* and *S. inopportunum* the narrow submesocoxal and submetacoxal areas and the very finely punctate body. It may be easily distinguished by the strigulate abdominal microsculpture and differs from these two species, as from other congeners, by the shape of the parameres. The aedeagal characters suggest placement within the *S. pictum* group.

#### **5.2.14.2. *Scaphisoma bicoloripenne* nov.sp. (Figs 4, 142, 143)**

**Type material:** Holotype ♂: Philippines Bohol, Bilar 23.VII.1970 M. Satô leg. (MHNG). Paratypes: with the same data as the holotype, 1♀ (MHNG); Bohol, Longon, 23.VII.1970, leg. M. Satô, 2♀♀ (MHNG); Bohol, Bilar-Longon, 22.VII.1970, leg. M. Satô, 2♂♂, 3♀♀ (MHNG); Leyte, Visca N. Baybay, primary forest 200-500 m, 22.II.1991, leg. W. Schawaller et al., 2♀♀ (SMNS, MHNG).

**Description:** Length 1.50-1.60 mm, width 1.08-1.15 mm. Head, thorax and most of elytra reddish-brown. Apical fourth of elytra light brown to yellowish. Most of abdomen reddish-brown, lighter than thorax. Abdominal apex and appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/8: IV 28/5: V 48/7: VI 45/8: VII 52/14: VIII 34/10: IX 45/13: X 48/14: XI 58/14. Pronotum very finely and sparsely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical margins weakly rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin raised, sutural striae deep, somewhat bent at base, not extending along basal margin, strongly converging toward apices, throughout distinctly punctate; adsutural areas conspicuously broad anteriorly,

about twice as wide at level of scutellar tip as at mid-length, flat, densely and distinctly punctate, with punctures usually somewhat smaller than those on elytral disc, appearing impunctate near apices, lateral striae finely punctate. Elytral disc with punctuation dense, fairly coarse, with punctures well delimited, puncture intervals mostly about as large to twice as large as puncture diameters, punctuation denser on middle part of lateral areas, becoming finer toward apices. Hind wings fully developed. Hypomera smooth. Mesanepisterna with strigulate microsculpture. Mesepimera longer than intervals to mesocoxa, about three times as long as wide. Metaventrite with distinct strigulate microsculpture, very finely and sparsely punctate except on small apicomedian area bearing dense, fairly coarse punctures and dense antecoxal puncture rows. Median part of metaventrite somewhat convex, flattened apically, apicomedian impressions or striae absent. Submesocoxal areas about 0.05 mm, almost as half of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum with strigulate microsculpture, hardly convex, moderately narrowed anteriorly, inner suture deep, arcuate. Abdomen very finely and sparsely punctate, with distinct strigulate microsculpture; submetacoxal areas 0.07 mm, about as half of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened. Aedeagus (Figs 142, 143) 0.78-0.84 mm long, symmetrical, with basal bulb weakly sclerotized. Articular processes large, not prominent. Apical process of median lobe long and inflexed. Apical section of ventral side of apical process slightly sinuate, tip acute in lateral view, blunt in dorsal view, partly covered by weakly sclerotized dorsal valves. Parameres with complex bases, arcuate in dorsal view, widened and overlapping apically, inner margins broadly membranous. Internal sac complex, with spines and scale-like structures, mesal spines enlarged and strongly sclerotized.

**Etymology:** The species epithet refers to the bicolourous elytra.

**Comparative notes:** This species may be easily distinguished from congeners with strongly converging sutural striae of the elytra and by the mesanepisterna and metanepisterna bearing strigulate microsculpture.

#### 5.2.14.3. *Scaphisoma biplagiatum* HELLER, 1917 (Figs 8, 144, 145)

*Scaphosoma biplagiatum* HELLER, 1917: 47. Lectotype ♂, SMTD; type locality: Luzon, Mt. Makiling. Additional published localities: Masbate: Aroroy, Luzon; Imugan, Bucas: Sorocco (LÖBL 1972: 107).

*Pseudoscaphosoma implagiatum* PIC, 1926: 1. Lectotype ♀, MNHN; type locality: Luzon, Bagnio. Characters: LÖBL 1970a: 126, 127, Fig. 2. Synonymy and lectotype designation: LÖBL 1972: 107.

**Additional material examined:** Luzon, Lagunas Prov., Mt. Makiling, summit rd., 600 m, 21-22 and 28.XI.1995, leg. I. Löbl, 103 ex. (MHNG); Luzon, Mt. Makiling, above Mad Springs, 400-700 m, degraded rainforest, 19-22.XI.1995, leg. J. Kodada, 10 ex. (MHNG); Luzon, Mt. Makiling, 4 km SE Los Banos, 9.IV.1977, leg. L.E. Watrous, 3 ex. (MHNG); Mt. Makiling, 17-18.VI.1977, leg. M. Satô, 1 ex. (MHNG); Luzon, Laguna Prov., Mt. Banahaw, above Kinabuhayan, 600-700 m, degrad. rainforest, 24.XI.1995, leg. I. Löbl, 2 ex. (MHNG); Luzon, Benguet Prov. Pellwell Cr., camp two, 14.IV.1977, leg. M. Satô, 1 ex. (MHNG); Luzon, Ifugao Prov., Mt. Polis, 1900 m, 4-5.VI.1977, leg. M. Satô, 1 ex. (MHNG); Palawan, Central, Conception, sea level, 6-7.XII.1995, leg. I. Löbl, 52 ex. (MHNG, BZLA); Palawan, Conception, large logs across Conception River, NE San Rafael, ca 20 m 8.XII.1995, leg. J. Kodada & B. Rigová, 25 ex. (MHNG); Palawan, Olanguan, 18 km NE San Rafael, sea level, 5-6.XII.1995, leg. I. Löbl, 106 ex. (MHNG); Palawan, Olanguan River, 18 km NE San Rafael, 6.XII.1995, leg. J. Kodada & B. Rigová, 1 ex. (MHNG); Palawan, Olanguan, 0-50 m, between Puerto Princesa and Roxas, 1.IX.1985, leg. M. Sakai, 9 ex. (EUMJ); Palawan, above San Rafael, ca 300 m, degraded

forest on slope, 4.XII.1995, leg. J. Kodada, 1 ex. (MHNG); along Tarabanan River, NE San Rafael, ca 30 m, 7.XII.1995, leg. J. Kodada & B. Rigová, 2 ex. (MHNG); Palawan, Sabang, trail to Underground River, sea level, 30.XI.1995, 2 ex. (MHNG); Sabang, N. of Mt. St. Paul, 11-13.VI.1977, leg. M. Satô, 2 ex. (MHNG); Palawan, Matalangao nr. Roxas, 150 m, 29.VIII.1985, leg. M. Sakai, 2 ex. (EUMJ); Palawan, Taytay Prov., Binaluan, 1 ex. (SMTD); Palawan, Narra Prov., Trident Mine, 100 m, Peak nr. Narra, 5.IX.1985, leg. M. Sakai, 1 ex. (EUMJ); Leyte, Visca N Baybay, sec. forest, 100-200 m, 27.II.1991, leg. W. Schawaller et al., 2 ex. (SMNS, MHNG); Mindanao, Baracatan, 1500 m, 27-29.10.1977, leg. M. Satô, 11 ex. (MHNG); Mindanao, 15 km S of Bislig, 3.VII.1977, leg. M. Satô, 1 ex. (MHNG); Mindanao, Todaya, 29.VII.1970, leg. M. Satô, 1 ex. (MHNG); Mindanao, Maitum, 150 m, South Cotabato Prov., 10.VIII.1985, leg. M. Sakai, 4 ex. (EUMJ); Mindanao, Matum Hot Springs, 28.VII.1970, leg. M. Satô, 1 ex. (MHNG); Mindanao, Cotabato Prov., 50 km N. of Parang, 500 ft., 6.XII.1946, on encrusting polypore, 2 ex., leg. F.G. Werner (FMNH); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-9.I.1947, on polypores, 18 ex., leg. F.G. Werner (FMNH, MHNG); Mindanao, Davao Prov., E. slope of Mt. McKindley, 3200 ft., 7-8.IX.1946, beating, 2 ex., leg. F.G. Werner (MHNG); Mindanao, 30 km E of Malaybalay, Busdi, 1000 m, 5-9.V.1996, leg. Bolm, 6 ex. (SMNS); Mindanao, Misamis occ., Don Victoriano, 1700 m, 1-3.V.1996, leg. Bolm, 5 ex. (SMNS); Mindanao, Mt. Apo, Ilomavis, 1400 m, 18-19.V.1996, leg. Bolm, 1 ex. (SMNS); Mindanao, 25 km W Zamboanga, 800 m, Camp Susana, 29-30.V.1996, leg. Bolm, 1 ex. (SMNS).

**D i s t r i b u t i o n :** Philippines: Luzon, Palawan, Masbate, Bucas Grande, Leyte, Mindanao.

**Comments:** The aedeagal characters illustrated in LÖBL 1970a: 127 were taken from the sole specimen available at that time, a male with partly extruded internal sac, and lack in detail. Therefore, new illustrations are given in the present work (Figs 144, 145). The species is a member of the *S. pictum* group, characterized by the internal sac with a large basal tuft of spines joined with a large basal tooth, in combination with a large apical denticle and a subrectangular or subpentagonal central sclerite. The aedeagal characters suggest close relationship with *S. dohertyi* PIC, 1915, widely distributed in tropical Asia. The basal bulb of the median lobe is extended in *S. dohertyi*, unlike that in *S. biplagiatum*, and completely overlapping the apical process of the median lobe.

#### 5.2.14.4. *Scaphisoma boettcheri* PIC, 1947

*Scaphosoma boettcheri* PIC, 1947: 2. Lectotype ♂, MNHN; type locality: Palawan, Binaluan. Lectotype designation: LÖBL 1970a: 126. Aedeagal characters: LÖBL 1972: Fig. 46.

*Scaphosoma boettcheri* var. *semiobscurum* PIC, 1947: 2. Lectotype ♂, MNHN; type locality: Palawan, Binaluan. Lectotype designation and synonymy: LÖBL 1970a: 126.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Palawan, Binaluan, 1♂ (SMND).

**D i s t r i b u t i o n :** Philippines: Palawan.

**Comments:** The specimen housed in SMND is poor condition. It is possibly one of the original syntypes.

#### 5.2.14.5. *Scaphisoma cuyunon* nov.sp. (Figs 9, 146, 147)

**Type material:** Holotype ♂: Palawan (central) Conception, sea level I. Löbl, 6-7.XII.1995, fungi on logs, bark (MHNG). Paratypes: Palawan, Central, with the same data as the holotype, 3♂♂, 4♀♀, 10 ex. sex not examined (MHNG, BZLA); Palawan Central, Conception, large logs across Conception River, NE San Rafael, ca 20 m 8.XII.1995, leg. J. Kodada & B. Rigová, 9 ex., sex not examined (MHNG); Palawan Central, nr. Cabayugan, degraded rainforest, 150 m, 2.XII.1995, leg. J. Kodada & B. Rigová, 10 ex., sex not examined (MHNG); Olangoan, sea level, 18 km N San Rafael, 5-6.XII.1995, leg. I. Löbl, 1♂, 8♀♀, 9 ex. (MHNG); Palawan, Olanguan [sic], 0-50 m, between Puerto Princesa and Roxas, 29.VIII.1985, leg. M. Sakai, 1♂, 1♀, 3 ex. sex not examined (EUMJ, MHNG); with the same data but 1.IX.1985, 1♀ (EUMJ); Palawan Central, along Tarabanan River, NE San Rafael, ca 30 m, 7.XII.1995, leg. J. Kodada & B. Rigová, 1 ex., (MHNG); Palawan Central, Sabang, 50-100 m, degraded rainforest on slope, 30.XI.1995, leg. J. Kodada, 1♂ (MHNG); Palawan Central, Sabang, trail to Underground River, sea level,

30.XI.1995, fungi on logs, leg. I. Löbl, 1♂, 3♀♀ (MHNG); Palawan, Binaluan, 3 ex. (SMTD); Palawan, Matalangao, 500 m, 25 km W from Roxas, 21.XI.1978, leg. S. Nagai, 1 ex. (EUMJ).

**Description:** Length 1.15-1.30 mm, width 0.80-0.90 mm. Head, thorax and most of elytra reddish-brown to blackish-brown. Apical fourth to fifth of elytra light brown to yellowish. Most of abdomen reddish-brown, lighter than thorax. Abdominal apex and appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/7: IV 30/6: V 41/6: VI 35/6: VII 50/13: VIII 40/8: IX 47/11: X 47/11: XI 67/12. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical margins weakly rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin raised, sutural striae deep, bent at base, not extending along basal margin, strongly converging toward apices, coarsely punctate in anterior halves or two thirds, impunctate in apical thirds; adsutural areas conspicuously broad anteriorly, about twice as wide at level of scutellar tip as at mid-length, flat, densely and coarsely punctate anterior mid-length or in anterior two thirds, with punctures usually larger than those on elytral disc, appearing impunctate near apices, lateral striae conspicuously coarsely punctate. Elytral disc with punctation almost evanescent. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera longer than intervals to mesocoxae, about five to six times as long as wide. Median part of metaventrite slightly convex, with two apicomeral impressions, strigulate microsculpture present posterior mesocoxae, punctation on prevailing surface of metaventrite extremely fine and sparse; antecoxal puncture rows absent. Submesocoxal areas 0.04-0.05 mm, about as fifth to fourth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate, punctures extended by striae on section between mesocoxae. Metanepisternum somewhat convex, narrowed anteriorly, inner margin strongly rounded posteriorly, strongly narrowed anteriorly, suture conspicuously deep. Tibiae straight. Abdomen with strigulate microsculpture, fairly coarsely and densely punctate on small basomedian area, very finely and sparsely punctate on remaining surface; submetacoxal areas 0.04-0.05 mm, about as fourth to third of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 146, 147) 0.50-0.54 mm long, symmetrical, with basal bulb weakly sclerotized. Articular processes small, not prominent. Apical process of median lobe comparatively short, inflexed, bifid. Ventral branch of apical process robust, gradually narrowed, strongly sclerotized, covered by weakly sclerotized, broadly rounded dorsal lamina. Parameres in lateral view sinuate, almost evenly wide posterior bases up to apical tenth, in dorsal view almost evenly arcuate, with narrowly membranous inner margin in basal halves, evenly narrow in apical third. Internal sac complex, with large vesicle consisting of spines and scale-like structures, narrowed apically, in apical part narrowed and bearing longer spines.

**Etymology:** The species epithet is a name of one of the Luzon's languages.

**Comparative notes:** The species resembles the sympatric *S. disparoides*, though it has much longer antennae. It differs notably by the coarsely punctate lateral striae and adsutural areas of the elytra, the shorter and coarsely punctate submesocoxal lines, and the shape of the aedeagus. The aedeagal characters suggest relationships to *S. lannaense* LÖBL, 1990 from Thailand with which it shares parameres lacking lobes and the internal sac lacking sclerotized pieces.

**5.2.14.6. *Scaphisoma hexameroides* nov.sp. (Figs 148, 149)**

**Type material:** Holotype ♂: Palawan Olanguan (0-50m) between Puerto Princesa - Roxas I.IX.1985 M. Sakai (EUMJ). Paratype: with the same data as the holotype, 1 ♀ (MHNG).

**Description:** Length 1.55-1.60 mm, width 1.10-1.15 mm. Body light reddish-brown, apical fourth of elytra, apical abdominal segments and appendages lighter. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/8: IV 20/7: V 30/7: VI 50/9: VII 50/10: VIII 40/9: IX 45/12: X 45/12: XI 60/14. Pronotum very finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae in male visible, in female concealed (dorsal view), lateral striae punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae hardly visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; apical half of sutural margin raised, sutural striae fairly deep, starting at each side of pronotal lobe, parallel slightly converging apically, finely punctate; adsutural areas narrow, flat, densely and finely punctate, lateral striae punctate. Elytral disc with punctation dense and fine, less fine than pronotal punctation, puncture intervals much larger than puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat as long as intervals to mesocoxae, about four times as long as wide. Metaventricle not microsculptured, sparsely, very finely punctate. Median part of metaventricle slightly convex, lacking impressions or stria; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, finely punctate. Metanepisternum flat, weakly narrowed anteriorly, inner margin straight except at angles, not impressed below margin of metaventricle. Tibiae straight. Abdomen with strigulate microsculpture, densely and very finely punctate; submetacoxal areas 0.05 mm, about as third of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate.

**Male:** Protarsomeres 1 and 2 and mesotarsomeres 1 distinctly widened, narrower than apices of respective tibiae. Aedeagus (Figs 148, 149) 0.85 mm long, symmetrical. Apical process of median lobe much shorter than basal bulb, hardly inflexed, with ventral branch narrowed apically and truncate at tip. Parameres not lobed, gradually narrowed apically, bent in apical fourth and overlapping. Internal sac lacking sclerotized pieces, with long spines in apical section, very fine denticular and scale-like structures in large middle section, larger denticles in proximal part.

**Etymology:** The species epithet derived from *hexamerum* and refers to the antennomere VI which is comparatively very long in both species.

**Comparative notes:** The species may be distinguished by the length/width ratio of the antennae from its congeners of similar size and coloration and sharing strigulate abdominal microsculpture and lacking antecoxal puncture rows. The shape of the apically truncate apical process of the aedeagus is diagnostic. The aedeagus of the holotype is unusually flat, possibly because teneral.

**5.2.14.7. *Scaphisoma iridescens* nov.sp. (Figs 150-152)**

**Type material:** Holotype ♂: Mainit Riv. Mt Apo / Mindanao IX.3. 70P.I. / Coll. By C. F. Clagg / Altitude 7000 ft. / Field Mus (F. Psota Coll.) (FMNH).

**Description:** Length 1.85 mm, width 1.30 mm. Head, body and femora ochreous, tibiae, tarsi and antennae lighter than body, yellowish. Pronotum and elytra not microsculptured and not iridescent, mesanepisterna, lateral parts of metaventricle and



abdomen iridescent. Length/width ratio of antennomeres as: III 17/10: IV 25/8: V 37/9: VI 65/11: VII 60/16: VIII 50/14: IX 60/17: X 57/16: XI 65/17. Pronotum very finely and fairly densely punctate, with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae indistinctly punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae hardly visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae shallow, starting at each side of pronotal lobe, parallel between level of scutellar tip to apical third of sutural length, slightly converging toward apices, finely punctate; adsutural areas narrow, flat, densely and finely punctate, lateral striae indistinctly punctate. Elytral disc with punctation dense and fine, similar to pronotal punctation, puncture intervals much larger than puncture diameters. Hind wings fully developed. Hypomera smooth. Mesanepisterna with distinct strigulate microsculpture, impunctate. Metaventricle entirely microsculptured; slightly convex, finely and very densely punctate in middle, with punctures to part about as large as puncture intervals, lacking impressions or stria; lateral parts of metaventricle impunctate and with distinct strigulate microsculpture. Submesocoxal areas 0.04 mm, about as fifth of intervals to metacoxae, submesocoxal lines convex, finely punctate. Metanepisternum flat, hardly narrowed anteriorly, inner margin straight except at angles, not impressed below margin of metaventricle. Protibiae almost straight, becoming thicker toward apices, mesotibiae distinctly curved, metatibiae slightly curved, slender than mesotibiae. Abdomen with strigulate microsculpture, appearing impunctate; submetacoxal areas 0.04 mm, about as fourth of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened, tarsomeres 1 wider than respective tibiae. Aedeagus (Figs 150-152) 0.91 mm long, strongly sclerotized, symmetrical. Median lobe with large, bent basal bulb, robust articular process, and short, oblique ventral branch of apical process. Dorsal side of apical process wide, subtriangular, erected dorsally if internal sac extruded. Parameres arcuate in dorsal view, widened near base, narrowed apically; sinuate and gradually narrowed in lateral view. Internal sac with very fine denticular and spinel-like structures, lacking sclerotized pieces.

**Etymology:** The species epithet derives from the Latin iris meaning rainbow and refers to the colour pattern of the ventral side of the body.

**Comparative notes:** This species may be readily distinguished by the microsculptured and iridescent mesanepisterna, lateral parts of metaventricle and abdomen, in combination with the large, 1.85 mm long body and the antennomere VI conspicuously long, longer than the antennomeres IV and V combined. The raised dorsal side of the median lobe as illustrated (Fig. 151) is possibly produced by the extruded internal sac.

#### **5.2.14.8. *Scaphisoma wernerii* nov.sp. (Figs 45, 153-154)**

**Type material:** Holotype ♂: Burungkot, Upi, Cotabato Prov., Mindanao Elev. 1500 ft. I, 1-9, 1947 / Lot 154 taken on polypores /CNHM-Philippine Zool. Exped. (1946-47) F.G. Werner leg. (FMNH). Paratypes: with the same data as the holotype, 5♂♂, 3♀♀ (FMNH, MHNG); 1♂ with the same data but under bark of smooth barked soft log (FMNH); Mindanao, Cotabato Prov., 50 km N of Parang, 500 ft., 6.XII.1946, on encrusting polypore, leg. F.G. Werner, 2♂♂, 1♀ (FMNH, MHNG); with the same data but 20 km N. of Parang, 200 ft., 1♂ (FMNH); Leyte, Visca N Baybay, sec. forest, 100-200 m, 27.II.1991, leg. W. Schawaller et al., 2♂♂ (SMNS; MHNG).

**Description:** Length 1.55-1.95 mm, width 1.23-1.35 mm. Head, pronotum,

hypomera, large parts of elytra, apical abdominal segments and appendages ochreous to yellowish, or pronotum narrowly darkened along basal margin. Elytra at bases, on adsutural areas, along sutural striae from bases about to apical third, and on transverse band anterior apical third darkened, darken elytral areas usually surrounding more or less distinct ochreous discal spot. Mesoventricle, metaventricle, metanepisterna, metanepisterna and sternite 1 darkened, brown to blackish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 16/8: IV 40/6: V 70/8: VI 60/9: VII 68/14: VIII 56/9: IX 73/14: X 68/14: XI 77/14. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae usually visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae usually entirely visible in dorsal view, with apical margins sexually dimorphic; sutural margin raised, sutural striae deep, not bent at base and not extending along basal margin, strongly converging toward apices, coarsely punctate; adsutural areas conspicuously broad anteriorly, about twice as wide at level of scutellar tip as at mid-length, flat, densely and coarsely punctate, with punctures usually largest and more dense near base; lateral striae very finely punctate. Elytral disc with punctation dense, coarse on inner half, in particular near base, becoming fine laterally. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about three times as long as wide. Metaventricle with strigulate microsculpture covering entire sides. Median part of metaventricle convex between mesocoxae, deeply impressed apically, punctation on prevailing surface of metaventricle extremely fine and sparse; antecoxal puncture rows present, in impressed striae. Submesocoxal areas 0.03 mm, about as sixth of intervals to metacoxae, submesocoxal lines parallel, coarsely punctate, punctures not extended by striae. Metanepisternum flat, not or slightly narrowed anteriorly, inner margin straight, suture conspicuously deep. Protibiae straight, mesotibiae and metatibiae sexually dimorphic. Abdomen with strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.02-0.03 mm, about as sixth to ninth of intervals to apical margin of sternite 1, submetacoxal lines parallel, coarsely punctate.

**M a l e :** Elytra with apical margins rounded, inner apical angles not prominent, finely crenulated, situated in level with outer angles. Mesotibiae robust, thicker than metatibiae, distinctly curved, metatibiae slightly curved. Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened, tarsomeres 1 wider than apices of tibiae. Aedeagus (Figs 153, 154) 1.15-1.28 mm long, symmetrical, strongly sclerotized. Articular processes robust, not prominent. Apical process of median lobe bifid, long, weakly inflexed. Ventral branch of apical process robust and gradually narrowed in proximal two thirds, narrow in apical third, truncate and rather hook-like at apex, sinuate in lateral view. Dorsal branch of median lobe gradually narrowed. Parameres in lateral view strongly bent posterior bases, strongly widened toward large apical section covered by dense pores. Parameres in dorsal view almost straight posterior bases, with evenly arcuate outer margin in apical halves, inner margin membranous and lobed in apical halves. Internal sac complex, with large, strongly sclerotized teeth, spines and scale-like structures, narrowed apically, and with large apical plate extended by strong tooth.

**F e m a l e :** Elytra with apical margins oblique, inner apical angles acute and prominent, situated posterior level of outer angles. Meso- and metatibiae straight, similar.

**E t y m o l o g y :** The species is named in honour of one of its collector, Floyd G. Werner.

**C o m p a r a t i v e n o t e s :** The species resembles *S. biplagiatum*, and its aedeagal characters suggest close relationships of these species. The females of *S. weneri* may be readily distinguished by the shape of the elytral apices. The males possess a unique shape of the apex of the median lobe. In addition, the shape of the parameres, in particular in lateral view, is diagnostic for this new species. The presence of strigulate microsculpture on the entire lateral parts of the metaventrite and the longer antennae are also diagnostic for *S. weneri*.

### 5.2.15. The *Scaphisoma solutum* species group

This group is established for *S. solutum* LÖBL, 1990 from Thailand, and a new Philippine species, characterized by a bilobed apical process of the median lobe, as that in members of the *S. pictum* and *S. binhanum* groups, combined with asymmetrical, lobed parameres.

#### 5.2.15.1. *Scaphisoma dissymmetricum* nov.sp. (Figs 155, 156)

**T y p e m a t e r i a l :** Holotype ♂: Palawan (central) Sabang, trail to Underground River, sea level, 30.XI.95 I. Löbl, fungi on log (MHNG). Paratypes: with the same data as the holotype, 1 ♂ (MHNG); Palawan, Cabayugan near Lion's Cave, sea level, 1.XII.1995, leg. I. Löbl, 1 ♀ (MHNG).

**D e s c r i p t i o n :** Length 1.05-1.10 mm, width 0.73-0.75 mm. Head and body reddish-brown, apical abdominal segments and appendages lighter. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 20/5: V 30/6: VI 30/6: VII 38/14: VIII 29/10: IX 38/13: X 38/12: XI 50/14. Pronotum fairly coarsely, densely punctate, with lateral margins evenly rounded, lateral margin carinae barely exposed in dorsal view, lateral striae punctate. Minute tip of scutellum exposed. Elytra with lateral margin carinae hardly visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae deep, hardly bent at base and not extending along basal margin, parallel except in apical third, distinctly punctate; adsutural areas flat, densely and finely punctate, with punctures smaller than those on elytral disc, lateral striae finely punctate. Elytral disc with punctuation dense and fairly coarse, punctures fairly well delimited, punctures intervals mostly about twice to four times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera twice as long as intervals to mesocoxae, about four times as long as wide. Metaventrite without mesal stria or impressions, with strigulate microsculpture except near lateral margins, punctuation sparse and very fine. Anterolateral surface of metaventrite not microsculptured; antecoxal puncture rows absent. Submesocoxal areas 0.02-0.03 mm, about as fifth to fourth of intervals to metacoxae, submesocoxal lines parallel, distinctly punctate. Metanepisternum flat, hardly narrowed anteriorly, inner margin almost straight, suture shallow. Tibiae straight. Abdomen with strigulate microsculpture, very finely and sparsely punctate. Sternite 1 with submetacoxal areas 0.04-0.05 mm, about as half of intervals to apical margin, submetacoxal lines convex, coarsely punctate.

**M a l e :** Protarsomeres 1 to 3 hardly widened. Aedeagus (Figs 156, 157) 0.41-0.45 mm long. Median lobe slightly asymmetrical, moderately sclerotized. Apical process shorter than basal bulb, inflexed, gradually narrowed, with dorsal lamina weakly sclerotized,

rounded at tip. Parameres asymmetrical, with membranous ventral lobes; right parameres shorter than left, in apical section weakly bent and about as wide as near base. Left parameres strongly narrowed posterior mid-length and strongly bent (dorsal view). Internal sac with denticulate rod, several fairly long apical spine-like denticles and bulbous basal part covered by very fine scale-like and denticular structures.

**E t y m o l o g y :** The species epithet is a Latinized adjective referring to the asymmetrical aedeagus.

**C o m p a r a t i v e n o t e s :** The species may be distinguished from the allied *S. solutum* by the length ratios of the antennomeres III and IV (antennomere IV is only slightly longer than III in the latter species) and the symmetrical apical process of the median lobe with blunt apex in dorsal view.

### 5.2.16. The *Scaphisoma binhanum* species group

Members of this group possess most diagnostic characters of the *S. pictum* group but have the dorsal side of the basal bulb prominent, overlapping the apical process of the median lobe (see LÖBL 1979a: 99). A single Philippine species belongs here.

#### 5.2.16.1. *Scaphisoma hamatum* nov.sp. (Figs 157-159)

**T y p e m a t e r i a l :** Holotype ♂: Mindanao, P.I.: Cotabato Prov.; 50 km. N. of Parang Elev. 500 ft. XII:6:1946 / on encrusting polypore / CNHM-Philippine Zool.Exped. (1946-47) F.G.Werner leg. (FMNH). Paratypes: with the same data as the holotype, 2♂ (FMNH, MHNG).

**D e s c r i p t i o n :** Length 1.60-1.70 mm, width 1.18-1.22 mm. Head and prothorax dark ochreous to dark reddish-brown. Elytra, mesoventrite and metaventrite slightly darker, brown. Abdomen light brown. Antennae light, almost yellowish. Legs light brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 16/8: IV 32/6: V 53/8: VI 49/10: VII 70/15: VIII 42/9: IX 70/15: X 65/15: XI 82/15. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae barely exposed in dorsal view, lateral striae impunctate. Tip of scutellum well visible. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated about in level with outer angles; sutural margin slightly raised in apical third, sutural striae deep, hardly bent at base and not extending along basal margin, parallel except near bases and in apical third, very finely punctate; adsutural areas flat, densely and very finely punctate, with punctures smaller than those on elytral disc, lateral striae finely punctate. Elytral disc with punctation coarse, punctures fairly well delimited, punctures intervals mostly about as large to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about three times as long as wide. Metaventrite with mesal stria, impressed in posterior half of median part, with strigulate microsculpture, punctation dense and very fine in impression, sparse and very fine between mesocoxae. Lateral parts of metaventrite not microsculptured, sparsely and very finely punctate; antecoxal puncture rows present, in hardly impressed striae. Submesocoxal areas 0.04-0.05 mm, about as third of intervals to metacoxae, submesocoxal lines convex, finely punctate. Metanepisternum flat, hardly narrowed anteriorly, inner margin almost straight, suture shallow. Protibiae and metatibiae straight, mesotibiae distinctly curved. Abdomen with strigulate microsculpture. Sternite 1 impressed and densely and finely punctate in middle, very

finely and sparsely punctate on sides; submetacoxal areas 0.04-0.05 mm, about as third of intervals to apical margin, submetacoxal lines convex, finely punctate.

**M a l e :** Protarsomeres and mesotarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 157-159) 0.93-0.96 mm long, strongly sclerotized, symmetrical. Basal bulb much longer than apical process of median lobe, latter with dorsal branch partly exposed, ventral branch oblique, slightly sinuate and gradually narrowed toward tip (lateral view). Parameres dorsally overlapping. Internal sac with large, robust and strongly sclerotized hook, joint to tuft of long spines.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning hooked.

**C o m p a r a t i v e n o t e s :** The aedeagal characters suggest relationships with *S. palu* LÖBL, 1983 from Sulawesi. The shape of the apical process of the median lobe of the new species, seen in lateral view, is diagnostic. In addition, *S. hamatum* may be readily distinguished by its colour pattern and the sutural striae of the elytra parallel while they diverge basally in *S. palu*. The internal sacs are extruded in the three available males.

### 5.2.17. The *Scaphisoma laminatum* species group

This group is here established to include three Southeast Asian species, *S. laminatum* LÖBL, 1972, *S. malaccanum* (PIC, 1915) and *S. operosum* LÖBL, 1990. The aedeagi of these species are large and symmetrical, have lobed, expanded parameres and complex internal sacs, similar to those in members of the *S. pictum* and *S. binhanum* groups. Unlike aedeagi in members of these two groups, the median lobes in species of the *S. laminatum* group have two rod-like, strongly sclerotized and parallel branches on the dorsal side of the apical process.

#### 5.2.17.1. *Scaphisoma laminatum* LÖBL, 1972

*Scaphisoma laminatum* LÖBL, 1972: 97, Figs 44, 45; holotype ♂, ZMUB; type locality: Panay, Port Banga bei Capiz.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Luzon, Lagunas Prov., Mt. Makiling, 450-700 m, 20-22.XI.1995, leg. I. Löbl, 3♂♂, 4♀♀ (MHNG, BZLA); Luzon, Lagunas Prov., Mt. Makiling, 4 km SE Los Banos, 8., 9. and 11.IV.1977, leg. L. Watrous, 3♀♀ (MHNG); Luzon, Lagunas Prov., Mt. Banahaw above Kinabuhayan, 600-700 m, 24.XI.1995, leg. I. Löbl, 4♂♂, 3♀♀ (MHNG); Leyte, Visca N Baybay, 200-500 m, prim. forest, 22.II.-10.III.1991, leg. W. Schawaller et al., 3♂♂ (SMNS, MHNG); Mindanao, Davao Prov., E. slope of Mt. Mc.Kinley, 28.IV.1946, 3000 ft., original forest nr. stream, leg. H. Hoogstraal, 1♂ (FMNH); Mindanao, Momungan, 1924, 2♂♂ (SMND).

**D i s t r i b u t i o n :** Philippines: Luzon, Leyte, Panay, Mindanao.

**Comments:** This species was placed in the *S. pictum* group (LÖBL 1972: 97), as its allied *S. malaccanum* (PIC, 1915). The aedeagus of the specimen from Mt. Apo is 0.97 mm long, thus somewhat larger than that of the holotype.

### 5.2.18. The *Scaphisoma rouyeri* species group

Members of this group share symmetrical aedeagi with the dorsal side of the apical process of the median lobe bearing a partly split valve (LÖBL 1981a). These species have a complex internal sac, parameres usually lobed, the articular process of the median lobe not prominent, the metaventrite with antecoxal puncture rows, the elytral punctuation often conspicuously coarse and partly arranged to form oblique rows, the sutural striae of

the elytra shortened and not bent at bases, and the abdomen with strigulate microsculpture. *Scaphisoma hiekei* is placed tentatively in this group. It differs from Philippine members of the group by the not shortened sutural striae of the elytra and elytral punctation not arranged in rows.

#### **5.2.18.1. *Scaphisoma banguiense* LÖBL, 1972 (Figs 161, 162)**

*Scaphisoma banguiense* LÖBL, 1972: 95, figs 34, 35. Holotype ♂, ZMUB; type locality: Luzon, Bangui. Additional published records: Antipolo (LÖBL 1972: 95).

**D i s t r i b u t i o n :** Philippines: Luzon.

**Comments:** This species is absent from the new collections studied. The aedeagal characters suggest close relationships with *S. luteopygidiale* and are given in more detail in the present paper (Figs 160, 161).

#### **5.2.18.2. *Scaphisoma hiekei* LÖBL, 1972**

*Scaphisoma hiekei* LÖBL 1972: 93, 94, Figs 32, 33. Holotype ♂, ZMUB; type locality: Palawan, Binaluan.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Palawan, Roxas, region of Matalangao, 80 m, 5.IV.1983, leg. S. Nagai & C. Lienhard, 83/86, 2 ex. (MHNG); Palawan, Matalangao nr. Roxas, 150 m, 29.VIII.1985, leg. M. Sakai, 2 ex. (EUMJ, MHNG).

**D i s t r i b u t i o n :** Philippines: Palawan.

**Comments:** The species may be readily distinguished by the pronotum with oblique lateral margins and lateral carinae well visible in dorsal view, the pronotal punctures conspicuously coarse and dense, to part as large as or larger than puncture intervals, and the antennomere III about as long as IV, both combined as long as antennomere V. Diagnostic for the species is also the shape of the median lobe of the aedeagus, with the apical process strongly bent and vertical near tip to aedeagal axis.

#### **5.2.18.3. *Scaphisoma inexpectatum* nov.sp. (Figs 15, 162, 163)**

Type specimens: Holotype ♂: Burunkot, Upi, Cotabato Prov. Mindanao Elev. 1500 ft., I,1-9, 1947 / Lot 154 taken on polypores / CNHM-Philippine Zool. Exped. (1946-47) F.G.Werner leg. (FMNH). Paratypes: Mindanao, with the same data as the holotype, 11 ♂♂, 5 ♀♀, 4 ex. sex not examined (FMNH, MHNG, BZLA); Mindanao, Davao Prov., E. slope of Mt. McKinley, 3200 ft., 7-8.IX.1946, lot 54 beating, leg. F.G. Werner, 3 ♂♂, 2 ♀♀ (FMNH, MHNG); Mindanao, Davao Prov., 25 km NW of New Bataan, 1200 m, 20-22.V.1996, leg. Bolm 2 ♂♂, 4 ♀♀ (SMNS); Mindanao, Misamis occ., Don Victoriano, 1700 m, 1-3.V.1996, leg. Bolm, 8 ♂♂, 6 ♀♀ (SMNS, MHNG).

**D e s c r i p t i o n :** Length 1.10-1.23 mm, width 0.75-0.83 mm. Head and most of body dark reddish-brown to blackish, elytra near apical margins as in middle or darkened, elytral apices light brown, apical abdominal segments and appendices ochreous to yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 13/5: IV 24/5: V 46/5: VI 34/5: VII 50/8: VIII 40/6: IX 52/10: X 53/9: XI 60/10. Pronotum very finely and sparsely punctate with or without coarser and dense punctures on basomedian area, with lateral contours weakly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae distinctly punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae deep, starting somewhat posterior level of scutellum, parallel toward apical fourth of sutural length, converging toward apices, coarsely punctate; adsutural areas narrow, flat, densely and

distinctly punctate, lateral and epipleural striae distinctly punctate. Elytral disc with punctation dense and coarse from bases to apical third, puncture rows fairly distinct, puncture intervals mostly about as large to twice as large as puncture diameters; apical fourth fairly finely and sparsely punctate. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about twice as long as intervals to mesocoxae, about five times as long as wide. Median part of metaventrite hardly convex, with shallow apicomeral impressions, lacking distinct microsculpture; with few fairly coarse and dense punctures in apicomedian impressions, punctation very fine and sparse and very fine on remaining surface and on sides; antecoxal puncture rows present, in impressed lines. Submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum convex, narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate; sternite 1 with submetacoxal areas 0.05 mm, about as half of intervals to apical margin of sternite, submetacoxal lines convex, coarsely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 162, 163) 0.40-0.42 mm long, symmetrical, weakly sclerotized. Apical process of median lobe narrow, not inflexed, with ventral side almost straight and in axis with basal bulb, abruptly inflexed and narrowed toward acute tip. Articular process robust, not prominent. Parameres narrow, gradually narrowed toward mid-length, curved in apical halves, each with narrow membranous lobe. Internal sac with lacking sclerotized rods, with very fine denticulate structures.

**Etymology:** The species epithet is a Latin adjective meaning unexpected.

**Comparative notes:** This species is very similar to *S. surigaosum* (Pic) and to *S. furcigerum* described below. It differs from both by its pronotal punctation and, more distinctly, by the aedeagus, in particular by the shape of the tip of the median lobe.

#### **5.2.18.4. *Scaphisoma inflexum* nov.sp. (Figs 164-166)**

**Type material:** Holotype ♂: Philippines: Leyte Visca N Baybay, 1991 prim. forest, 200-500m leg. Schawaller & al. / 22.2.-10.3. (SMNS).

**Description:** Length 1.25 mm, width 0.95 mm. Head and body ochreous, abdomen and appendages lighter than pronotum and elytra. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 9/7: IV 15/6: V 22/7: VI 30/8: VII 35/12: VIII 30/10: IX 38/12: X 36/11: XI 50/12. Pronotum finely and fairly densely punctate, lateral contours evenly rounded, lateral margin carinae not exposed in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, bent at base, not extending along basal margins, parallel from level of scutellar tip to apices; adsutural areas narrow, finely punctate. Lateral striae appearing impunctate. Elytral disc with punctation fine, moderately dense, coarser than pronotal punctation, puncture intervals mostly twice to four times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna lacking obvious microsculpture. Mesepimera about twice as long as intervals to mesocoxae and about three times as long as wide. Metaventrite lacking obvious microsculpture, on narrow apicomedian area fairly coarsely punctate, very finely

punctate on remaining surface. Median part of metaventricle convex, lacking striae, slightly impressed on apicomedian area; antecoxal puncture rows absent. Submesocoxal areas 0.02 mm, about as seventh of intervals to metacoxae, submesocoxal lines parallel, finely punctate. Metanepisternum flat, strongly narrowed anteriorly, inner margin weakly curved, suture shallow. Tibiae straight. Abdomen with barely visible punctulate microsculpture, very finely punctate. Sternite 1 with submetacoxal areas about 0.05 mm, as third of intervals to apical margin, submetacoxal lines convex, with distinct marginal punctures.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 164-167) 0.40 mm long, symmetrical, moderately sclerotized. Apical process of median lobe short, minute compared to basal bulb, strongly inflexed, with tip acute in lateral view, blunt in dorsal view; articular processes robust, prominent. Parameres widened in middle, almost straight in lateral view, narrowed and bent in dorsal view, Internal sac without rods or flagellum, with complex, dense, spine-like structures.

**Etymology:** The species epithet is a Latin adjective meaning inflexed.

**Comparative notes:** This species may be distinguished from its congeners with similar small-sized body and light coloration by the shape of the aedeagus, in particular by the very short apical process of the median lobe.

#### 5.2.18.5. *Scaphisoma luteopygidiale* (PIC, 1947) (Figs 19, 167)

*Scutoscaposoma luteopygidiale* PIC, 1947: 3. Lectotype ♂, MNHN; type locality: Palawan, Binaluan. Transfer to *Scaphisoma* and lectotype designation: LÖBL 1970a: 128; illustration of aedeagus: LÖBL 1970a: 127, Fig. 5; LÖBL 1981a: 163, Fig. 15.

**Additional material examined:** Palawan, Central, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995, leg. I. Löbl, 23 ex. and leg. J. Kodada, 4 ex (MHNG, BZLA); Palawan, Sabang, degrade. rainforest on slope, 50-100 m, 30.XI.1995, leg. J. Kodada, 5 ex. (MHNG); Palawan, Sabang, trail to Underground River, sea level, 30.XI.1995, leg. I. Löbl, 18 ex. (MHNG); Palawan, Sabang, N. of Mt. St. Paul, 11-13.VII.1977, leg. M. Satô, 26 ex. (MHNG, EUMJ, BZLA); Palawan, nr. Cabayugan, 150 m, 2.XII.1995, leg. J. Kodada & B. Rigová, 1 ex. (MHNG); Palawan, Binaluan, 9 ex. (SMTD); Palawan, S. slope of Mt. Balabag, Mantalinga Range, 2800 ft., 4-17.V.1947, F.G. Werner leg., 1 ex. and 3000 ft., 13.V.1947, 2 ex. (FMNH); Palawan, Matalangao nr. Roxas, 150 m, 29.VIII.1985, leg. M. Sakai, 1 ex. (EUMJ); Palawan, Penascosa, 15-16.VII.1977, leg. M. Satô, 1 ex. (MHNG).

**Distribution:** Philippines: Palawan.

**Comments:** The published illustrations of the aedeagus (LÖBL 1970a, 1981a) show characters seen in dorsal view. The median lobe and parameres seen in lateral view (Fig. 167) are also diagnostic and therefore illustrated in the present paper.

#### 5.2.18.6. *Scaphisoma ochropenne* nov.sp. (Figs 24, 168-170)

**Type material:** Holotype ♂: Meran, E. slope Mt. Apo, Davao Province, Mindanao 6000 ft: XI: 5: 46 / Lot 100 in polypore 39: *Fomes applanatus* / CNHM-Philippine Zool. Expedition (1946-47) F.G. Werner leg. (FMNH). Paratypes: Mindanao, with the same data as the holotype, 4♂♂, 7♀♀ (FMNH, MHNG, BZLA): with the same data but on decaying fleshy gilled bracket fungus, 1♂ (FMNH); with the same data but 7.XI.46, original forest, lot 116 Polypore 47 *Polyporus durus* Jungh., 2♀♀ (FMNH, MHNG); same data as preceding but Lot 117, polypore 48 ex *Fomes applanatus*, 3♂♂, 1♀ (FMNH, MHNG); same data but 8.XI.46, Lot 120 polypore 51 *Fomes applanatus*, 3♀♀ (FMNH, MHNG); same data but 5-9.XI.46, original forest, Lot 131 decayed woody polypores, 1♂ (FMNH); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-9.I.47 Lot 154 taken on polypores, leg. F.G. Werner, 1♀ (FMNH).

**Description:** Length 1.35-1.53 mm, width 0.92-1.02 mm. Head, thorax and



sternites 1 and 2 reddish-brown. Elytra, apical abdominal segments and appendages lighter, ochreous. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/8: IV 30/5: V 45/6: VI 40/6: VII 49/14: VIII 40/10: IX 50/13: X 48/13: XI 56/14. Pronotum very finely and fairly densely punctate, with lateral contours evenly rounded, lateral margin carinae usually visible in dorsal view, lateral striae distinctly punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae usually entirely visible in dorsal view, apical margins hardly rounded, inner apical angles not prominent, situated somewhat posterior or in level of outer angles; sutural margin not raised, sutural striae deep, often starting somewhat posterior level of scutellum, not bent at bases, parallel toward apices, distinctly punctate; adsutural areas narrow, flat, densely and finely punctate, lateral striae distinctly punctate. Elytral disc with punctation dense and coarse on entire surface, puncture rows fairly distinct, puncture intervals mostly about as large to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera somewhat longer than intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, lacking mesal or apicomeral impressions or striae, with strigulate microsculpture exceeding onto areas between mesocoxae and metacoxae, absent from lateral parts of metaventrite; punctation on prevailing surface of metaventrite very fine and sparse; antecoxal puncture rows present, in impressed lines. Submesocoxal areas 0.03 mm, about as sixth of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum convex, hardly narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate; sternite 1 with punctation sparse except on basomedian area; submetacoxal areas 0.05 mm, about as third of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 168-170) 0.62-0.64 mm long, symmetrical, fairly strongly sclerotized. Apical process of median lobe strongly inflexed, curved in lateral view, at apex truncate and hook-like. Articular process inconspicuous, not prominent. Parameres irregularly narrowed toward mid-length, at middle bent, in apical halves evenly wide, each bearing large, fairly narrow membranous lobe. Internal sac with pair of robust, sinuate apical sclerites, and basal and central parts membranous and covered by denticulate and scale-like structures.

**E t y m o l o g y :** The species epithet refers to the ochreous colour of the elytra.

**C o m p a r a t i v e n o t e s :** The shape of the apex of the median lobe of the aedeagus is diagnostic. In addition, the species is well characterized by the internal sac with a pair of robust, apical sclerites. The species may be readily distinguished from members of the group by its colour pattern.

### **5.2.18.7. *Scaphisoma pseudokalabutum* nov.sp. (Figs 28, 171-173)**

**T y p e m a t e r i a l :** Holotype ♂: Palawan: Central, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995. I. Löbl fungi on logs (MHNG). Paratypes: with the same data as the holotype, 12♂♂, 6♀♀ (MHNG); same but leg. J. Kodada, 1 ex. (MHNG); Palawan, nr. Cabayugan, degraded forest 150 m, 2.XII.1995, leg. J. Kodada & B. Rigová, 16 ex. (MHNG); Palawan, Sabang, trail to Underground River, sea level, 30.XI.1995, leg. I. Löbl, 4♂♂, 1♀ (MHNG); Palawan, Sabang, 50-100 m, degraded forest on slope, leg. J. Kodada & B. Rigová, 1♀ (MHNG, BZLA); Palawan, Sabang, N. of Mt. St. Paul, 11-13.VII.1977, leg. M. Satô, 2♀♀ (MHNG); Palawan, Binaluan, 1 ex. (SMTD); Palawan, Roxas, region of Matalangao, 80 m, 5.IV.1983, leg. S. Nagai & C. Lienhard, 1♀ (MHNG); Palawan, Mantalingajan Range, S. slope Mt. Balabag, 3900 ft., 13.V.47, leg. F.G. Werner, 1♀ (FMNH).

**Description:** Length 1.10-1.2 mm, width 0.75-0.87 mm. Head, thorax, most of elytra and sternite 1 uniformly reddish-brown or sternites 1 to 3 lighter. Apical sixth to fifth of elytra darkened, except light apical margins. Appendages ochreous to yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 11/5: IV 22/4: V 38/4: VI 35/5: VII 50/10: VIII 37/8: IX 48/12: X 45/12: XI 60/12. Pronotal punctation very fine and sparse on prevailing surface, dense and fairly coarse on well delimited basal band; pronotum with lateral contours weakly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae distinctly punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae hardly visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated about in level with outer angles; sutural margin raised, sutural striae deep, starting posterior level of scutellum, parallel toward apical fourth of sutural length, converging toward apices, coarsely punctate; adsutural areas narrow, flat, densely and fairly coarsely punctate, lateral striae coarsely punctate, epipleural striae distinctly striate. Elytral disc with punctation dense and coarse from bases to apical fifth, becoming finer but distinct toward apices; coarse punctures to part larger than puncture intervals, to part in oblique lines. Hind wings fully developed. Hypomera and mesanepisterna with strigulate smooth. Mesepimera about twice as long as intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, lacking mesal or apicomeral impressions or striae, with strigulate microsculpture between mesocoxae and metacoxae; punctation irregular, fairly coarse and sparse in middle; lateral parts of metaventrite very finely and sparsely punctate; antecoxal puncture rows present, in impressed lines. Submesocoxal areas 0.02 mm, about as fifth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum convex, narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.05 mm, about as half of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 170-173) 0.57-0.62 mm long, symmetrical, fairly strongly sclerotized. Apical process of median lobe robust, inflexed in apical section only, strongly narrowed toward apex, apex truncate. Articular process inconspicuous, not prominent. Parameres conspicuously wide, with large membranous lobes; upper margin convex in lateral view. Internal sac with flattened, long rods, two admesal bunches of long spines, and basal membranous vesicle.

**Etymology:** The species epithet is formed by the Latin pseudo, meaning not true, and kalabutum, the name of a closely related species (which is derived from Kalabit, the name of a Bornean tribe).

**Comparative notes:** The aedeagal characters suggest close relationships with *S. kalabutum* LÖBL, 1986, from Sabah. The new species is distinguished by its smaller body-size, the elytra lacking light subbasal spots and apical bands, and the internal sac of the aedeagus bearing admesal bunches of sclerotized spines.

#### **5.2.18.8. *Scaphisoma rufescens* (PIC, 1920) (Fig. 29)**

*Pseudoscaphosoma punctatum* PIC var. *rufescens* PIC, 1920a: 24. Syntypes, MNHN; type locality: East Malayasia, Island Banggi. Status and diagnostic characters: LÖBL 1981a: 155, Fig. 4, 157.

*Scutoscaphosoma distinctipenne* PIC, 1923: 195. Lectotype ♂, MNHN; type locality: Vietnam, Lac Tho. Lectotype designation and synonymy: LÖBL 1981a: 157.

**Additional material examined:** Palawan, Central, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995, leg. I. Löbl, 2 ex. and leg. J. Kodada, 1 ex (MHNG); Palawan, Sabang, trail to Underground River, sea level, 30.XI.1995, leg. I. Löbl, 2 ex. (MHNG); Palawan, Sabang, N. of Mt. St. Paul, 11-13.VII.1977, leg. M. Satô, 16 ex. (MHNG); Palawan, Binaluan, 7 ex. (SMTD); Olangoan, 18 km NE San Rafael, sea level, 5-6.XII.1995, leg. I. Löbl, 1 ex. (MHNG); Olanguan, 1.IX.1985, leg. M. Sakai, 1 ex. (EUMJ); Palawan, Matalangao nr. Roxas, 150 m, 29.VIII.1985, leg. M. Sakai, 1 ex. (EUMJ); Palawan, Iwahin River Valley, 16.VI.1977, leg. M. Satô, 5 ex. (MHNG, BZLA).

**Distribution:** China: Yunnan, Indonesia, West and East Malaysia, Singapore, Thailand, Vietnam, Philippines: Palawan.

### 5.2.18.9. *Scaphisoma sinuatum* nov.sp. (Figs 31, 174, 175)

**Type material:** Holotype ♂: Luzon: Lagunas Mt. Makiling, summit rd ca 600 m, 28.XI.1995 I. Löbl, fungi on large logs (MHNG). Paratypes: Luzon, with the same data as the holotype, 1♂ (MHNG); with the same data but 21.XI.1995, leaf litter, 1♂ (MHNG); Luzon, Mt. Makiling, 2000 ft., 1.VI.1947, leg. F.G. Werner, 1♂ (FMNH); Luzon, Mt. Makiling, 4 km SE Los Banos, 8.IV.1977, forest litter, leg. L. Watrous, 1♂, 2♀♀ and 9.IV., under bark, 1♂ (MHNG).

**Description:** Length 1.18-1.30 mm, width 0.80-0.87 mm. Head, thorax, most of elytra and sternite 1 dark, reddish-brown. Elytra with sharply delimited yellowish area covering almost entire apical third. Apical abdominal segments and appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/7: IV 23/6: V 42/7: VI 35/7: VII 47/11: VIII 35/8: IX 50/12: X 48/12: XI 63/13. Pronotum finely and densely punctate, with lateral contours evenly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae finely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae deep, starting somewhat posterior level of scutellum, parallel toward apical fourth of sutural length, converging toward apices, coarsely punctate; adsutural areas narrow, flat, densely and fairly coarsely punctate, lateral striae coarsely punctate, epipleural striae distinctly striate. Elytral disc with punctation dense and coarse from bases to apical third, puncture rows distinct, puncture intervals mostly about as large to twice as large as puncture diameters; apical third to two fifth impunctate. Hind wings fully developed. Hypomera and mesanepisterna with strigulate microsculpture. Mesepimera about twice as long as intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, lacking mesal or apicomeral impressions or striae and with indistinct microsculpture; punctation coarse and very dense in middle, punctures to part larger and puncture intervals; lateral parts of metaventrite very finely and sparsely punctate; antecoxal puncture rows present, in impressed lines. Submesocoxal areas 0.02-0.03 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum convex, narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely and sparsely punctate; submetacoxal areas 0.05 mm, about as third of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 174, 175) 0.32-0.37 mm long, symmetrical, weakly sclerotized. Apical process of median lobe narrow, strongly curved in lateral view, with acute apex. Articular process inconspicuous, not prominent. Parameres widened in middle part, narrowed apically, lacking membranous lobes; inner margin strongly sinuate in dorsal view. Internal sac without sclerites, with very fine denticulate structures.

**E t y m o l o g y :** The species epithet refers to the sinuate shape of the parameres.

**C o m p a r a t i v e n o t e s :** This species is well characterized by the shape of the parameres, as seen in dorsal view. In addition, the ventral side of the apical process is evenly and strongly arcuate, unlike to that in most members of the group.

#### **5.2.18.10. *Scaphisoma stigmatipenne* HELLER, 1917 (Figs 32, 176)**

*Scaphosoma stigmatipenne* HELLER, 1917: 46. Lectotype ♂, SMND; type locality: Luzon, Mt. Makiling. Lectotype designation and illustration of aedeagus: LÖBL 1970a: 127, 128, Fig. 3; aedeagus: LÖBL 1981a: 163, Fig. 16.

*Scaphosoma luteoapicale* PIC, 1926: 2. Lectotype ♂, MNHN; type locality: Luzon, Los Banos. Lectotype designation and synonymy: LÖBL 1970a:128.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Luzon, Lagunas Prov., Mt. Makiling, summit rd., 450-700 m, fungi on logs and in leaf and moss litter, 20-22. and 28.XI.1995, leg. I. Löbl, 59 ex. (MHNG); Luzon, Lagunas Prov., Mt. Makiling, above Mad Springs, 400-700 m, 19-22.XI.1995, leg. J. Kodada, 5 ex. (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 4 km SE Los Banos, 7. and 9.IV.1977, leg. L. Watrous, 9 ex. (MHNG); Luzon, Lagunas Prov., Mt. Banahaw above Kinabuhayan, 600-700 m, trail to Crystalino, 24-25.XI.1995, leg. J. Kodada & B. Rigová, 16 ex., same but leg. I. Löbl, 10 ex. (MHNG, BZLA); Leyte, Visca N Baybay 100-200 m, 27.II.1991, leg. W. Schawaller, 6 ex. (SMNS, MHNG); Leyte, Lunay, 2.III.1913, leg. G. Böttcher, 1 ex. (ZMUB); Mindanao, Davao Prov., E. slope of Mt. McKinley, 3200 ft., 7-8.IX.1946, leg. F.G. Werner, 1 ex. (FMNH); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-9.I.1947, taken on polypores and under bark, leg. F.G. Werner, 23 ex. (FMNH, MHNG); Mindanao, Cotabato Prov., 50 km N. of Parang, 500 ft., 6.XII.1946, leg. F.G. Werner, 7 ex. (FMNH, MHNG); Mindanao, Davao Prov., 25 km NW of New Bataan, 1200 m, 20-22.V.1996, leg. Bolm, 2 ex. (SMNS).

**D i s t r i b u t i o n :** Philippines: Luzon, Leyte, Mindanao.

**C o m p a r a t i v e n o t e s :** The aedeagus was illustrated in dorsal view only (LÖBL 1981a). The shape of the median lobe and of the parameres seen in lateral view resembles that of *S. luteopygidiale* (PIC) but the ventral side of the apical process of the median lobe is distinctly concave (Fig. 175).

#### **5.2.18.11. *Scaphisoma surigaosum* (PIC, 1926) (Figs 36, 177)**

*Scutoscaposoma luteoapicale* PIC var. *surigaosum* PIC, 1926: 3. Lectotype ♂, MNHN; type locality: Mindanao, Surigao. Lectotype designation, status and transferred to *Scaphisoma*: LÖBL 1970a: 128; illustration of aedeagus: LÖBL 1970a: 127, Fig. 4; LÖBL 1981a: 163, Fig. 14.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Mindanao, Baracatan, north slope of Mt. Apo, Eagle Center, 1100 m, 6.VIII.1985, leg. M. Sakai, 2♂♂ (EUMJ, MHNG); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 fr., 1-9.I.1947, on polypores, leg. F.G. Werner, 1♂ (FMNH); Mindanao, Davao Prov., 25 km W of New Bataan, 1200 m, 20-22.V.1996, leg. Bolm, 1♂ (SMNS); Mindanao, 30 km E of Malaybalay, Busdi, 1000 m, 5-9.V.1996, leg. Bolm, 1♂, 2♀♀ (SMNS, MHNG); Luzon, Lagunas Prov., Mt. Banahaw above Kinabuhayan, 600-700 m, 24.XI.1995, leg. I. Löbl, 1♂ (MHNG); Luzon, Lagunas Prov., Mt. Makiling, summit rd., ca 600 m, 28.XI.1995, leg. I. Löbl, 1♂, 1♀ (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 2000n ft., 1.IV.1947, leg. F.G. Werner, 1♂, 4♀♀ (FMNH); Palawan, Central, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995, leg. I. Löbl, 4♂♂, 1♀♀ (MHNG, BZLA).

**D i s t r i b u t i o n :** Philippines: Mindanao, Luzon, Palawan.

**C o m p a r a t i v e n o t e s :** The presence of membranous parameral lobes was overlooked in LÖBL, 1970a and 1981a, and the aedeagus of the species was figured in dorsal view only. Therefore, an illustration of the aedeagus in lateral view (Fig. 177) is given in the present paper.

**5.2.18.12. *Scaphisoma transversale* nov.sp. (Figs 37, 178, 179)**

**Type material:** Holotype ♂: Luzon: Lagunas Mt. Makiling (summit rd) 600m, 21-22.XI.1995 I. Löbl, fungi on logs (MHNG). Paratypes: Luzon, with the same data as the holotype, 4♂♂, 3♀♀ (MHNG); with the same data but moss, epiphytes, bark on logs, 4 ex. (MHNG); with the same data but 21.XI. leaf litter, 1♂ (MHNG); with the same data as the holotype but 28.XI. fungi on large logs, 4♂♂, 1♀ (MHNG); Mt. Makiling, 4 km SE Los Banos, 9 and 12.IV.1977, leg. L.E. Watrous, 13 ex. (MHNG); Lagunas Prov., Mt. Banashaw ca 1 km from Kinabuhayan, 500-700 m, 24.XI.1995, degraded rainforest floor litter, leg. I. Löbl, 1♂ (MHNG); same data but 500 m, 26.XI., 1♀ (MHNG); Mountain Prov., Mt. Data 2250 m, 13.VII.1985, leg. M. Sakai, 1♂, 3♀♀ (EUMJ); same data as preceding but 25.VII., 3♀♀ (EUMJ); same data but 2300 m, 26.VII., 10 ex. (EUMJ, MHNG); Mountain Prov., Mt. Pugui 1800-1900 m, 17.VII.1985, leg. M. Sakai, 2♀♀ (EUMJ); Mountain Prov., Palopal, 2300 m, 30.V.1977, leg. M. Satō, 1 ex. (MHNG); Ifugao Prov., Mt. Polis, 1900 m, 4, 5.VI.1977, leg. M. Satō, 1 ex. (MHNG); with the same data but 5.VI., leg. Y. Kurosawa, 1 ex. (MHNG); Ifugao Prov., Mt. Pangao 2350 m nr. Data 14.VII.1985, leg. M. Sakai, 10 ex. (EUMJ, MHNG).

**Description:** Length 1.05-1.35 mm, width 0.74-0.92 mm. Head, pronotum and most of elytra ochreous. Basal margin of pronotum somewhat darkened. Elytra each with darkened, brown transversal band situated anterior apical fourth to third, touching lateral margins but not extending up to sutural stria. Hypomera ochreous, mesoventrite, metaventrite and sternite 1 brown, sternite 2 as sternite 1 or lighter. Apical fifth to fourth of elytra, apical abdominal segments and appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 20/5: V 35/7: VI 32/7: VII 42/11: VIII 34/8: IX 46/10: X 40/13: XI 55/13. Pronotum very finely and fairly densely punctate, with lateral contours evenly rounded, lateral margin carinae usually visible in dorsal view, lateral striae distinctly punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae usually entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin raised, sutural striae deep, often starting somewhat posterior level of scutellum, parallel toward apical third of sutural length, converging toward apices, coarsely punctate; adsutural areas narrow, flat, densely and finely punctate, lateral striae distinctly punctate. Elytral disc with punctation dense and coarse from bases to apical third or fourth, puncture rows distinct, puncture intervals mostly about as large to twice as large as puncture diameters; apical fourth to third very finely and sparsely punctate, surface near apices impunctate. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about twice as long as intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, lacking mesal or apicomeral impressions or striae, with strigulate microsculpture expanded onto areas between mesocoxae and metacoxae but absent from lateral parts of metaventrite; with punctation distinct and dense in middle, very fine and sparse on sides; antecoxal puncture rows present, in impressed lines. Submesocoxal areas 0.03 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum convex, hardly narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate; sternite 1 with punctation sparse except on basomedian area; submetacoxal areas 0.04 mm, about as third of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**Male:** Protarsomeres 1 to 3 weakly widened. Aedeagus (Figs 178, 179) 0.32-0.41 mm long, symmetrical, weakly sclerotized. Apical process of median lobe short, moderately inflexed, with rounded apex, weakly narrowed in dorsal view; articular process small, not prominent. Parameres with small membranous inner lobes, narrowed

toward mid-length, in dorsal view evenly broad in apical halves, in lateral view gradually narrowed toward apices. Internal sac tubular, lacking sclerotized pieces, with elongate spine-like structures becoming shorter in apical section.

**E t y m o l o g y :** The species epithet refers to the transverse darkened elytral band.

**C o m p a r a t i v e n o t e s :** The aedeagal characters of this species suggest relationships with *S. banguiense* LÖBL. These species share in particular the comparatively short apical process of the median lobe, the small parameral lobes and the tubular internal sac lacking sclerotized pieces. However, *S. transversale* may be easily distinguished by its colour pattern and by the apical halves of parameres broader in dorsal view and more narrowed apically in lateral view.

### 5.2.19. The *Scaphisoma haemorrhoidale* species group

This species-rich and widely distributed group was defined in LÖBL 1970b: 732. It is characterized by a trilobed and symmetrical median lobe, the parameres lacking lobes and symmetrical, in combination with a complex internal sac. The members of the group usually share strigulate abdominal microsculpture and have elytra lacking basal striae.

#### 5.2.19.1. *Scaphisoma acutulum* nov.sp. (Figs 180, 181)

**T y p e m a t e r i a l :** Holotype ♂: Philippines: Leyte Visca N Baybay, 1991 prim. forest 200-500m leg. Schawaller et al. / 2.3.91 (SMNS). Paratypes: with the same data as the holotype but 22.2.-10.3, 2♂♂ (SMNS, MHNG).

**D e s c r i p t i o n :** Length 1.52-1.57 mm, width 1.05-1.10 mm. Body uniformly reddish-brown, appendages lighter than body. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/7: IV 33/6: V 50/6: VI 42/7: VII 55/12: VIII 43/9: IX 55/13: X 53/13: XI 65/14. Pronotum very finely and fairly densely punctate, with lateral contours evenly rounded, lateral margin carinae throughout visible in dorsal view, lateral striae finely punctate. Tip of scutellum exposed. Elytra with lateral margin carinae entirely visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae deep, slightly curved near base, parallel toward apical third of sutural length, converging toward apices, fairly finely punctate; adsutural areas narrow, flat, each with fairly dense and fine puncture row, lateral striae distinctly punctate. Elytral disc with punctation fairly coarse and dense, puncture intervals mostly about as large to three times as large as puncture diameters. Hypomera and mesanepisterna smooth. Mesepimera about twice as long as intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, not microsculptured between mesocoxae and very finely punctate, posterior part of metaventrite impressed, lacking mesal or apicomeral impressions or striae, coarsely punctate and with strigulate microsculpture. Lateral parts of metaventrite with punctation very fine and sparse, coarse antecoxal puncture rows excepted. Submesocoxal areas 0.03 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum convex, narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Protibiae and metatibiae straight, metatibiae somewhat narrowed posterior middle; mesotibiae slightly bent. Abdomen with strigulate microsculpture, very finely punctate; submetacoxal areas 0.04-0.05 mm, about as third to almost as half of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**M a l e :** Protarsomeres and mesotarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 180, 181) 0.72-0.74 mm long, fairly strongly sclerotized, symmetrical. Median lobe with elongate basal bulb, robust, not prominent articular process and ventral branch of apical process strongly inflexed, tapering and sinuate in lateral view, abruptly narrowed in apical section in dorsal view. Dorsal branches of apical process short, weakly sclerotized. Parameres wide, with large lobes, in dorsal view curved and overlapping apically. Internal sac with robust mesal tooth, bunch of long apical spines and finely denticulate structures in basal and admesal sections.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning somewhat pointed.

**C o m p a r a t i v e n o t e s :** The shape of the aedeagus is diagnostic. The species is similar in external characters to *S. boettcheri* PIC. The structure of the internal sac resembles that in *S. innotatum* PIC, 1926 known from India, Thailand and Vietnam, but the shape of the median lobe and parameres is distinctive.

### **5.2.19.2. *Scaphisoma apomontanum* nov.sp. (Figs 182, 183)**

**T y p e m a t e r i a l :** Holotype ♂: E. slope Mt. McKinley, Davao Province, Mindanao VIII: 22: 46 / Elev.: 5200 ft. / Lot 15 in logs / CNHM-Philippine Zool. Exped. (1946-47) F.G. Werner leg. (FMNH). Paratype: Mindanao, Davao Prov., Baclayan, E. slope of Mt. Apo, 6500 ft., 10-13.XI.1946, original forest sifting humus, leg. F.G. Werner, 1♂ (MHNG).

**D e s c r i p t i o n :** Length 1.65-1.70 mm, width 1.05-1.15 mm. Head and pronotum blackish, elytra as pronotum or somewhat lighter, hypomera, mesoventrite, femora and tibiae somewhat lighter reddish-brown, metaventrite and metanepisterna about as elytra, sternites 1 to 3 dark reddish-brown, following sternites gradually lighter, abdominal apex, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/7: IV 30/7: V 43/7: VI 34/8: VII 47/11: VIII 33/9: IX 40/12: X 40/12: XI 48/13. Pronotum irregularly, fairly densely and finely punctate, punctures well delimited, mostly much smaller than puncture intervals, with lateral contours rounded, lateral margin carinae visible in dorsal view, lateral striae punctate. Exposed tip of scutellum minute. Elytra convex, with lateral margin carinae entirely exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae deep, slightly bent at base, not extended along basal margins, weakly converging toward apices, finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Prevailing surface of elytral disc with punctation fairly fine and dense, puncture intervals mostly about twice as large as puncture diameters, including near apices; punctures well delimited, larger than those on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about twice as long intervals to mesocoxae and about four times as long as wide. Metaventrite in middle flattened, with strigulate microsculpture between mesocoxae and metacoxae, not microsculptured lateral surfaces and between mesocoxae, lacking mesal or apicomeral impressions or striae, basomedian area impressed and fairly coarsely punctate, punctation on prevailing surface very fine and sparse; antecoxal puncture rows present. Submesocoxal areas 0.04 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum flat, hardly narrowed anteriorly, inner rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate; submetacoxal areas 0.07 mm, almost half of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**M a l e :** Protarsomeres and mesotarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 182, 183) 0.84-0.87 mm long, strongly sclerotized. Median lobe with robust articular process and long, weakly inflexed apical process. Ventral branch of apical process gradually narrowed apically, curved and acute at tip in dorsal view, truncate in lateral view; dorsal branches asymmetrical. Parameres sinuate, overlapping and widened in apical sections in dorsal view, almost evenly broad up to level of tip of median lobe in lateral view. Internal sac with very dense, short, spine-like and scale-like structures and dorsal sclerotized plate.

**E t y m o l o g y :** The species epithet is a Latinized adjective and refers to the type locality, Mount Apo.

**C o m p a r a t i v e n o t e s :** This species possesses a unique by shape of the apical process of the median lobe, with the tip of the ventral branch bent laterally, and asymmetrical dorsal branches.

### **5.2.19.3. *Scaphisoma conflictum* nov.sp. (Figs 184-189)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines: Mt. Makiling, Laguna Prov. 4 km SE Los Banos, 9-IV-1977 / Berlese leaf litter LWatrous (MHNG).

**D e s c r i p t i o n :** Length 1.35 mm, width 0.83 mm. Head and body dark reddish-brown, elytra becoming lighter near apices, appendages lighter than thorax and most of body. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 8/6: IV 21/5: V 31/6: VI 28/6: VII 35/10: VIII 25/7: IX 35/10: X 33/11: XI 44/12. Pronotum very finely and densely punctate, with lateral contours rounded, lateral margin carinae visible in dorsal view, lateral striae punctate. Exposed tip of scutellum small. Elytra not flattened, with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin not raised, sutural striae shallow, bent at base, not extended along basal margins, parallel posteriad to apical third, converging toward apices, fairly coarsely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Prevailing surface of elytral disc with punctation coarse and dense, puncture intervals mostly twice to three times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera almost twice as long as intervals to mesocoxae, about four times as long as wide. Metaventrite not microsculptured, between mesocoxae weakly convex and very finely punctate, in median part flattened posteriad and densely, fairly coarsely punctate, lacking impressions or stria. Lateral parts of metaventrite very finely and sparsely punctate, with antecoxal rows of coarse punctures. Submesocoxal areas 0.04 mm, about as third of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum flat, narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen not microsculptured, very finely punctate; sternite1 with submetacoxal areas 0.07 mm, slightly shorter than intervals to apical margin, submetacoxal lines convex, coarsely punctate.

**M a l e :** Protarsomeres 1 to 3 slightly widened. Aedeagus (Figs 184-189) 0.55 mm long, moderately sclerotized. Apical process of median lobe trifid, much shorter than basal bulb, asymmetrically bent to left (dorsal view), inflexed ventrally; dorsal branches distinct, reaching level of tip of ventral branch in dorsal view, ventral branch oblique, with acute tip. Parameres in dorsal view narrowed posterior mid-length, slightly widened



in middle part in lateral view. Internal sac complex, with apical sclerotized teeth, lateral row of spines, and squamous and denticular structures.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning conflicting.

**C o m p a r a t i v e n o t e s :** This species differs conspicuously of other members of the *S. haemorrhoidale* group by the abdomen lacking strigulate microsculpture. It is also unambiguously defined by the shape of the short, asymmetrical apical process of the median lobe.

#### **5.2.19.4. *Scaphisoma confusum* nov.sp. (Figs 190-193)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines Mindanao, Mainit Hot Spring 28. VII. 1970 M. Satô leg. (MHNG). Paratypes: with the same data as the holotype, 1 ♀ (MHNG); Mindanao, Davao Prov., Meran, E. slope Mt. Apo, 6000 ft., 5. XI.1946, leg. F.G. Werner, 1 ♀ and 7.XI.1946, original forest, leg. F.G. Werner, lot 116 Polyporus durus Jungh. 1 ♂ (FMNH, MHNG).

**D e s c r i p t i o n :** Length 1.50-1.55 mm, width 0.98-1.04 mm. Head, pronotum and hypomera ochreous, elytra and appendages lighter than pronotum, apical fourth of elytra yellowish. Mesoventrite and metaventrite, with epimeres and anepisterna as pronotum or somewhat darker, abdomen light brown to yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/8: IV 32/8: V 57/9: VI 42/9: VII 63/13: VIII 47/10: IX 61/14: X 53/15: XI 62/17. Pronotum very finely and sparsely punctate, with lateral contours barely rounded, lateral margin carinae visible in dorsal view, lateral striae punctate. Exposed tip of scutellum fairly large. Elytra fairly flat, with lateral margin carinae entirely exposed in dorsal view, apical margins weakly rounded to truncate, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae shallow, bent at base, not extended along basal margins, parallel posteriad to mid-length, converging toward apices, fairly coarsely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae punctate. Prevailing surface of elytral disc with punctation coarse and dense, puncture intervals to part smaller than puncture diameters, apical part of elytra finely punctate. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera distinctly longer than intervals to mesocoxae, about four times as long as wide. Metaventrite in middle convex, with strigulate microsculpture between mesocoxae and metacoxae, not microsculptured on lateral surfaces and between mesocoxae, lacking mesal or apicomeral impressions or striae, impressed between metacoxae, punctation on prevailing surface very fine and sparse; antecoxal puncture rows present, narrow area between metacoxae fairly coarsely punctate. Submesocoxal areas 0.03 mm, about as sixth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum flat, narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate excepted on narrow basomedian area bearing few coarser punctures, submetacoxal areas 0.04 mm, about as fourth of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**M a l e :** Protarsomeres 1 to 3 slightly widened. Aedeagus (Figs 190-193) 0.73 mm long, moderately sclerotized. Apical process of median lobe shorter than basal bulb, with concave ventral side, dorsal branches hardly visible in dorsal view, ventral branch curved, in apical section evenly narrow, tip blunt. Parameres widest posterior mid-length, strongly narrowed toward apices, with sinuate dorsal margin (lateral view). Internal sac complex, with long spine and teeth-like structures in apical section, large squamous basal bulb and denticular basolateral structures becoming elongate apically.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning confusing and refers to the complex structures of the internal sac.

**C o m p a r a t i v e n o t e s :** This species is characterized by its colour pattern in combination with the unusual shape of the parameres. It may be readily distinguished from the Philippine congeners possessing a metaventrite with antecoxal puncture rows.

**5.2.19.5. *Scaphisoma dispar* LÖBL, 1970 (Figs 10, 194, 195)**

*Scaphisoma dispar* LÖBL, 1970a: 125, Fig. 1. Holotype ♂, MNHN; type locality: Luzon, Los Banos.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Luzon, Ilocos Norte Prov., Bangui, leg. G. Böttcher 2 ex. (ZMUB); Ifugao Prov., Mt. Polis, 1900 m, 4-5.VI.1977, leg. M. Satô, 1 ex. (MHNG); Luzon, Lagunas Prov., Los Banos, 10.VII.1970, leg. M. Satô (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 4 km SE Los Banos, 9 and 12.IV.1977, leg. L.E. Watrous, 18 ex. (MHNG, BZLA); Luzon, Mt. Makiling, 2000 ft., VI.1947, F.G. Werner, 1 ex. (FMNH); Luzon, Lagunas Prov., Mt. Makiling, 19-20.VI.1978, leg. N. Ohbayashi, 1 ex. (EUMJ); Luzon, Lagunas Prov., Mt. Banashaw, about 1 km from Kinabuhayan, 500 m, 26.XI.1995, leg. I. Löbl, 1 ex. (MHNG).

**D i s t r i b u t i o n :** Philippines: Luzon.

**Comments:** The description of this species was based on a single specimen, additional material is reported above. The diagnostic details of the internal sac and the shape of the aedeagus in lateral view (Figs 194, 195) are here illustrated for the first time.

**5.2.19.6. *Scaphisoma disparides* nov.sp. (Figs 11, 196-198)**

**T y p e m a t e r i a l :** Holotype ♂: Palawan (central) Conception, sea level, I. Löbl, 6.-7.XII.1995, fungi on logs, bark (MHNG). Paratypes: Palawan, with the same data as the holotype, 6♂♂, 2♀♀ (MHNG); Palawan, Olanguan [sic], 0-50 m, between Puerto Princesa and Roxas, 1.IX.1985, leg. M. Sakai, 5♂♂, 10♀♀ (EUMJ, MHNG, BZLA); Palawan, Olangoan, sea level, 18 km N San Rafael, 5-6.XII.1995, leg. I. Löbl, 2♂♂, 1♀ (MHNG); Palawan, Binaluan, 1♂ (SMTD); Palawan, Tigoplan River, Brook's Pt., near sea level, IV.1947, leg. F.G. Werner, 2♂♂, 3♀♀ (FMNH, MHNG); Palawan, Mantalingajan Range, S. slope of Mt. Balabag, 2800 ft., 4-17.V.1947, forest, leg. F.G. Werner, 1♂, 2♀♀ (FMNH, MHNG); Mindanao, 30 km E of Malaybalay, Busdi, 5-9.V.1996, leg. Bolm, 1♂, 1♀ (SMNS, MHNG).

**D e s c r i p t i o n :** Length 1.20-1.25 mm, width 0.82-0.85 mm. Head, thorax and most of elytra brown to blackish-brown, often with somewhat reddish shine. Apical fifth to tenth of elytra light brown to yellowish. Abdomen reddish-brown, lighter than thorax. Appendages light, reddish-brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/6: IV 14/5: V 25/5: VI 26/8: VII 36/9: VIII 25/7: IX 33/12: X 30/12: XI 48/12. Pronotum finely and densely punctate, with lateral contours evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae partly or almost entirely visible in dorsal view, apical margins weakly rounded, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin raised, sutural striae deep, bent at base, not extending along basal margin, strongly converging toward apices, distinctly punctate; adsutural areas conspicuously broad anteriorly, about twice as wide at level of scutellar tip than at level of mid-length, flat, densely and fairly finely punctate anterior mid-length, with punctures usually larger than those on elytral disc, very finely punctate posterior mid-length, lateral striae very finely punctate. Elytral disc with punctation fairly dense and fine, puncture intervals mostly about twice to four times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera about as long as intervals to

mesocoxae, three times as long as wide. Median part of metaventrite inconspicuously microsculptured, slightly convex, lacking mesal or apicomeral impressions or striae, punctation on prevailing surface of metaventrite very fine and sparse; antecoxal puncture rows absent. Submesocoxal areas 0.05-0.06 mm, about as third of intervals to metacoxae, submesocoxal lines convex, almost impunctate. Metanepisternum flat, narrowed anteriorly, inner margin straight, rounded near angles, not impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate, submetacoxal areas 0.05-0.06 mm, about as half of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres 1 to 3 hardly widened. Aedeagus (Figs 196-198) 0.35-0.40 mm long, symmetrical, with basal bulb weakly sclerotized, except for its oblique, strongly sclerotized apical side. Articular processes small, not prominent. Apical process of median lobe trifid. Ventral branch of apical process narrow, weakly inflexed, tapering dorsal view, even in lateral view, lacking tubercles. Dorsal branches of apical process tapering. Parameres in lateral view sinuate, widest in middle part and strongly narrowed apically, in dorsal view almost straight in basal halves, curved and gradually narrowed in apical halves. Internal sac with central membranous vesicle covered by scale-like structures, partly overlapping long and fairly sclerotized admesal spines.

**E t y m o l o g y :** The species epithet derives from *S. dispar*; the Greek suffix *ides* means descendent.

**C o m p a r a t i v e n o t e s :** This species shares most diagnostic characters with *S. dispar*. It may be distinguished by the much darker colour of the body, the coarser punctures on anterior parts of adsutural areas, the hardly visible microsculpture on the median part of the metaventrite, the ventral branch of apical process tapering in lateral view, and the longer narrow apical section of the parameres as seen in lateral view.

#### **5.2.19.7. *Scaphisoma distinctum* nov.sp. (Figs 199, 200)**

**T y p e m a t e r i a l :** Holotype ♂: Mindanao, 30 km NW of Maramag, 13.-17.May Bagogsilang, 1700m Bolm lgt., 1996 (SMNS).

**D e s c r i p t i o n :** Length 1.78 mm, width 1.20 mm. Head, most of prothorax, abdomen and appendages ochreous. Basal margin of pronotum blackish. Anterior two thirds of elytra black, prevailing apical third of elytra yellowish, apical margins of elytra narrowly darkened. Mesothorax and metathorax dark brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/8: IV 50/7: V 55/8: VI 44/10: VII 48/15: VIII 40/9: IX 53/14: X 50/14: XI 63/14. Pronotum with punctation hardly visible, lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra convex, with anterior halves of lateral margin carinae exposed in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae shallow, shortly bent at base, not extended along basal margins, gradually and weakly converging posteriorly, very finely punctate; adsutural areas narrow, flat, each with single puncture row, lateral striae impunctate. Elytral disc with punctation very shallow, hardly visible though with some punctures larger than those on pronotum. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about three times as long as wide. Metaventrite not microsculptured, very finely and sparsely punc-

tate. Median part of metaventrite convex, with mesal stria and shallow apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as thirds of intervals to metacoxae, submesocoxal lines convex, indistinctly punctate, punctures not extended by striae. Metanepisternum convex, slightly narrowed anteriorly, inner margin almost straight, impressed, suture deep. Tibiae straight. Abdomen with strigulate microsculpture and very finely and sparsely punctate; sternite 1 with submetacoxal areas 0.02 mm, about as tenth of intervals to apical margin of sternite, submetacoxal lines parallel, coarsely punctate.

**M a l e :** Protarsomeres and mesotarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 199, 200) 0.75 mm long, symmetrical. Basal bulb and to part dorsal side of apical process of median lobe weakly sclerotized. Apical process strongly inflexed, gradually narrowed, with acute tip in lateral view, two fairly sclerotized dorsal valves joint and raised at their bases. Parameres conspicuously wide, with inner lobes very densely strigulate. Internal sac lacking rods, with row of sclerotized teeth and very dense membranous denticular structures.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning distinct.

**C o m p a r a t i v e n o t e s :** This species is unique by its colour pattern and by the shape of the aedeagus. It strongly reduced submetacoxal areas and parallel submetacoxal lines are as unusually in the group and similar as in *S. palawanum* and *S. inopportunum*.

#### **5.2.19.8. *Scaphisoma furcatum* nov.sp. (Figs 201-203)**

**T y p e m a t e r i a l :** Holotype ♂: Mindanao Eagle Centre, 1100 m Baracatan north slope of Mt. Apo 5.VIII.1985 M. Sakai (EUMJ). Paratypes: Mindanao, with the same data as the holotype but 6.VIII.1985, 1 ♂ (MHNG); Mindanao, Davao Prov., 25 km NW of New Bataan, 1200 m, 20-22.V.1996, leg. Bolm, 1 ♂ (SMNS); Luzon, Benguet Prov., Pellwell Ck., Camp Two, 14.VI.1977, leg. M. Satô, 1 ♂ (MHNG).

**D e s c r i p t i o n :** Length 1.35-1.50 mm, width 0.95-1.0 mm. Body dark brown, pronotum slightly darker than elytra, apical abdominal segments and appendages light brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/6: IV 32/7: V 45/8: VI 45/9: VII 53/13: VIII 46/9: IX 57/12: X 52/11: XI 73/13. Pronotum on prevailing surface very finely and fairly densely punctate, punctation on basomedian area fairly coarse and dense; lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae shallow, starting posterior basal fourth of sutural length, distinctly punctate; adsutural areas narrow, flat, densely and coarsely punctate, lateral and epipleural striae distinctly punctate. Elytral disc with punctation very dense and coarse, puncture intervals mostly smaller than puncture diameters, becoming finer and less coarse apically, punctures smaller than puncture intervals near apices; small humeral areas impunctate. Hind wings fully developed. Hypomera and mesanepisterna with strigulate microsculpture. Mesepimera about three times as long as intervals to mesocoxae, four times as long as wide. Metaventrite with strigulate microsculpture and very finely, sparsely punctate, middle slightly convex, lacking mesal or apicomeral impressions or striae; antecoxal puncture rows absent. Submesocoxal areas 0.05-0.06 mm, about as third of intervals to metacoxae, submesocoxal lines convex, almost impunctate. Metanepisternum convex, narrowed anteriorly,

inner margin straight, rounded near apical angles, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate, submetacoxal areas 0.05-0.06 mm, about as half of intervals to apical margin of sternite I, submetacoxal lines convex, distinctly punctate.

**Male:** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 201-203) 0.63-0.75 mm long, symmetrical, strongly sclerotized. Median lobe with apical process much shorter than basal bulb, strongly inflexed, near tip perpendicular to axis of median lobe, at tip obliquely truncate (lateral view). Articular process robust, not prominent. Parameres wide in basal section, abruptly narrowed anterior mid-length, with apical halves arcuate in dorsal view, sinuate in lateral view. Internal sac complex, with robust baso-median tooth, two long sinuate admesal sclerites, scale-like, denticulate and baculiform structures.

**Etymology:** The species epithet is a Latin adjective referring to the aedeagus with long, fork-like sclerites.

**Comparative notes:** This species is characterized by the peculiar form of the parameres. It may be readily distinguished from its Asian congeners, *S. furcillatum* described below excepted, by the elytra with strongly shortened sutural striae, the discal punctures to part larger than puncture intervals, the metaventrite lacking antecoxal puncture rows, and the microsculptured hypomera, in combination.

#### **5.2.19.9. *Scaphisoma furcigerum* nov.sp. (Figs 13, 204-206)**

**Type material:** Holotype ♂: Burungkot, Upi, Cotabato Prov. Mindanao Elev.1500 ft., I,1-9, 1947 / Lot 154 taken on polypores / CNHM-Philippine Zool. Exped. (1946-47) F.G.Werner leg. (FMNH). Paratypes: Mindanao, with the same data as the holotype, 5♂♂ (FMNH, MHNG); Mindanao, South Cotabato, Motoklot, 650 m, Maitum, 11.VIII.1985, leg. M. Sakai, 2♂♂ (EUMJ, MHNG).

**Description:** Length 1.10-1.23 mm, width 0.75-0.83 mm. Head and most of body dark reddish-brown to blackish, apical abdominal segments yellowish, femora ochreous, tibiae, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 11/6: IV 26/5: V 48/6: VI 40/6: VII 50/9: VIII 43/7: IX 50/10: X 45/10: XI 55/11. Pronotal punctation fairly finely and densely near base, very finely and sparsely on centre, densely and comparatively coarsely on lateral areas; pronotum with lateral contours weakly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae coarsely punctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin not raised, sutural striae deep, starting posterior level of scutellum, parallel toward apical third of sutural length, converging toward apices, coarsely punctate; adsutural areas narrow, flat, densely and finely punctate, lateral and epipleural striae distinctly punctate. Elytral disc with punctation dense and coarse from bases to apical fourth, puncture rows fairly distinct, puncture intervals mostly about as large to twice as large as puncture diameters; apical fourth fairly finely and sparsely punctate. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera not quite twice as long as intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, with shallow apico-mesal impressions, lacking distinct microsculpture; with punctation fairly coarse and dense in apico-median impressions, very fine and dense in middle, sparse and very fine on sides; ante-

coxal puncture rows present, in impressed lines. Submesocoxal areas 0.02 mm, about as fifth of intervals to metacoxae, submesocoxal lines parallel, coarsely punctate. Metanepi-sternum convex, hardly narrowed anteriorly, inner margin rounded, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate; sternite 1 with submetacoxal areas 0.04 mm, about as third of intervals to apical margin of sternite, submetacoxal lines convex, coarsely punctate.

**M a l e :** Parameres 1 to 3 weakly widened. Aedeagus (Figs 204-206) 0.66-0.75 mm long, symmetrical, strongly sclerotized. Apical process of median lobe robust, inflexed, with almost oblique ventral side, blunt apex. Articular process robust, not prominent. Parameres with strongly widened bases and each with large, curved lobe, in dorsal view evenly wide and almost evenly curved, excepted in basal section. Internal sac with a pair of conspicuous, strongly sclerotized rods joined by V-shaped apophysis and complex basal sclerites, membranous denticulate structures present in basal part only.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning bearing a fork and refers to the strongly sclerotized aedeagal rods.

**C o m p a r a t i v e n o t e s :** This species is similar to *S. furcatum* in external characters, though it may be readily distinguished by the punctation on lateral parts of the pronotum. It differs drastically from the latter by its aedeagal characters. The genital characters suggest close relationships with *S. furcillatum* described below. These two species share robust, short apical processes of the median lobe, parameres bearing large ventral lobes and internal sac possessing long, strongly sclerotized and mesally joined apical rods.

#### **5.2.19.10. *Scaphisoma furcillatum* nov.sp. (Figs 14, 207, 208)**

**T y p e m a t e r i a l :** Holotype ♂: Mindanao, 1.-3.May Misamis occ. 1700 m Don Victoriano Bolm lgt., 1996 (SMNS). Paratypes: Mindanao, with the same data as the holotype, 2♂♂, 1♀ (SMNMS, MHNG); Mindanao, 25 km NW of Zamboanga, 800 m Camp Susana, 28-30.IV.1996, leg. Bolm, 1♀ (SMNS).

**D e s c r i p t i o n :** Length 1.18-1.30 mm, width 0.80-0.90 mm. Body dark brown to blackish, apical abdominal segments and appendages light brown to ochreous. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 14/6: IV 23/6: V 54/7: VI 45/7: VII 52/10: VIII 45/7: IX 55/10: X 50/10: XI 65/12. Pronotum on prevailing surface finely and fairly densely punctate, punctation on basomedian area fairly coarse and dense; lateral contours evenly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae punctate. Exposed tip of scutellum fairly large. Elytra with lateral margin carinae distinct in dorsal view, apical margins rounded, inner apical angles not prominent, situated in level with outer angles; sutural margin not raised, sutural striae shallow, starting posterior basal fourth of sutural length, distinctly punctate; adsutural areas narrow, flat, densely and coarsely punctate, lateral and epipleural striae distinctly punctate. Basal halves of elytra with discal punctation very dense and coarse, puncture intervals mostly smaller than puncture diameters, punctation becoming finer and less coarse apically, puncture diameters smaller than puncture intervals near elytral apices. Hind wings fully developed. Hypomera and mesanepisterna not microsculptured. Mesepimera about four times as long as intervals to mesocoxae, about twice as long as wide. Metaventrite without obvious microsculpture and very finely, sparsely punctate, middle hardly convex, with very shallow apicomeral impressions; antecoxal puncture rows present, hardly impressed. Submesocoxal areas 0.03 mm,

about as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Metanepisternum convex, narrowed anteriorly, inner margin straight in middle part, rounded near angles, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate, few distinct punctures on intercoxal process of sternite 1; submetacoxal areas 0.03 mm, about as fourth of intervals to apical margin of sternite 1, submetacoxal lines barely convex, finely punctate.

**Male:** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 207, 208) 0.67-0.73 mm long, symmetrical, strongly sclerotized. Median lobe with dorsal branches of apical process very short, ventral branch robust, much shorter than basal bulb, obliquely inflexed, tapering toward tip (lateral view). Articular process robust, not prominent. Parameres wide in basal section, sinuate in dorsal view mid-length, each bearing large membranous lobe, apical halves converging, bent at mid-length and narrowed in apical section in lateral view. Internal sac with robust apicomedian rods joined mesally, with large basal vesicle bearing minute denticles, lacking basal sclerotized structures.

**Etymology:** The species epithet is a Latin adjective referring to the presence of aedeagal fork-like sclerites.

**Comparative notes:** This species resembles *S. furcatum*, though it lacks hypomeral microsculpture and has punctate humeral areas of the elytra. The species is characterized by its aedeagal features, in particular by the shape of the parameres seen in dorsal view, in combination with the internal sac bearing two robust apical rods joined mesally and lacking basal sclerites.

#### **5.2.19.11. *Scaphisoma glabrellum* nov.sp. (Figs 209-211)**

**Type material:** Holotype ♂: Mindanao, 30km NW of Maramag 13-17 May Bagongsilang, 1700m Bolm lgt., 1996 (SMNS).

**Description:** Length 2.20 mm, width 1.50 mm. Head, body, femora and tibiae ochreous, apical fourth of elytra lighter, almost yellowish, narrow area anterior apical fourth somewhat darkened. Apical abdominal segments, tarsi and antennae yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 14/9: IV 63/7: V 75/8: VI 60/9: VII 63/15: VIII 50/9 [following antennomeres broken off, missing]. Pronotum very finely and sparsely punctate, punctures hardly visible at 50 times magnification; lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae appearing impunctate. Exposed tip of scutellum small. Elytra with lateral margin carinae not visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised; sutural striae fairly deep, curved at base, not extended along basal margins, parallel to apical third, weakly converging in apical third, impunctate; adsutural areas narrow, flat, very finely punctate, lateral striae appearing impunctate; discal punctation sparse, as fine as pronotal punctation, with puncture intervals often more than five times as large as puncture diameters. Hind wings fully developed. Mesepimera about as long two thirds of intervals to mesocoxae, about three times as long as wide. Metaventrite not microsculptured, very finely and sparsely punctate. In middle weakly convex, with two deep apicomedian impressions; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as sixth of intervals to metacoxae, submesocoxal lines weakly convex, distinctly punctate. Metanepisternum flat, parallel-sided, inner margin straight, rounded at anterior angles, impressed below margin of metaventrite. Mesotibiae and metatibiae straight [protibiae missing]. Abdomen with strigulate

microsculpture, very finely punctate, submetacoxal areas 0.03 mm, about as seventh of intervals to apical margin of sternite 1, submetacoxal lines slightly convex, distinctly punctate.

**M a l e :** [Protarsomeres broken off, missing]. Sternite 6 with outer apical angles prominent, margin in-between truncate, mesal lobe absent (Fig. 211). Mesotarsomeres 1 and 2 distinctly widened, narrower than apices of mesotibiae. Aedeagus (Figs 209, 210) 1.18 mm long, symmetrical, strongly sclerotized. Apical process of median lobe tapering, inflexed (lateral view), with slightly bent and acute tip. Articular process robust, not prominent. Parameres strongly widened, with large, densely striate ventral lobes and complex bases. Internal sac with row of strongly sclerotized teeth, and dense, weakly sclerotized denticular structures.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning somewhat smooth.

**C o m p a r a t i v e n o t e s :** The aedeagal characters of this new species are similar to those in *S. toxopeusi* LÖBL, 1966 described from Buru, though has the dorsal side of the apical process is not split in the latter species, suggesting its relationships to members of the *S. pictum* group (LÖBL 1976: 11). The extruded internal sac in the holotype of *S. glabrellum* obscures comparison. Both species may be readily distinguished by their external characters, in particular by the significantly smaller body, the apically darkened elytra and the absence of abdominal microsculpture in *S. toxopeusi*.

#### **5.2.19.12. *Scaphisoma jankodadai* nov.sp. (Figs 212, 213)**

Holotype ♂: Philippines, Palawan centr. above San Rafael, ca 300 m, 4.XII.1995, J. Kodada leg. (MHNG).

**D e s c r i p t i o n :** Length 1.58 mm, width 1.06 mm. Head, body and femora ochreous, apical abdominal segments, tibiae, tarsi and antennae lighter, yellowish. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 13/8: IV 34/7: V 44/7: VI 41/7: VII 47/14: VIII 37/8: IX 45/12: X 41/12: XI 58/14. Pronotum very finely and fairly densely punctate; lateral contours evenly rounded, lateral margin carinae hardly visible in dorsal view, lateral striae appearing impunctate. Exposed tip of scutellum small. Elytra with lateral margin carinae visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, hardly curved at base, very weakly converging apically, punctate; adsutural areas narrow, flat, densely and very finely punctate, lateral striae appearing impunctate; discal punctation coarser than pronotal punctation, dense and fine, with puncture intervals slightly larger to four times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna not microsculptured, smooth. Mesepimera about 1.5 times as long as intervals to mesocoxae, about four times as long as wide. Metaventrite in middle part hardly convex, with strigulate microsculpture and very finely, sparsely punctate, with single shallow mesal impression; microsculpture present between mesocoxae and metacoxae, lateral parts of metaventrite not microsculptured, sparsely and very finely punctate; antecoxal puncture rows absent. Submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae, submesocoxal lines parallel, distinctly punctate. Metanepisternum flat, narrowed anteriorly, inner margin straight in middle part, rounded near angles, impressed below margin of metaventrite. Tibiae straight. Abdomen with strigulate microsculpture, very finely punctate, submetacoxal areas 0.05 mm, almost as fourth of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate.



**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 distinctly widened. Aedeagus (Figs 212, 213) 0.90 mm long, symmetrical, fairly sclerotized. Median lobe with dorsal branches of apical process short, ventral branch shorter than basal bulb, weakly inflexed, tapering (dorsal view), with somewhat sinuate ventral side and two subapical denticles on dorsal side (lateral view). Articular process robust, not prominent. Parameres sinuate and widened posterior mid-length in lateral view, almost evenly wide and strongly bent in dorsal view. Internal sac complex, with very dense, elongate bunch of proximal denticles, followed by two robust admesal teeth joint in middle, pair of horn-like teeth, several small sclerites in-between, and several elongate subapical spines; membranes posterior robust teeth with scale-like structures.

**Etymology:** The species is dedicated to a friend of the senior author, Jan Kodada, Bratislava, Slovakia, who collected this species.

**Comparative notes:** The aedeagal characters suggest close relationships of *S. jankodadai* with *S. luzonicum* PIC. The internal sacs differ conspicuously, in particular by the proximal bunch of denticles and the shape of the large admesal teeth present in *S. jankodadai*. The new species differs from *S. luzonicum* in external characters by the uniformly ochreous body and the parallel submesocoxal lines.

#### 5.2.19.13. *Scaphisoma javanum* LÖBL, 1979 (Fig. 12)

*Scaphisoma javanum* LÖBL, 1979b: 326, Fig. 13-16. Holotype ♂, MZBI; type locality: Java, Bogor, Kebun Raya.

Additional material examined: Philippines, Palawan central, nr. Cabayugan, degraded rainforest, 2.XII.1995, leg. J. Kodada & B. Rigová, 1♂ (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 4 km SE Los Banos, 7. and 9.V.1977, leg. L.E. Watrous, 15 ex. (MHNG, BZLA); Luzon, Lagunas Mt. Makiling (summit road), 600 m, 21-22. and 28.XI.1995, I. Löbl, fungi on log, 19 ex. (MHNG, BZLA); Lagunas Prov., Mt. Makiling, above Mad Springs 400-700 m, degraded rainforest, 19-22.XI.1995, leg. J. Kodada, 1♂ (MHNG); Luzon, Lagunas, Mt. Banahaw, above Kinabuhayan, 600-700 m, I. Löbl, 24.XI.95, degrade rainforest floor litter, 1♂, 1♀ and with the same data but trail to Crystalino, leg. J. Kodada & B. Rigová, 1♂, 1♀ (MHNG); Leyte, Visca N Baybay, primary forest, 200-500 m, 22.II.-10.III.1991, leg. W. Schawaller, 1♂ (SMNS); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-9.I.1947 / Lot 154 taken on polypores / CNHM-Philippine Zool. Exped.(1946-47) leg. F.G. Werner, 6♂♂, 7♀♀ (FMNH, MHNG); Mindanao, Davao Prov., E. slope of Mt. McKinley, 3200 ft., 7-8.VIII.1946, lot 54, beating, leg. F.G. Werner, 1♂, 2♀, (FMNH); Mindanao, 30 km E of Malaybalay, Busdi, 1000 m, 5-9.V.1996, leg. Bolm, 1♀ (SMNS); Mindanao, Misamis Occ., 1700 m, Don Victoriano, 1-3.V.1996, leg. Bolm, 2♀♀ (SMNS).

**Distribution:** Indonesia: Thailand; Java; East Malaysia: Sarawak; East Malasia: Sarawak; Philippines: Palawan, Luzon, Leyte, Mindanao.

**Comments:** This species is widely distributed in South-East Asia. It is recorded here from the Philippines for the first time.

#### 5.2.19.14. *Scaphisoma luteomaculatum* PIC, 1915 (Fig. 18)

*Scaphosoma luteomaculatum* PIC, 1915: 5. Lectotype ♂, MNHN; type locality: Java, Palabuan. Lectotype designation and genital characters: LÖBL 2015a: 111, Figs 103-106.

*Scaphosoma sapitense* var. *infasciatum* ACHARD, 1920b: 131. Lectotype ♀, MNHN; type locality: Lombok, Sapit, 2000ft. Lectotype designation and synonymy: LÖBL 2015a: 111.

*Scaphisoma dansalanense* LÖBL, 1972: 95. Holotype ♂, ZMUB; type locality: Mindanao, Dansalan near Lanao. Synonymy: LÖBL 2015a: 111.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Mindanao, Davao Distr. Tagum, Sitio Taglawig, Maco, near sea level, X.1946, original dipterocarp forest, leg. H. Hoogstraal & D. Heyneman, 29 ex. (FMNH, MHNG, BZLA); Mindanao, Mt. Talemo, 30.VI.1977, leg. M. Satô, 1 ex. (MHNG); Mindanao, Mt. Malambo, 1.VII.1977, leg. M. Satô, 2 ex. (EUMJ, MHNG); Palawan, Binaluan, 1♀ (SMND).

**D i s t r i b u t i o n :** Philippines: Palawan, Mindanao; Indonesia.

**Comments:** PIC (1921: 165) recorded the species from "Carin Ascini Cheba" [in Myanmar]. The respective voucher material remains to be verified.

### **5.2.19.15. *Scaphisoma luzonicum* PIC, 1926 (Figs 214, 215)**

*Scaphosoma luzonicum* PIC, 1926: 1. Lectotype ♂, MNHN; type locality Luzon, Los Banos. Lectotype designation and redescription: LÖBL 1972: 107, figs 41-43 ["*S. luconicum*" on p. 107 is a typographical error].

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Luzon, Lagunas Prov. Mt. Makiling, 4 km SE Los Banos, 8-IV-1977, berlese forest litter, leg. L. Watrous 1♂, the same data but 9.IV.1977, 1♀ (MHNG); Luzon, Lagunas, Mt. Makiling, summit road, 600 m, 21-22.XI.1995, leg. I. Löbl, 1♀ (MHNG); Luzon, Lagunas, Mt. Banahaw above Kinabuhayan, Cristalino trail, 600-700 m, 24.XI.1995, leg. I. Löbl, 1♀ (MHNG).

**R e d e s c r i p t i o n :** Length 1.60-1.65 mm, width 1.08-1.17 mm. Head, body, femora and tibiae ochreous. Elytra as thorax or slightly lighter, with or without darkened areas near apices. Tarsi and antennae almost yellowish. Length/width ratio of antennomeres as: III 10/6: IV 30/5: V 46/7: VI 38/6: VII 45/12: VIII 38/9: IX 45/12: X 40/12: XI 50/12. Pronotum very finely and fairly densely punctate; lateral contours evenly rounded, lateral margin carinae exposed in dorsal view, lateral striae punctate. Tip of scutellum exposed. Elytra with lateral margin carinae entirely distinct in dorsal view, apical margins truncate, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin not raised, sutural striae shallow, starting at base, impunctate, weakly converging from level of scutellum to apex; adsutural areas flat, densely and very finely punctate, lateral striae distinctly punctate. Discal punctation fine and fairly dense, puncture intervals smaller than puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna not microsculptured, smooth. Mesepimera distinctly longer than intervals to mesocoxae, about four times as long as wide. Metaventricle with elongate, shallow mesal impression, middle area flattened, with strigulate microsculpture and finely and sparsely punctate; lateral areas lacking microsculpture, very finely and sparsely punctate, punctures notably smaller than those on median area; antecoxal puncture rows absent. Submesocoxal areas 0.04 mm, about as third of intervals to metacoxae, submesocoxal lines convex, distinctly punctate. Meta-nepisternum flat, weakly narrowed anteriorly, inner margin straight, rounded at angles, impressed below margin of metaventricle. Protibiae and mesotibiae straight, metatibiae slightly curved. Abdomen with strigulate microsculpture, very finely and sparsely punctate, punctures and along submetacoxal lines excepted; sternite 1 with submetacoxal areas about 0.05 to 0.07 mm, almost as or as halves of intervals to apical margin, submetacoxal lines convex, distinctly punctate.

**M a l e :** Protarsomeres 1 to 3 and mesotarsomeres 1 strongly widened, mesotarsomeres 2 slightly widened. Aedeagus (Figs 214, 215) 0.86 mm long, symmetrical, strongly sclerotized. Basal bulb narrow, about as long as apical process of median lobe. Ventral branch of apical process weakly inflexed, gradually narrowed apically, with two subapical denticles on dorsal side. Dorsal branches of apical process short and wide. Parameres

sinuate and apically overlapping in dorsal view, widened posterior basal third in lateral view. Internal sac complex, with dense spinose and denticular structures in basal half, fairly strongly sclerotized, elongate rod-like mesal structure, two bunches of weakly sclerotized admesal teeth, four strongly sclerotized horn-like teeth and several smaller sclerites posterior mid-length, fine scale-like structures and narrow rods in apical section.

**D i s t r i b u t i o n :** Philippines: Luzon.

**Comments:** The aedeagus of the holotype illustrated in LÖBL 1972: 96 has the internal sac extruded and is to part damaged. Therefore, new illustrations are given in the present paper.

### 5.2.19.16. *Scaphisoma mindanaosum* PIC, 1926 (Fig. 21)

*Scaphisoma mindanaosum* PIC, 1926: 2. Lectotype ♀, MNHN; type locality: Mindanao P. Bango. Lectotype designation and male genital characters: LÖBL 1972: 107. Additional published locality: Mindanao, Dansalan near Lanao, leg. G. Böttcher: LÖBL 1972: 107.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Palawan Central, Conception, sea level, I. Löbl, 6.-7.XII.1995, fungi on logs, bark, 4 ex. (MHNG); Palawan, Olangoan, sea level, 18 km NE San Rafael, 5-6.XII.1995, leg. I. Löbl, 7 ex. (MHNG, BZLA); Palawan Central, Sabang, trail to Underground River, sea level, 30.XI.1995, fungi on logs, leg. I. Löbl, 1 ex. (MHNG); Palawan Central, Sabang, 50-100 m, degraded rainforest on slope, 30.XI.1995, leg. J. Kodada, 8 ex. (MHNG); Palawan Central, Sabang, N of Mt. St. Paul, 11-13.VII.1977, leg. M. Satô, 2 ex. (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 4 km SE Los Banos, 12.IV.1977, leg. L.E. Watrous, 4 ex. (MHNG); Luzon, Lagunas Prov., Mt. Makiling, 20.VI.1978, leg. N. Ohbayashi, 1 ex. (EUMJ); Luzon, Lagunas Prov., Mt. Makiling, 17, 18.VI.1977, leg. M. Satô, 1 ex. (MHNG); Luzon, Ifugao Prov., Mt. Polis 1900 m, 4-5.VI.1977, M. Satô, 2 ex. (MHNG); Leyte, Visca N Baybay, primar. forest, 200-500 m, 2.III.1991, leg. W. Schawaller et al., 1 ex. (SMNS); Mindanao, Mainit Hot Springs, 28.VII.1978, leg. M. Satô, 2 ex. (MHNG); Mindanao, Baracatan, 1500 m, 27-29.VI.1977, M. Satô, 3 ex. (MHNG); Mindanao, Tagurano, 1000 m, 25, 26.VI.1977, leg. M. Satô, 1 ex. (MHNG); Mindanao, South Cotabato Prov., Maitum, 150 m, 12.VIII.1988, leg. M. Sakai, 2 ex. (EUMJ); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-9.I.1947, taken on polypores and under bark, leg. F. G. Werner, 8 ex. (FMNH, MHNG); Mindanao, 30 km NW of Maramag, Bagongsilang, 1700 m, 13-17.V.1996, leg. Bolm, 2 ex. (SMNS).

**D i s t r i b u t i o n :** Philippines: Luzon, Palawan, Mindanao.

**Comments:** The aedeagus of this species was illustrated and described in LÖBL 1972, and the aedeagal characters of the similar and closely allied *S. luteomaculatum* were given in LÖBL 2015a.

### 5.2.20. The *Scaphisoma bilobum* species group

Four new species, *S. bilobum*, *S. duplex*, *S. nishikawai*, and *S. spatuloides*, possess aedeagus with trifid median lobe, as members of the *S. haemorrhoidale* group. They differ conspicuously from members of the latter group by the asymmetrical apical process of the median lobe partly overlapped by the apicodorsally expanded basal bulb.

#### 5.2.20.1. *Scaphisoma bilobum* nov.sp. (Figs 216-218)

**Type material:** Holotype ♂: Philippines: Leyte Lake Danao. 1991 forest edge, 500 m leg. Schawaller et al. / 19.2. - 8.3. (SMNS). Paratypes: with the same data as the holotype, 3♂♂ (SMNS, MHNG); Leyte, Visca N Baybay, 100-200 m, 21.II.91, leg. W. Schawaller et al., 1♂, 1♀ (MHNG).

**Description:** Length 1.70-1.75 mm, width 1.17-1.22 mm. Head and body reddish-brown, apical abdominal segments and appendages light brown to yellowish.

Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 11/6; IV 38/6; V 60/7; VI 46/7; VII 55/12; VIII 43/8; IX 57/10; X 52/12; XI 58/12. Pronotum very finely and fairly densely punctate, punctation on basomedian area hardly coarser than in middle; lateral contours evenly rounded, lateral margin carinae exposed in dorsal view, lateral striae punctate. Exposed tip of scutellum fairly large. Elytra with lateral margin carinae entirely distinct in dorsal view, apical margins truncate, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, starting at base, impunctate, weakly converging from level of scutellum to apex; adsutural areas flat, densely and very finely punctate, lateral striae distinctly punctate. Discal punctation very fine and fairly sparse, puncture intervals smaller than puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna not microsculptured, smooth. Mesepimera about 1.5 times as long as intervals to mesocoxae, about three times as long as wide. Metaventricle lacking mesal stria, without obvious microsculpture, very finely and sparsely punctate between mesocoxae and on lateral areas, with fairly coarse and dense punctation on impressed apicomedian area, area between mesocoxae distinctly convex; antecoxal puncture rows present, dense, weakly impressed. Submesocoxal areas 0.04 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, coarsely punctate. Metanepisternum convex, not narrowed anteriorly, inner margin straight, rounded at angles, impressed below margin of metaventricle. Protibiae straight, mesotibiae and metatibiae slightly curved. Abdomen with strigulate microsculpture, very finely punctate, coarse and dense punctures on basomedian area of sternite 1 and along submetacoxal lines excepted; submetacoxal areas 0.05 mm, intervals to apical margin of sternite 1 about 2.5 times as long as submetacoxal areas, submetacoxal lines convex.

**M a l e :** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 216-218) 0.86-0.97 mm long, asymmetrical. Basal bulb moderately sclerotized, expanded apically to overlap basal part of apical process of median lobe. Latter trifid, with dorsal branches very narrow. Ventral branch of apical process asymmetrical, strongly inflexed and bent at apex in lateral view, narrowed toward mid-length and in apical half almost evenly wide in dorsal view. Parameres wide, lobed ventrally, each bearing small mesal lobe, overlapping apically. Internal sac complex, with dense denticular structures and few larger teeth in apical section.

**E t y m o l o g y :** The species epithet is a Latin adjective meaning two-lobed.

**C o m p a r a t i v e n o t e s :** This species differs drastically from its congeners by the aedeagal characters, *S. duplex* and *S. nishikawai* excepted. Externally it is very similar to *S. spapuloides* described below, see under the latter.

#### **5.2.20.2. *Scaphisoma duplex* nov.sp. (Figs 219, 220)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines, Luzon: Lagunas Mt. Banahaw nr school about 1 km from Kinabuhayan, 500m, degraded rainforest, 28.XI.1995 [leg. J. Kodada] (MHNG). Paratypes: Luzon, Lagunas Prov., Mt. Makiling 4 km SE Los Banos, 11.IV.1977, leg. L. Watrous, 1♂, 1♀ (MHNG); with same data but 8.IV., 1♀ (MHNG).

**D e s c r i p t i o n :** Length 1.72 mm, width 1.20 mm. Head and body ochreous, apical abdominal segments and appendages lighter than most of body. Very similar to and with most characters as in *S. bilobum*. Antennae somewhat shorter, with length/width ratio of antennomeres as: III 10/6; IV 33/5; V 45/7; VI 40/7; VII 48/10; VIII 36/7; IX 46/9; X 45/10; XI 50/10. Inner apical angles of elytra about at level of outer angles, submeso-

coxal areas 0.03 mm, hardly as fourth of intervals to metacoxae; submesocoxal lines almost parallel; apicomedian area of metaventrite flat; metanepisterna narrowed anteriorly; sternite 1 with few coarse basomedian punctures; submetacoxal areas 0.04 mm, about as fourth of intervals to apical margin of sternite. Aedeagus (Figs 219, 220) 0.76 mm long. Median lobe and parameres similar as those in *S. bilobum*, apical process of median lobe conspicuously widened posterior mid-length and truncate at apex (lateral view).

**E t y m o l o g y :** The species epithet is a noun derived from Latin duo (two) and Greek plax (flat), referring to characters shared with *S. bilobum*.

**C o m p a r a t i v e n o t e s :** The species has a unique shape of the apical process of the median lobe and thus may be easily distinguished by its aedeagal characters.

#### **5.2.20.3. *Scaphisoma nishikawai* nov.sp. (Figs 221-223)**

**T y p e m a t e r i a l :** Holotype ♂: Mindanao Kraan, Sultan Kadarat Prov. 12.VIII.1985 Y. Nishikawa leg. (EUMJ).

**D e s c r i p t i o n :** Length 1.72 mm, width 1.20 mm. Head and body ochreous, apical abdominal segments and appendages lighter than most of body. Very similar to *S. bilobum* and *S. duplex*, body somewhat lighter. Elytra with distinctly converging and punctate sutural striae; discal punctation fairly fine and dense, with most puncture intervals larger than puncture diameters. Mesepimera shorter, slightly longer than intervals to mesocoxae. Metaventrite with deep median impression, strigulate microsculpture on area between mesocoxae and metacoxae. Submesocoxal areas 0.03 mm, about as fifth of intervals to metacoxae. Metanepisternum narrowed anteriorly. Sternite 1 with row of coarse basomedian punctures; submetacoxal areas about as third of interval to apical margin. Aedeagus (Figs 221-223) 1.02 mm long, similar to that of *S. bilobum* but apical process of median lobe conspicuously narrowed toward mid-length in dorsal view, oblique and at tip widened in lateral view. Internal sac with robust tooth pointed obliquely dorsally, lacking group teeth in apical section.

**E t y m o l o g y :** The species is dedicated to its collector, Yoshiaki Nishikawa, from the Otomon Gakuin University, Osaka, Japan.

**C o m p a r a t i v e n o t e s :** The species has a unique shape of the apical process of the median lobe and thus may be easily distinguished by its aedeagal characters.

#### **5.2.20.4. *Scaphisoma spatuloides* nov.sp. (Figs 224-227)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines, Luzon: Lagunas, Mt. Makiling, above Mad Springs 400-700m, degrad. rainforest 19.-22.XI.1995, J. Kodada lgt. (MHNG). Paratypes: Luzon, with the same data as the holotype, 1♂, 2♀♀ (MHNG); Luzon, Lagunas Prov., Mt. Makiling, summit rd., 600 m, 21-22.XI.1995, leg. I. Löbl, 1♂, same but 500 m, 26.XI.1995, 1♀ (MHNG); Luzon, Lagunas Prov., Mt. Makiling 4 km SE Los Banos, 8., and 9. IV.1977, leg. L. Watrous, 4♂♂, 3♀♀ (MHNG); Luzon, Lagunas Prov., Mt. Banahaw near school, about 1 km from Kinabuhayan, 500 m, 28.XI.1995, leg. J. Kodada, 1♀ (BZLA); Leyte, Visca N Baybay, 22.2.-10.3.1991, primary forest, 100-200 m, leg. Schawaller et al., 1♂ (SMNS); with the same data but 21.2.91, 4♂♂, 1♀, and 27.2.91, 1♂, 1♀ (SMNS, MHNG).

**D e s c r i p t i o n :** Length 1.50-1.75 mm, width 1.01-1.10 mm. Head and most of body reddish-brown to blackish-brown, usually with apical fourth of elytra lighter reddish-brown, mesoventrite and metaventrite often darkened, apical abdominal segments lighter, yellowish, femora about as most of body, tibiae, tarsi and antennae lighter, yellowish. Length/width ratio of antennomeres as: III 13/7: IV 28/5: V 50/6: VI 45/7: VII 55/11: VIII 42/8: IX 55/11: X 50/12: XI 63/12. Most of remaining external

characters as in *S. bilobum*, excepted: Mesepimera almost twice as long as intervals to mesocoxae, metaventrite flattened on posterior half of median area, mesal and lateral parts of metaventrite distinctly microsculptured; antecoxal puncture row impressed, submesocoxal areas narrower, 0.03 mm, as fifth of intervals to metacoxae, submesocoxal lines almost parallel, submetacoxal areas 0.06 mm; sternite 1 with coarse basomedian punctures restricted onto surface between metacoxae, forming single row or two rows.

**M a l e :** Protarsomeres 1 to 3 distinctly widened. Aedeagus (Figs 224-227) 0.98-1.10 mm long. Median lobe with conspicuous, robust lateral tubercles, apical process near tip vertical to axis of basal bulb, gradually narrowed in lateral view, widened in apical section in dorsal view. Parameres each with subbasal and apical lobes, inner margin crenulated. Internal sac lacking larger denticles.

**E t y m o l o g y :** The species epithet is Latinized from Greek and refers to the spatula-shaped apical process of the median lobe.

**C o m p a r a t i v e n o t e s :** The species has a unique shape of the apical process of the median lobe and is also well characterized by the crenulate inner margin of the parameres. It may be easily distinguished by its aedeagal characters.

### 5.2.21. The *Scaphisoma tricolor* species group

This group includes several Southeast Asian and one Mascarene species (see LÖBL 1986, 2015b), possessing strongly asymmetrical aedeagi, with parameres that may bear strongly sclerotized ventral apophysis and are expanded by large, dorsally overlapping lobes. The basal bulbs are very large and usually moderately sclerotized, with a ventral ridge, the apical processes of the median lobes are bifid, with the dorsal branch comparatively small, and the internal sacs are complex, bearing sclerotized pieces. The species may exhibit unusual sexual polymorphism in their colour pattern and in the shape of the inner apical angles of the elytra that are rounded in males, while they may be denticulate in females. In addition, the male mesotibiae may be notably thicker than male metatibiae or female mesotibiae, the apical abdominal segments are enlarged, and the sternite 6 is expanded apically by a broad lobe.

#### 5.2.21.1. *Scaphisoma pulchrum* nov.sp. (Figs 228-230)

**T y p e m a t e r i a l :** Holotype ♂: Meran, E. slope of Mt. Apo, Davao Province Mindanao, 6000 ft.; XI: 5:46 / Lot 100 on polypore 39 *Fomes applanatus* / CNHM Philippine Zool.Exped. 1946-47) F.G.Werner leg. (FMNH).

**D e s c r i p t i o n :** Length 2.25 mm, width 1.70 mm. Head ochreous. Pronotum brown, with large lateral ochreous spots starting near basal margin, reaching anterior margin, each spot in dorsal view about as wide as fourth of basal width of pronotum. Hypomera ochreous. Elytra brown, each elytron with ochreous transverse subbasal and apical bands narrowed in their middle parts. Subbasal band at longest point about twice as intervals to basal margin. Mesoventrite and metaventrite with anepisterna and epimera dark brown, abdominal sternite 1 somewhat lighter brown, remainder of exposed abdomen ochreous. Appendages ochreous. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 16/10: IV 55/7: V 70/7: VI 75/7: VII 72/14: VIII 68/8: IX 77/13: X 68/13: XI 72/13. Pronotum finely and densely punctate, with lateral margins evenly rounded, lateral margin carinae exposed in dorsal view, lateral striae impunctate. Tip of scutellum well visible. Elytra with lateral margin carinae

entirely and well visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated about in level with outer angles; sutural margin not raised, sutural striae deep, not bent at base and not extending along basal margin, parallel except near apices, very finely punctate; adsutural areas flat, densely and very finely punctate, with punctures smaller than those on elytral disc, lateral striae impunctate. Elytral disc with punctation fine, punctures poorly delimited, much smaller than punctures intervals. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about four times as long as wide. Median part of metaventrite slightly convex, without impressions, with strigulate microsculpture, punctation very fine and dense, punctures well delimited. Lateral parts of metaventrite not microsculptured, sparsely and very finely punctate; antecoxal puncture rows present, in hardly impressed striae and very fine. Submesocoxal areas 0.04-0.05 mm, about as sixth of intervals to metacoxae, submesocoxal lines convex, finely punctate. Metanepisternum flat, weakly narrowed anteriorly, inner margin straight, suture shallow. Protibiae straight, mesotibiae distinctly curved, metatibiae hardly curved.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened, tarsomeres 1 about as wide as apices of tibiae. Abdomen with strigulate microsculpture. Sternite 1 finely and very densely punctate on narrow basomedian area, very finely and sparsely punctate on remaining mesal surface and on lateral areas; submetacoxal areas 0.09 mm, almost as half of intervals to apical margin of sternite 1, submetacoxal lines convex, fairly coarsely punctate. Aedeagus (Figs 228-230) 1.42 mm long, asymmetrical, with basal bulb very large and weakly sclerotized, apical process and most of parameres strongly sclerotized. Apical process short, strongly inflexed, with ventral branch hook-like at apex, dorsal branch narrow, almost reaching apex of ventral branch. Parameres strongly lobed ventrally and apically. Internal sac very complex, with row of basal teeth and long rods, large central triangular plate and large apical plate extended to form a point.

**Etymology:** The species epithet is a Latin adjective meaning nice.

**Comparative notes:** This member of the group may be readily distinguished from its Philippine congeners by the body colour pattern.

### 5.2.21.2. *Scaphisoma signaticolle* nov.sp. (Figs 231-233)

**Type material:** Holotype ♂: Luzon: Mountain Prov. Mount Data Lodge 2200-2300m 8.I.1980 leg. J. Orousset (MHNG) [154, litière près de la lodge]. Paratypes: with the same data, 1 ♀ [161, humus dans un ravin près d'un ruisseau]; Luzon, Mountain Prov., N & NE Sagada, 15.-19.XII.1979, leg. L. Deharveng & J. Orousset, 1 ♀ [39, en aval de Sagada, pied de paroi calcaire]; same data, [51, doline sombre au nord de Sagada, mousses sur tronc de caféier], 3 ♀ ♀; with same data, 1 ♀ [72, doline au nord-est de Sagada, litière humide, éclairée]; with same data, 1 ♀ [143, vallon à l'est du cimetière de Sagada, litière épaisse humide]. (All in MHNG).

**Description:** Length 2.05-3.20 mm, width 1.37-1.82 mm. Head dark reddish-brown to blackish. Most of body very dark brown to blackish. Hypomera blackish to ochreous. Elytra each with apical fourth ochreous, not sharply delimited from darker anterior area. Abdominal apical sternites brown. Antennae yellowish, legs ochreous. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 15/11: IV 50/8: V 65/8: VI 58/8: VII 60/14: VIII 53/9: IX 66/12: X 55/12: XI 70/13. Pronotum with lateral margins evenly rounded, lateral margin carinae not exposed in dorsal view, lateral striae punctate; pronotal punctation conspicuously dense, punctures variably large, often coarse, mostly about half as large to as large as

puncture intervals. Tip of scutellum exposed. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical angles situated posterior level of outer angles; sutural margin not raised, sutural striae fairly deep, starting posterior level of scutellar tip, parallel except near apices, finely punctate; adsutural areas flat, densely and finely punctate, with punctures smaller than those on elytral disc, lateral striae distinctly punctate. Elytral disc with punctation coarse, punctures often well delimited, punctures intervals mostly about as to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth not microsculptured, usually distinctly punctured. Mesepimera shorter than intervals to mesocoxae, about four times as long as wide. Median part of metaventrite slightly convex, with shallow apicomeral impressions and distinct strigulate microsculpture; punctation fine except in impressions. Lateral parts of metaventrite not microsculptured, with distinct punctures; antecoxal puncture rows present, in impressed striae. Submesocoxal areas 0.03-0.05 mm, about as sixth to eighth of intervals to metacoxae, submesocoxal lines subparallel to convex, coarsely punctate. Metanepisternum somewhat convex, weakly narrowed anteriorly, inner margin rounded, impressed. Metepimera punctate and microsculptured. Abdomen with strigulate microsculpture. Sternite 1 distinctly and densely punctate basomedian area and usually with fairly coarse punctures on lateral area; submetacoxal areas 0.06-0.09 mm, about as fourth of intervals to apical margin of sternite 1, submetacoxal lines convex, coarsely punctate.

**M a l e :** Protibiae and metatibiae straight, mesotibiae distinctly curved, thicker than metatibiae. Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened, tarsomeres 1 wider than apices of respective tibiae. Lobe of sternite 6 flat. Aedeagus with apical process of median lobe (Figs 231-233) strongly inflexed and sinuate, in lateral view gradually narrowed, in dorsal view almost evenly broad in apical half.

**F e m a l e :** Elytra with apical margins oblique or slightly uneven; inner apical angles prominent, each forming about 0.02-0.10 mm long tooth.

**E t y m o l o g y :** The species epithet is a Latin adjective referring to the well characterized pronotum.

**C o m p a r a t i v e n o t e s :** This species ♂ may be readily distinguished from other members of the *S. tricolor* group by its comparatively coarse and very dense pronotal punctation, and distinct punctation on mesanepisterna and metanepisterna. The hypomera are finely punctate in the sole male available, but quite distinctly punctate in females. The specimens were inadequately conserved and became extremely fragile. The aedeagus felt in to pieces while dissection, and only the apical process of the median lobe and to part also the internal sac remained suitable for description and illustration. The shape of the apical process is, however, diagnostic.

### 5.2.21.3. *Scaphosoma tricolor* HELLER, 1917 (Figs 38, 39, 234-237)

*Scaphosoma tricolor* HELLER, 1917: 46. Lectotype ♂, SMTD; type locality: Luzon, Mt. Makiling. Lectotype designation: LÖBL 1970a: 126; apical margin of elytra: LÖBL 1971a: 249. Additional published records. Palawan: Pinigisan; Balabac: Dalawan Bay (LÖBL 1971a: 250).

*Scaphosoma latum* PIC, 1920b: 3. Lectotype ♂, MNHN; type locality: Luzon, Los Banos. Lectotype designation and synonymy: LÖBL 1970a: 126.

**A d d i t i o n a l m a t e r i a l e x a m i n e d :** Luzon, Lagunas Prov., Mt. Makiling, 400-600 m, summit road, 19., 21-22., 26. and 28.XI.1995, leg. I. Löbl, 59 ex. (MHNG, BZLA); same but above Mad Springs, 400-700 m, 19-22.XI.1995, leg. J. Kodada 14 ex. (MHNG); Luzon, Lagunas Prov., Los Banos, small river, 28.XI.1995, J. Kodada & B. Rigová, 1 ex. (MHNG); Luzon, Lagunas Prov., Mt. Banahaw above Kinabuhayan, 600-700 m, trail to Crystalino, 24-



25.XI.1995, leg. J. Kodada & B. Rigová, 5 ex. (MHNG); Luzon, Laguna Prov., Mt. Makiling 4 km SE Los Banos, 4-12.V.1977, leg. L.E. Watrous, 5 ex. (MHNG); Luzon, Los Banos, 1 ex. (SMTS); Luzon, Ifugao Prov., Mt. Polis, 1900 m, 4-5.VI.1977, leg. M. Satô, 1 ex. (MHNG); Palawan: Central, Cabayugan nr. Lion's Cave, sea level, 1.XII.1995 I. Löbl, 1 ex. (MHNG); same but leg. J. Kodada, 2 ex. (MHNG); Palawan, Sabang, trail to Underground River, sea level, 30.XI.1995, leg. I. Löbl, 4 ex. (MHNG); Palawan, Sabang, 50-100 m, degraded forest on slope, leg. J. Kodada, 8 ex. (MHNG); Palawan, Sabang, N. of Mt. St. Paul, 11-13.VII.1977, leg. M. Satô, 3 ex. (MHNG); Palawan, Conception, sea level, 6-7.XII.1995, leg. I. Löbl, 6b ex. (MHNG); Palawan Central, Conception, large logs across Conception River, NE San Rafael, ca 20 m, 8.XII.1995, leg. J. Kodada & B. Rigová, 4 ex. (MHNG); Palawan, Olangoan, 18 km NE San Rafael, sea level, 5-6.XII.1995, leg. I. Löbl, 6 ex. (MHNG); same but 1.IX.1985, leg. M. Sakai, 5 ex. (EUMJ); Palawan, Binaluan, 1 ex. (SMTD); Palawan, Matalangao, 150 m, nr. Roxas, 29.VIII.1985, leg. M. Sakai, 1 ex. (EUMJ); Palawan, Roxas, region of Matalangao, 80 m, 5.IV.1983, leg. S. Nagai & C. Lienhard, 1 ex. (MHNG); Palawan, Mantalingajan Range, S. slope Mt. Balabag, 2800 ft., 4-17.V.47, leg. F.G. Werner, 3 ex. (FMNH); Palawan, Trident Mina, foot of Victoria Peak, 100 m, nr. Narra, 5.IX.1985, leg. M. Sakai, 2 ex. (EUMJ, MHNG); Leyte, Visca N Baybay, primary forest, 200-500 m, 22.II., 27.II. and 8.III.1991, leg. W. Schawaller et al., 6 ex. (SMNS, MHNG); same but secondary forest, 100-200 m, 27.II. and 1.III.1991, 2 ex. (SMNS, MHNG); Leyte, Tarragona, 30.VI.1945, leg. C.L. Remington, 1 ex. (FMNH); Masbate, Aroroy, 14.VIII.1918, leg. G. Böttcher, 2 ex. (ZMUB); Mindoro, 28 km S Calapan, Baleta, 27-29.XI.2002, leg. H. Schillhammer, 1 ex. (NHMW); Bucas, Sorocco, X.1916, leg. G. Böttcher, 1 ex. (ZMUB); Mindanao, Surigao, 30-X.1915, leg. G. Böttcher, 3 ex. (ZMUB); Mindanao, Cotabato Prov., 50 km N. of Parang, 500 ft., 6.XII.1946, leg. F.G. Werner, 19 ex. (FMNH, MHNG); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 6.I.1947, leg. F.G. Werner, 2 ex. (FMNH); Mindanao, Davao Prov., Sitio Taglawig, Maco, Tagum, nr. sea level, X.1946, leg. H. Hoogstraal & D. Heyneman, 5 ex. (FMNH, MHNG); Mindanao, 25 km NW of Zamboanga, 800 m, Camp Susana, 28-30.IV.1996, leg. Bolm, 3 ex. (SMNS, MHNG); Mindanao, Bukidnon Prov., 5 km N of Malaybalay, 900 m, 12.V.1996, leg. Bolm, 1 ex. (SMNS); Mindanao, 30 km E of Malaybalay, Busdi, 1000 m, 5-9.V.1996, leg. Bolm, 18 ex. (SMNS, MHNG); Mindanao, 15 km NW of Bislig, 6-7.VII.1977, leg. M. Satô, 4 ex. (MHNG); Mindanao, Todaya, 29.VII.1970, leg. M. Satô, 2 ex. (MHNG); Mindanao, Baracatan, 1500 m, 27-29.VI.1977, leg. M. Satô, 10 ex. (MHNG).

**D i s t r i b u t i o n :** Philippines: Luzon, Palawan, Balabac, Leyte, Masbate, Mindoro, Dinagat, Bucas, Mindanao.

**C o m p a r a t i v e n o t e s :** The almost entirely ochreous male pronotum with very narrowly darkened along basal margin is diagnostic for this species. The elytral coloration is somewhat more variable, and specimens from Palawan have the apical light area narrower than that exhibited by Luzon specimens. The aedeagal characters are for the first time illustrated in the present paper (Figs 234-237). Though the number, position and shape of the sclerites of the internal sac are diagnostic, they may appear highly variable if internal sac not completely in repos. The shape of the long and robust ventral branch of the apical process of the median lobe and the internal sac with a small tuberculate lobe are also diagnostic. The inner apical angle of female elytra is weakly crenulated, not dentate.

#### 5.2.21.4. *Scaphisoma tricoloratum* nov.sp. (Figs 238, 239)

**T y p e m a t e r i a l :** Holotype ♂: Philippines Baracatan, 1500 m Mindanao June, 27-29, 1977 M. Satô leg (MHNG). Paratypes: Mindanao, with the same data as the holotype, 9♂♂ (MHNG); Mainit Hot Springs, 28.VII.1970, leg. M. Satô, 2♂♂ (MHNG); Mindanao, Bukidnon Prov., 5 km N. of Malaybalay, 900 m, 12.V.1996, leg. Bolm, 4♂♂ (SMNS, MHNG, BZLA); Mindanao, 30 km E. of Malaybalay, 5-9.V.1996, leg. Bolm, 2♂♂ (SMNS, MHNG).

**D e s c r i p t i o n :** Length 2.20-2.50 mm, width 1.50-1.72 mm. Head ochreous. Pronotum ochreous, with basal margin narrowly darkened and its lobe more broadly widened, darkened area usually not extended to middle third of disc. Hypomera

ochreous. Elytra reddish-brown to blackish on prevailing surface, elytra with or without lighter subhumeral areas. Apical fifth of elytra yellowish. Meso- and metaventrites with anepisterna and epimera brown, abdominal sternite 1 somewhat lighter, apical abdominal segments ochreous. Appendages ochreous. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 12/12: IV 55/9: V 80/9: VI 67/10: VII 72/10: VIII 63/8: IX 68/10: X 68/14: XI 85/15. Pronotum very finely and sparsely punctate, with lateral margins evenly rounded, lateral margin carinae hardly exposed in dorsal view, lateral striae with hardly visible punctures. Tip of scutellum well visible. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae shallow, starting posterior level of scutellar tip, weakly converging apically, very finely punctate; adsutural areas flat, densely and very finely punctate, with punctures smaller than those on elytral disc, lateral striae punctate. Elytra with fairly coarse discal punctation, punctures rather well delimited, punctures intervals mostly as large to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about four times as long as wide. Median part of metaventricle slightly convex, without impressions, flattened between metacoxae, with strigulate microsculpture, punctation evanescent. Lateral parts of metaventricle microsculptured, with hardly visible punctation; antecoxal puncture rows indistinct. Submesocoxal areas 0.04-0.05 mm, about as sixth of intervals to metacoxae, submesocoxal lines slightly convex, distinctly punctate. Metanepisternum flat, weakly narrowed anteriorly, inner margin straight, suture shallow. Protibiae straight, mesotibiae distinctly curved, metatibiae hardly curved, narrower than mesotibiae.

**Male:** Protarsomeres 1 to 3 and mesotarsomeres 1 and 2 strongly widened, tarsomeres 1 about as wide as or wider than apices of tibiae. Abdomen with strigulate microsculpture, almost impunctate. Sternite 1 with hardly visible punctures on narrow basomedian area; submetacoxal areas 0.07 mm, about as third of intervals to apical margin of sternite 1, submetacoxal lines convex, fairly coarsely punctate. Sternite 6 impressed in middle. Aedeagus (Fig. 238, 239) 1.46-1.95 mm long, asymmetrical. Basal bulb very large and moderately sclerotized, with ventral ridge. Apical process of median lobe with long, weakly inflexed and abruptly bent ventral branch, latter appearing in lateral view truncate at apex. Dorsal branch of apical process short, strongly narrowed, reaching mid-length of ventral branch. Parameres with robust ventral apophysis and large, overlapping dorsal lobes. Internal sac complex, with four elongate, robust sclerites in basal part followed by dense rows of spines.

**Etymology:** The species epithet is a Latin adjective, meaning three-coloured.

**Comparative notes:** This species shares with *S. tricolor* most external diagnostic characters. Fully coloured males of *S. tricoloratum* differ by the darkened pronotal lobe. In addition, unlike to *S. tricolor*, the elytral surface anterior light apical areas may be blackish in this species. The shape of the large ventral branch of the apical process of the median lobe is quite different from that of other members of the group.

#### 5.2.21.5. *Scaphisoma tricolorinotum* nov.sp. (Figs 40, 240, 241)

**Type material:** Holotype ♂: Philippines Baracatan, 1500 m Mindanao June, 27-29, 1977 M. Satô leg (MHNG). Paratypes: Mindanao, with the same data as the holotype, 7♂♂ (MHNG); Mainit Hot Springs, 28.VII.1970, leg. M. Satô, 2♂♂ (MHNG); Mindanao, Bukidnon

Prov., 5 km N. of Malaybalay, 900 m, 12.V.1996, leg. Bolm, 1♂♂ (SMNS); Mindanao, 30 km NW of Maramag, Bagongsilang, 1700 m, 13-17.V.1996, leg. Bolm, 7♂♂ (SMNS, MHNG); Mindanao, Davao Prov., E. slope Mt. McKinley, 22.VIII.1946, 5400 ft., Lot 10 polypore 1, leg. F.G. Werner, 10♂♂ (FMNH, MHNG, BZLA); Mindanao, Davao Prov., Meran, E. slope of Mt. Apo, 6000 ft., 5.XI.1946, on decaying fleshy, gilled bracketed fungus, original forest, leg. F.G. Werner, 2♂♂ (FMNH); Mindanao, Cotabato Prov., Burungkot, Upi, 1500 ft., 1-6.I.1947, leg. F.G. Werner, 3♂♂ (FMNH, MHNG); Mindanao, Cotabato Prov., 50 km N. of Parang, 500 ft., 6.XII.1946, on encrusting polypore, leg. F.G. Werner, 3♂♂ (FMNH); Dinagat, Dinagat, 17.XII.1915, leg. G. Böttcher, 1♂ (ZMUB); Luzon, Ifugao Prov., Mt. Polis 1900 m, 4-5.VI.1977, leg. M. Sató, 1♂ (MHNG).

**Description:** Length 2.05-2.50 mm, width 1.48-1.70 mm. Most external characters as in *S. tricoloratum* and *S. tridens*. Darkened mesal area of pronotum reaching mid-third of pronotal length or extended up to anterior pronotal margin, and usually narrowed anteriorly. Apical yellowish area of elytra as fifth to fourth of elytral length. Length/width ratio of antennomeres as: III 15/7: IV 50/8: V 85/6: VI 74/8: VII 78/11: VIII 63/8: IX 80/11: X 73/13: XI 92/13. Punctuation on pronotal lobe fairly distinct. Elytral punctuation less dense, with puncture interval mostly twice to three times as large as puncture diameters. Intercoxal process of sternite 1 with several fairly distinct punctures, remaining abdominal punctuation, that along submetacoxal lines excepted, extremely fine, barely visible at 100 times magnification.

**Male:** Mesotarsomere 1 wider than apex of mesotibiae. Sternite 6 flat. Aedeagus (Figs 240, 241) 1.30-1.55 mm long. Apical process of median lobe with ventral branch elongate, inflexed, strongly narrowed apically, sinuate in dorsal view, with acute tip. Dorsal branch of median lobe short, not reaching up to mid-length of ventral branch. Internal sac with proximal, V-shaped sclerites, long rod joined to sclerotized structures, shorter tooth-like rod widened proximally, small, finely denticulate mesal vesicle, and very dense rows of apical spine-like structures.

**Etymology:** The species epithet is a Latin adjective referring to the tricoloured pronotum.

**Comparative notes:** The pronotal colour pattern is a reliable species character only in fully coloured specimens. The shape of the apical process of the median lobe is diagnostic. The locality data of the single specimen labelled as from Luzon appear suspect, in absence of other specimens found north of Dinagat and Mindanao.

#### 5.2.21.6. *Scaphisoma tricoloripenne* nov.sp. (Figs 41, 242, 243)

**Type material:** Holotype ♂: Luzon Baguio / 1924 / Staatliches Museum für Tierkunde Dresden (SMTD). Paratypes: with the same data as the holotype, 4♂♂, 4♀♀ (SMTD, MHNG).

**Description:** Length 2.20-2.55 mm, width 1.55-1.75 mm. Head ochreous. Pronotum blackish along basal margin, dark brown to blackish on mesal area, ochreous or brown laterad dark mesal area. Hypomera ochreous. Elytra each dark brown to black along basal and lateral margins, on adsutural areas, along sutural stria, and with dark brown or blackish spot situated anterior light apical area, joined to dark lateral margins but not to dark adsutural area. Apical fourth of elytra yellowish. Meso- and metaventrite brown. Antennae and legs light brown to ochreous. Abdomen light brown to yellowish. Length/width ratio of antennomeres as: III 15/11: IV 64/8: V 95/9: VI 77/9: VII 83/12: VIII 68/8: IX 82/12: X 75/12: XI 80/14. Elytra with sutural striae parallel in anterior section, gradually converging from mid-length to apices. Submesocoxal areas 0.03-0.04 mm, about as seventh of intervals to metacoxae. Sternite 1 all over extremely finely punctate, with submetacoxal areas 0.08 mm about as third of intervals to apical margin.

Most of other external characters similar to those in *S. tricoloratum* and *S. tridens*.

**M a l e :** Dark mesal area of pronotum narrow. Apical margins of elytra weakly oblique, with inner apical angles situated somewhat posterior level of outer angles. Protarsomeres 1 strongly widened, about as wide as apices of protibiae, protarsomeres 2 somewhat narrower, protarsomeres 3 weakly widened. Mesotarsomeres 1 and 2 strongly widened, mesotarsomeres 1 wider than apices of mesotibiae. Sternite 6 flat in middle. Aedeagus (Figs 242, 243) 1.58-1.72 mm long. Apical process of median lobe with ventral branch short, strongly inflexed and strongly narrowed apically, with a hump in lateral view, tip blunt. Dorsal branch of median lobe short, almost reaching level of tip of ventral branch. Internal sac with large proximal U-shaped sclerite, two long, tooth-like admesal sclerites, central plate narrowed and tooth-like apically, and very dense rows of apical spine-like structures.

**F e m a l e :** Dark mesal areas of pronotum extended to cover most of the disc. Apical margins of elytra strongly oblique and truncate, with inner angles denticulate, situated far posterior outer angles.

**E t y m o l o g y :** The species epithet is Latin, meaning tricoloured elytra.

**C o m p a r a t i v e n o t e s :** The females of this species may be easily distinguished by the unique shape of the elytral apices. The males are characterized by the colour pattern of the pronotum and elytra, in combination with the very short apical process of the median lobe and the shape of the sclerites of the internal sac.

#### **5.2.21.7. *Scaphisoma tridens* nov.sp. (Figs 244-247)**

**T y p e m a t e r i a l :** Holotype ♂: Philippines, Luzon: Lagunas, Mt. Makiling, abov. Mad Springs 400-700m, degrad. rainforest 19.-22.XI.1995, J. Kodada lgt. (MHNG). Paratype: with the same data as the holotype, 1♂ (MHNG).

**D e s c r i p t i o n :** Length 2.10 mm, width 1.52 mm. Head, thorax, most of elytra and abdomen uniformly reddish-brown, or hypomera somewhat lighter than pronotum, about apical fourth of elytra lighter, brown to yellowish, not clearly delimited. Appendages yellowish. Length/width ratio of antennomeres as: III 16/9: IV 53/8: V 75/6: VI 65/9: VII 75/13: VIII 55/11: IX 80/15: X 75/14: XI 95/15. Most other external characters as in *S. tricoloratum*. Elytra with sutural striae distinctly converging apically. Elytral punctation less dense, with puncture interval about as large as to twice as large than puncture diameters. Intercostal process of sternite 1 with several fairly distinct punctures, remaining abdominal punctation, that along submetacoxal lines excepted, extremely fine, barely visible at 100 times magnification. Mesotarsomere 1 about as wide as apex of mesotibiae. Sternite 6 flat. Aedeagus (Figs 244-247) 1.63-1.72 mm long. Apical process of median lobe with ventral branch short, inflexed, tapering apically, bent in dorsal view, with fairly acute tip. Dorsal branch of median lobe short, triangular in dorsal view, reaching beyond mid-length of ventral branch. Internal sac with curved proximal sclerites, filamentous basal structures joined to central complex of sclerites followed by rows of spine-like structures.

**E t y m o l o g y :** The species epithet is Latin and means three-toothed.

**C o m p a r a t i v e n o t e s :** The males of this species may be readily distinguished by their uniformly coloured pronotum in combination with the shape of the apical process of the median lobe of the aedeagus. Two female with the same locality data are tentatively associated, based on overall similarity.

**5.2.21.8. *Scaphisoma trifurcatum* nov.sp. (Figs 42, 248-250)**

**Type material:** Holotype ♂: [Philippines] Yagumyum, Alt. ca. 1,400-1,600 m, Mt. Talinis, Negros Oriental, 28-29. V. 2013, J. Yasamako leg. (EUMJ). Paratypes: with the same data as the holotype, 1♂, 1♀ (EUMJ, MHNG); Negros Oriental, Mt. Talinis, Apolong trail, 500-1400 m, Valencia-Rancho, 30.V.2013, leg. J. Yamasako, 1♀ (MHNG).

**Description:** Length 2.15-2.50 mm, width 1.60-1.78 mm. Head ochreous. Pronotum in male black along entire basal margin and with mesal triangular black spot, extended from basal margin up to anterior fourth of mesal length; most of pronotum ochreous, about as light as head. Pronotum in female black, with lateral ochreous spots not reaching basal or anterior margins. Elytra either ochreous on prevailing surface and black along base, on adsutural area, along sutural stria up to apical fourth, along lateral stria, on epipleuron, and with small black lateral spots, or black on prevailing surface and each with large ochreous spot; apical fifth to fourth yellowish or light brown. Hypomera ochreous. Ventral side of mesothorax and metathorax black. Abdomen with blackish sternite 1, following sternites becoming gradually lighter, apical abdominal segments and appendages yellowish. Pronotum and elytra not microsculptured and not iridescent. Antennae with relative length/width of antennomeres as: III 19/8: IV 54/9: V 85/8: VI 78/10: VII 77/15: VIII 65/10: IX 82/13: X 72/14: XI 80/15. Pronotum very finely and sparsely punctate, with lateral contours weakly rounded, lateral margin carinae exposed in dorsal view, lateral striae impunctate. Apex of scutellum exposed. Elytra with lateral margin carinae entirely and well visible in dorsal view, apical margins weakly rounded to truncate, inner apical angles rounded, not prominent, situated somewhat posterior level of outer angles; sutural margin flat in basal half, raised in posterior mid-length, sutural striae shallow, starting posterior level of scutellar tip, converging apically, very finely punctate; adsutural areas flat, densely and fairly coarsely punctate, punctures smaller than those on elytral disc; lateral striae punctate. Elytra with fairly coarse discal punctation, punctures rather well delimited, punctures intervals mostly as large to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera slightly shorter than intervals to mesocoxae, about four times as long as wide. Median part of metaventrite convex, without impressions, flattened between metacoxae, with strigulate microsculpture, punctation evanescent. Lateral parts of metaventrite with microsculptured partly mesh-like, mostly strigulate, punctation very fine and sparse, evanescent between mesocoxae and metacoxae; antecoxal puncture rows distinct. Submesocoxal areas 0.03 mm, about as ninth of intervals to metacoxae, submesocoxal lines barely convex, distinctly punctate. Metanepisternum flat, weakly narrowed anteriorly, inner margin straight, suture shallow. Protibiae straight, mesotibiae slightly bent, metatibiae slightly bent, thinner than mesotibiae, somewhat thickened apically. Abdomen with strigulate microsculpture, almost entirely very finely punctate, punctures barely visible at 50 times magnification. Basomedian area of sternite 1 with two dense rows of distinct punctures; submetacoxal areas 0.06 mm, about as fourth of interval to apical margin, submetacoxal lines convex, densely punctate.

**Male:** Prevailing pronotal colour ochreous. Tarsomeres 1 of prolegs and mesolegs widened, somewhat narrower than apices of tibiae; tarsomeres 2 slightly narrower, tarsomeres 3 much narrower than tarsomeres 1. Sternite 6 flattened. Aedeagus (Figs 248-250) 1.76-1.82 mm long, asymmetrical, with basal bulb very large, moderately sclerotized, overlapping apically basal part of apical process, and with large ventral ridge. Ventral branch of apical process of median lobe long, strongly inflexed, narrowed poste-

rior mid-length and with blunt tip in dorsal view, almost evenly wide and with obliquely truncate apex in lateral view. Dorsal branch of apical process fairly long, narrowed apically, reaching posterior level mid-length of ventral branch. Parameres with robust ventral apophysis and large, overlapping dorsal lobes. Internal sac with trifid curved basal tooth and complex sclerites and rods in basal and middle parts followed by dense rows of spines.

**F e m a l e :** Prevailing pronotal colour black, ochreous surface limited to two lateral spots. Apical margins of elytra as in male.

**E t y m o l o g y :** The species epithet is a Latin adjective, meaning three-forked.

**C o m p a r a t i v e n o t e s :** The species resembles in most diagnostic characters, in particular by its colour pattern, to *S. tricoloripenne* and *S. trimaculatum*. The females of *S. trifurcatum* may be distinguished by the not denticulate inner apical angles of the elytra and thus unlike those in these two species. The males may be easily distinguished by the unique shape of the apical process of the median lobe.

#### 5.2.21.9. *Scaphisoma trilobum* nov.sp. (Figs 43, 44, 251-254)

**T y p e m a t e r i a l :** Holotype ♂: Philippines: Luzon env. Sagada Latan cave 15.-19.XII.79 Deharveng-Orousset (MNHN) [♂ 37, terre et herbe sèches à extérieur en bordure de cultures]. Paratypes: with the same data as the holotype, 1 ♀ (MHNG); Luzon, Mountain Prov., Sagada 15.-19.XII.79 leg. L. Deharveng & J. Orousset, 1 ♀ (MHNG) [♂ 39, en aval du village, humus pied de parois calcaire]; Luzon, Mountain Prov., N Sagada nr. Ambasing 15.-19.XII.79, leg. L. Deharveng & J. Orousset, 2 ♂♂, ♀ f (MHNG) [♂ 41, litière d'arbustes feuillus dans une doline]; Luzon, Mountain Prov., N Sagada 15.-19.XII.79, leg. L. Deharveng & J. Orousset, 3 ♀♀ (MHNG) [♂ 51, mousses sur tronc de caféier. Doline sombre au nord de Sagada]; Luzon, Mountain Prov., Sagada, Latipan Cave, 15.XII.79, leg. L. Deharveng & J. Orousset, 1 ♂ (MHNG) [♂ 221, litière de feuillus près de l'entrée]; Luzon, Mountain Prov., doline N Sagada 15.-19.XII.79, leg. L. Deharveng & J. Orousset, 5 ♂♂, 10 ♀♀ (MHNG) [♂ 52, 53, litter]; Luzon, Mountain Prov., doline N Sagada 15.-19.XII.79, leg. L. Deharveng & J. Orousset, 1 ♂ (MHNG) [♂ 71, litière très humide sous caféier]; 1 ♂, 3 ♀♀, same locality (MHNG) [♂ 72, litière humide]; 1 ♂, same locality (MHNG) [♂ 74, bois pourri contre paroi au fond de la doline]; Luzon, Mountain Prov., Sagada, 4.-5.I.80, leg. L. Deharveng & J. Orousset, 1 ♀ (MHNG) [♂ 143, vallon à l'est du cimetière, litière épaisse humide]; Luzon, Mountain Prov., Mt. Data, 8.I.1980, leg. J. Orousset 154, 1 ♂ (MHNG) [♂ 154, litière près de la lodge]; 1 ♀, same data but [♂ 164, mousses et feuilles au sol sur la crête]; Mt. Data, 2300 m, 7-9.VI.1977, leg. M. Satô, 1 ♂ (MHNG); Mt. Data, 2250 m, 13., 14. and 25.VII.1985, leg. M. Sakai, 17 ♂♂, 9 ♀♀ (EUMJ, MHNG); same but Ifugao Prov., 2355 m, 14.VII.1985, 1 ♂ (EUMJ); Luzon, Banguio, Mt. Santo Thomas, 2150 m, 14.I.1980, leg. L. Deharveng & J. Orousset, 1 ♀ (MHNG) [♂ 188, litière, surtout de bambous]; Luzon, Banguio, Mt. Santo Thomas, 8.VII.1970, leg. M. Satô, 3 ♀♀ (MHNG); same but 2250 m, 12.VI.1977, 1 ♂ (MHNG); Luzon, Mountain Prov., Mt. Puguis, 1900-2000 m, 18.VII.1985, leg. Y. Nishikawa, 2 ♂♂, 4 ♀♀ (EUMJ, MHNG); Luzon, Mountain Prov., Mt. Puguis, 2000 m, 5-6.VI.1977, leg. M. Satô, 1 ♂, 2 ♀♀ (MHNG); Luzon, Mountain Prov., Mt. Puguis, 1800-1900 m, 17.VII.1985, leg. M. Sakai, 3 ♀♀ (EUMJ); same data but 1900-2000 m, 18.VII.1985, leg. Y. Nishikawa, 2 ♂♂, 1 ♀ (EUMJ, MHNG); Luzon, Mountain Prov., Mt. Pangao, 2400 m, 30.V.1977, leg. M. Satô, 4 ♂♂, 1 ♀ (MHNG); same but 2350 m, 14.VII.1985, 1 ♂ (MHNG); Luzon, Benguet Prov., Sayangan, Paoay, 2400 m, 11.VII.1985, leg. M. Sakai, 4 ♂♂, 4 ♀♀ (EUMJ, MHNG, BZLA); Luzon, Ifugao Prov., Mt. Polis, 1900 m, 2.VI.1977, leg. M. Satô, 1 ♀ (MHNG); same data but 5.VI.1977, leg. Y. Kurosawa, 1 ♂ (EUMJ); Luzon, Benguet Prov., Mt. St. Tomas, 6.VII.1970, leg. M. Satô, 2 ♀♀ (EUMJ).

**D e s c r i p t i o n :** Length 1.90-2.80 mm, width 1.40-1.72 mm. Head, thorax, most of elytra and abdomen uniformly reddish-brown blackish, pronotum and hypomera often somewhat lighter than elytra, or basolateral areas of pronotum clearly lighter than remaining pronotal surface. Hypomera as pronotum or lighter, ochreous. Apical fourth to third of elytra lighter brown or yellowish, and well delimited. Appendages yellowish. Length/width ratio of antennomeres as: III 16/10: IV 48/7: V 70/8: VI 60/8: VII 64/15:

VIII 52/8: IX 65/12: X 58/12: XI 75/15. Most other external characters as in *S. tridens*. Elytra with sutural striae weakly converging apically. Elytral punctation less dense and somewhat coarser, with most puncture interval about 1.5 to three times as large as puncture diameters. Metaventricle with two shallow, distinctly punctate apicomedian impressions. Intercostal process of sternite 1 with several fairly distinct punctures, remaining abdominal punctation very fine, well visible at 100 times magnification, that along submetacoxal lines excepted.

**Male:** Mesotarsomere 1 about as wide as apex of mesotibiae. Sternite 6 flat. Aedeagus (Figs 251-254) 1.20-1.54 mm long. Apical process of median lobe with ventral branch long, obliquely inflexed, tapering apically, truncate at tip. Dorsal branch of median lobe fairly long, triangular and reaching beyond mid-length of ventral branch in dorsal view. Internal sac with two hook-like proximal sclerites, two long, curved admesal teeth, mesal elongate vesicle bearing membranous denticular structure followed by dense spine-like structures.

**Female:** Apical margins of elytra oblique, uneven, notched near inner angles, inner angles prominent, tooth-like, each about 0.03 to 0.05 mm long.

**Etymology:** The species epithet is Latin and means three-lobed.

**Comparative notes:** This species is unusually variable in its body-size and colour. The females may be easily distinguished from other Philippine congeners by the shape of the apical margins of the elytra. In *S. dentipenne* the inner apical angles of elytra are also denticulate but not prominent, and the margins laterad notches are crenulate. The males of *S. trilobum* may be readily distinguished from the similar *S. tridens* by the shape of the ventral branch of the apical lobe that is curved and much shorter in the latter species.

#### **5.2.21.10. *Scaphisoma trimaculatum* nov.sp. (Figs 255, 256)**

**Type material:** Holotype ♂: Luzon: Philippines Banga-an (1650m) Sagada Mountain Pk. 21.VII.1985 M. Sakai leg. (EUMJ). Paratypes: with the same data as the holotype, 2♂♂, 6♀♀ (EUMJ, MHNG); Luzon, env. Sagada St. Joseph Resthouse, 15-19.XII.1979, leg. L. Deharveng & J. Orousset, 1♀ (MHNG); Luzon, Mountain Prov., Sagada 1500 m, 22.VII.1985, leg. M. Sakai, 1♀ (EUMJ).

**Description:** Length 2.50-2.80 mm, width 1.72-1.90 mm. Head ochreous. Pronotum blackish with reddish or ochreous lateral areas. Hypomera ochreous. Elytra each blackish-brown to black along basal margin, on adsutural area, along sutural stria, along lateral margin, and with dark to blackish transverse band situated anterior light apical area; area between dark base and dark transverse band reddish; apical fourth of elytra yellowish. Meso- and metaventricle brown to blackish. Antennae and legs light brown to ochreous. Abdomen brown, with light apical segments. Length/width ratio of antennomeres as: III 18/11: IV 72/10: V 97/10: VI 83/10: VII 90/17: VIII 73/10: IX 87/14: X 78/14: XI 83/15. Pronotum fairly coarsely punctate on and nearby basal lobe. Upper part of hypomera with or without distinct punctures and pubescence. Elytra with sutural striae parallel in short anterior section, gradually converging from mid-third of sutural length to apices. Submesocoxal areas 0.05 mm, about as sixth of intervals to metacoxae. Sternite 1 all over extremely finely punctate, with submetacoxal areas 0.08 mm almost as third of intervals to apical margin. Most of other external characters similar to those in *S. tricoloratum*, *S. tridens*, and *S. tricoloripenne*.

**Male:** Dark mesal area of pronotum restricted on to middle third of disc or forming

narrow band, prevailing surface of pronotum ochreous or reddish. Apical margins of elytra truncate, oblique, distinctly crenulated, with inner angles situated posterior level of outer angles. Protarsomeres 1 strongly widened, about as wide as apices of protibiae, protarsomeres 2 somewhat narrower, protarsomeres 3 weakly widened. Mesotarsomeres 1 and 2 strongly widened, mesotarsomeres 1 distinctly wider than apices of mesotibiae. Sternite 6 flat in middle. Aedeagus (Figs 255, 256) 1.68 mm long. Apical process of median lobe with ventral branch long, inflexed and gradually narrowed apically, with tip curved and acute. Dorsal branch of median lobe short, hardly extended to level of mid-third of ventral branch. Internal sac with large curved proximal sclerite, two moderately long admesal sclerites, central vesicle bearing fine denticles, and very dense rows of apical spine-like structures.

**F e m a l e :** Dark mesal areas of pronotum extended to cover most of discal surface, ochreous areas forming well delimited lateral spots. Apical margins of elytra strongly oblique and truncate, with inner angles denticulate, situated far posterior outer angles.

**E t y m o l o g y :** The species epithet is a Latin adjective, meaning three-spotted.

**C o m p a r a t i v e n o t e s :** The species resembles by its colour pattern to *S. pulchrum*, *S. tricoloripenne* and *S. trifurcatum*. It may be easily separated from *S. pulchrum* by the shortened sutural striae and by distinctly broader light areas of the elytra. The males of this new species differ drastically by the shape of the long apical process of the aedeagus. The females of *S. pulchrum* are unknown, those of *S. tricoloripenne* have strongly oblique apical margins of elytra, unlike females in *S. trimaculatum*. The females of *S. trifurcatum* have rounded inner apical angles of the elytra while the males of the latter species are unique by the shape of the aedeagus.

#### **5.2.21.11. *Scaphisoma dentipenne* LÖBL, 1971**

*Scaphisoma dentipenne* LÖBL, 1971: 250, Fig. 3. Holotype ♀, ZMUK; type locality: Palawan, Mantalingajan, Pinigisan, 600 m.

**D i s t r i b u t i o n :** Philippines: Palawan.

**Comments:** This species remains known by its female holotype. It is characterized the shape of the apical margins of the elytra, in particular by the comparatively deep notch at the inner, acute angle, similar to that in some members of the *S. tricolor* group.

#### **5.2.21.12. *Scaphisoma philippinense* OBERTHÜR, 1883**

*Scaphosoma philippinense* OBERTHÜR, 1883: 14. Lectotype ♀, MNHN, by present designation; type locality: Philippines Kingua.

**R e d e s c r i p t i o n :** Length 2.05 mm, width 1.53 mm. Head and most of body uniformly, fairly light reddish-brown, apical third of elytra, legs and apical abdominal segments lighter, almost yellowish. Pronotum almost evenly and very finely punctate. Hypomera smooth. Elytra with apical margins oblique, slightly sinuate, weakly crenulate at and near angles; inner apical angles acute, not prominent, situated posterior level of outer angles; sutural striae starting about 0.25 mm posterior tip of scutellum, weakly converging apically, near bases indicated by puncture rows; lateral margin carinae throughout exposed, well visible; lateral striae distinctly punctate; discal punctation fairly coarse, most puncture intervals about 1.5 to 2.5 times as large as puncture diameters. Anterior area of mesanepisterna with strigulate microsculpture. Mesepimera about four times as long as wide, about as long as intervals to mesocoxae. Metaventrite



weakly convex in middle, with punctation very fine and sparse, except for two shallow, coarsely punctate apicomedian impressions, fairly coarse and very dense antecoxal puncture rows and coarse punctures margining submesocoxal lines; microsculpture strigulate and distinct, absent from anterior surface of lateral areas. Submesocoxal areas about 0.04 mm, as fourth of intervals to metacoxae, submesocoxal lines convex. Metanepisterna narrowed anteriorly, rounded near angles. Mesotibiae weakly curved. Abdomen with strigulate microsculpture, very finely punctate, except for dense, distinct punctures along basal margin of intercoxal process of sternite 1. Submetacoxal areas 0.05 mm, as fifth of intervals to apical margin of sternite 1, submetacoxal lines convex.

Comments: The sole specimens housed in MNHN is labelled "Philippines (printed) Kingua Semper" (handwritten) / TYPE (printed, red) / *Scaphosoma philippinense* (handwritten) R. Oberthür TYPE Col. novit. I (printed) p. 14 (handwritten). It is designated as lectotype because the number of specimens on which this species was based is unknown [the type locality "Kingua" was not located]. This specimen has only two basal antennomeres, the left elytron was broken off and subsequently glued to the body, the left protibia and metatibia and their tarsi are missing. The specimen is quite similar to females of other members of the *S. tricolor* group but cannot be associated with any of the identified species.

#### 5.2.21.13. *Scaphisoma vagenotatum* PIC

*Scaphisoma vagenotatum* PIC, 1926: 2. Lectotype ♀, MNHN; type locality: Mindanao, Dansalan. Lectotype designation: LÖBL 1972: 106.

**Red e s c r i p t i o n :** Length about 2.0 mm, width 1.40 mm. Head, pronotum, hypomera, femora and tibiae ochreous. Most of elytra, mesoventrite, metaventrite and sternites 1 to 3 reddish-brown, apical fourth of elytra, apical sternites, antennae and tarsi yellowish. Length/width ratio of antennomeres as: III 15/8: IV 45/7: V 64/8: VI 64/8: VII 66/12: VIII 50/9: IX 65/12: X 65/12. Pronotum almost evenly and very finely punctate. Hypomera smooth. Elytra with sutural striae starting about 0.25 mm posterior tip of scutellum, weakly converging apically, near bases indicated by puncture rows; lateral margin carinae hardly visible, lateral striae distinctly punctate; discal punctation fairly coarse, most puncture intervals about 1.5 to 2.5 times as large as puncture diameters. Mesanepisterna not microsculptured. Mesepimera about four times as long as wide, about as long as intervals to mesocoxae. Metaventrite weakly convex in middle, with punctation very fine and sparse, except for two shallow, coarsely punctate apicomedian impressions, fairly coarse and very dense antecoxal puncture rows and coarse punctures margining submesocoxal lines; microsculpture strigulate and distinct, absent from anterior surface of lateral areas. Submesocoxal areas about 0.03 mm, as sixth of intervals to metacoxae, submesocoxal lines subparallel. Metanepisterna narrowed anteriorly, rounded near angles. Mesotibiae weakly curved. Abdomen with strigulate microsculpture, very finely punctate, except for dense, distinct punctures along basal margin of intercoxal process of sternite 1. Submetacoxal areas 0.05 mm, almost as fifth of intervals to apical margin of sternite 1, submetacoxal lines convex.

**Distribution:** Philippines: Mindanao.

Comments: The unique type has the apices of the elytra damaged, obviously by *Anthrenus*, and both antennomeres XI are broken off and missing. The specimen is similar to but cannot be associated with *S. philippinense* from which it differs by the

lighter hypomera, not microsculptured mesanepisterna, elytra with narrower light apical areas with hardly visible lateral margin carinae in dorsal view.

### 5.2.22. Species not assigned to groups

The following two species exhibit conspicuous external morphological characters and may be readily distinguished even in absence of males.

#### 5.2.22.1. *Scaphisoma bicolor* nov.sp. (Figs 3, 257)

**Type material:** Holotype ♀: Meran, E. slope Mt. Apo, Davao Province, Mindanao 6000 ft; XI: 5: 46 / On decayed fleshy, gilled bracket fungus / original forest / CNHM-Philippine Zool. Exped. (1946-47) F.G. Werner leg. (FMNH). Paratypes: Mindanao, Davao Prov., E. slope of Mt. McKinley, 6800 ft., 25.VIII.1946, lot 26, beating, 1 ♀ leg. F.G. Werner (MHNG); Mindanao, Todaya, 30.VII.1970, 1 ♀ leg. M. Satō (MHNG).

**Description:** Length 1.98-2.06 mm, width 1.37-1.45 mm. Head, pronotum, anterior halves of elytra, mesoventrite and metaventrite with anepisterna and epimeres black, hypomera dark reddish-brown to blackish. Elytra with apical halves yellowish, border between black and yellowish areas fairly abruptly delimited, oblique, black area extended posterior elytral mid-length along suture, not reaching mid-length along lateral margins. Abdomen brown to ochreous, with yellowish apical segments. Legs ochreous. Antennae with yellowish segments II to VI, somewhat darken from segment VII on. Pronotum and elytra not microsculptured and not iridescent. Length/width ratios of antennomeres as: III 17/12: IV 24/11: V 30/10: VI 56/9: VII 60/19: VIII 36/12: IX 55/20: X 53/20: XI 65/22 (Fig. 257). Pronotum very finely and densely punctate, with lateral contours evenly rounded, lateral margin carinae visible in dorsal view, lateral striae impunctate. Exposed tip of scutellum minute. Elytra with lateral margin carinae entirely visible in dorsal view, apical margins truncate, inner apical angles not prominent, situated somewhat posterior level of outer angles; sutural margin not raised, sutural striae shallow, bent at base along margin of pronotal lobe, not extending laterad pronotal lobe, parallel between level of scutellar tip and apex, very finely punctate; adsutural areas flat, very finely punctate, lateral striae impunctate. Elytral disc with punctuation fine and fairly dense, punctures not well delimited yet clearly larger than pronotal punctures; puncture intervals mostly about twice to four times as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera shorter than intervals to mesocoxae, about four times as long as wide. Metaventrite not microsculptured, convex in middle, lacking mesal or apicomeral impressions or striae, with punctuation very fine and sparse; antecoxal puncture rows absent. Submesocoxal 0.06 mm, about as fifth of intervals to metacoxae, submesocoxal lines convex, impunctate. Metanepisternum flat, narrowed anteriorly, inner suture deep, almost straight except at distinctly rounded angles. Tibiae straight. Abdomen with sternite 1 lacking microsculpture and very finely punctate, submetacoxal areas 0.05 mm, about as fourth of intervals to apical margin of sternite 1, submetacoxal lines convex, distinctly punctate. Sternites II to IV and exposed tergites with hardly visible punctulate microsculpture, sternite V with strigulate microsculpture.

**Etymology:** The species epithet is Latin and refers to the bicolourous elytra.

**Comparative notes:** This species has unique, conspicuous colour pattern and may be easily distinguished from its Asian and Australian congeners.

**5.2.22.2. *Scaphisoma lienhardi* nov.sp. (Fig. 258)**

**Type material:** Holotype ♂: Palawan: Roxas Region of Matalangao, 50 m, 5.IV.1983, leg. S. Nagai & C. Lienhard, 83/86 (MHNG).

**Description:** Length 2.55 mm, width 1.80 mm. Head, pronotum, anterior two thirds of elytra, mesoventrite and metaventrite blackish-brown. Elytra becoming lighter toward apices, in apical fourth ochreous. Hypomera very dark reddish-brown, abdomen and legs dark reddish-brown. Antennae and tarsi lighter, yellowish-brown. Pronotum and elytra not microsculptured and not iridescent. Length/width ratio of antennomeres as: III 17/10: IV 20/10: V 58/15: VI 62/15: VII 65/20: VIII 60/15: IX 63/20: X 60/20: XI 75/20 (Fig. 258). Pronotum finely and densely punctate, punctures well delimited, with lateral contours evenly rounded, lateral margin carinae not visible in dorsal view, lateral striae very finely punctate. Exposed part of scutellum comparatively large. Elytra with lateral margin carinae entirely visible in dorsal view, apical margins rounded, inner apical angles not prominent, situated posterior level of outer angles; sutural margin not raised, sutural striae shallow, bent at base along margin of pronotal lobe and extending laterad to form basal striae reaching basal mid-width, parallel between level of scutellar tip and apex, finely punctate; adsutural areas flat, finely punctate, lateral striae punctate. Elytral disc with punctuation similar to that on pronotum on broad basal areas, fairly coarse and dense on prevailing surfaces, with punctures well delimited and most puncture intervals about as large to twice as large as puncture diameters. Hind wings fully developed. Hypomera and mesanepisterna smooth. Mesepimera slightly shorter than intervals to mesocoxae, about twice as long as wide. Metaventrite not microsculptured, flattened in middle, lacking mesal or apicommesal impressions or striae, with punctuation very fine and sparse between mesocoxae and on anteriolateral parts, conspicuously coarse and dense on most of mesal surface, between mesocoxae and metacoxae and on apicolateral areas, with punctures sharply delimited and to part larger than puncture intervals; antecoxal puncture rows absent. Submesocoxal 0.07 mm, about as fourth of intervals to metacoxae, submesocoxal lines convex, punctate. Metanepisternum flat, narrowed anteriorly, inner suture deep, almost straight except at distinctly rounded angles. Tibiae straight. Mesal part of sternite 1 very densely and fairly coarsely punctate, and with punctulate microsculpture, lateral parts of sternite 1 very finely punctate and not microsculptured. Following sternite very finely punctate and with distinct punctulate microsculpture. Submetacoxal areas 0.04 mm, about as eight of intervals to apical margin of sternite 1, submetacoxal lines parallel, coarsely punctate.

**Etymology:** The species is named in honour of Charles Lienhard, Geneva, Switzerland, who is one of its collectors.

**Comparative notes:** This species may be easily distinguished from the Philippine congeners by the following characters in combination: Body 2.55 mm long, blackish-brown, with apical fourth of elytra and abdomen lighter, dark reddish-brown to ochreous. Antennomere IV short, combined with III shorter than V. Elytra with sutural striae curved at bases and extended to form basal striae, reaching about mid-width of basal margin of elytra. Elytral disc with well visible and dense punctuation. Metaventrite with conspicuous, coarse and dense punctuation covering most of the apicolateral areas, very finely punctate on anterior surfaces. Abdomen with distinct punctulate microsculpture. Submetacoxal lines parallel.

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## 7. Zusammenfassung

Eine Übersicht der philippinischen Arten der Gattungen *Sapitia* ACHARD, 1920 und *Scaphisoma* LEACH, 1815 ist gegeben. 113 Arten sind erkannt, davon sind 82 *Scaphisoma*-Arten beschrieben als neu: *S. acutulium* nov.sp., *S. alticola* nov.sp., *S. angulosum* nov.sp., *S. apomontanum* nov.sp., *S. apomontium* nov.sp., *S. bicolor* nov.sp., *S. bicoloripenne* nov.sp., *S. bicuspidatum* nov.sp., *S. bilobum* nov.sp., *S. blefusca* nov.sp., *S. bolmarum* nov.sp., *S. brevium* nov.sp., *S. casiguran* nov.sp., *S. caudatooides* nov.sp., *S. centripunctulum* nov.sp., *S. compactum* nov.sp., *S. conflictum* nov.sp., *S. confusum* nov.sp., *S. cuyunon* nov.sp., *S. deharvengi* nov.sp., *S. densepunctatum* nov.sp., *S. disparides* nov.sp., *S. dissymmetricum* nov.sp., *S. distinctum* nov.sp., *S. diversum* nov.sp., *S. duplex* nov.sp., *S. elpis* nov.sp., *S. furcatum* nov.sp., *S. furcigerum* nov.sp., *S. furcillatum* nov.sp., *S. glabrellum* nov.sp., *S. hamatum* nov.sp., *S. hexameroides* nov.sp., *S. hexamerum* nov.sp., *S. ilonggo* nov.sp., *S. inexpectatum* nov.sp., *S. inconventum* nov.sp., *S. inflexum* nov.sp., *S. inopportunistum* nov.sp., *S. iridescens* nov.sp., *S. jankodadai* nov.sp., *S. kodadai* nov.sp., *S. lienhardi* nov.sp., *S. liliput* nov.sp., *S. lineare* nov.sp., *S. lunabianum* nov.sp., *S. maculosum* nov.sp., *S. maramag* nov.sp., *S. minutipenis* nov.sp., *S. mirum* nov.sp., *S. montivagum* nov.sp., *S. nabiluanum* nov.sp., *S. nanellum* nov.sp., *S. nishikawai* nov.sp., *S. obscurum* nov.sp., *S. ochropenne* nov.sp., *S. opacum* nov.sp., *S. oviforme* nov.sp., *S. pandanum* nov.sp., *S. pseudokalabikum* nov.sp., *S. pulchrum* nov.sp., *S. sagax* nov.sp., *S. scapulare* nov.sp., *S. scurrile* nov.sp., *S. signaticolle* nov.sp., *S. simplexoides* nov.sp., *S. sinuatum* nov.sp., *S. spatuloides* nov.sp., *S. subanun* nov.sp., *S. subgracile* nov.sp., *S. subplanatum* nov.sp., *S. subpunctulum* nov.sp., *S. tagalog* nov.sp., *S. transversale* nov.sp., *S. tricoloratum* nov.sp., *S. tricolorinotum* nov.sp., *S. tricoloripenne* nov.sp., *S. tridens* nov.sp., *S. trifurcatum* nov.sp., *S. trilobum* nov.sp., *S. trimaculatum* nov.sp., *S. werneri* nov.sp. *Scaphisoma javanum* LÖBL, *S. quadrimaculatum* PIC und *S. rufescens* (PIC) sind zum erstenmal von den Philippinen gemeldet. Lectotypus ist für *S. philippinense* OBERTHÜR designiert. Zusätzliche diagnostische Merkmale, neue Fundangaben und Bemerkungen sind zu den meisten früher beschriebenen Arten gegeben. Eine Bestimmungstabelle der Philippinischen Arten von *Scaphisoma* ist ebenfalls vorgelegt.

## 8. References

- ACHARD J. (1920a): Description d'un nouveau genre et d'une nouvelle espèce de Scaphidiidae (Col.). — Bull. Soc. ent. France **1920**: 207-208.
- ACHARD J. (1920b): Notes sur les Scaphidiidae de la faune indomalaise. — Annals Soc. ent. Belg. **60**: 123-136.

- FONTAINE B., PERRARD A. & P. BOUCHET (2012): 21 year of shelf life between discovery and description. — *Current Biology* **22**: R943-R944. Doi 10.1016/j.cub.2012.10.029
- HELLER K.M. (1917): Scaphidiidae von den Philippinen. — *Wien. ent. Ztg* **36**: 41-50.
- HEANEY L.R. & J.C. REGALODA (1998): *Vanishing treasures of the Philippine Rainforest*. Chicago: The Field Museum of Natural History, 96 pp.
- ICZN (1999): *International Code of Zoological Nomenclature*. Fourth Edition adopted by the International Union of Biological Sciences. — The International Trust for Zoological Nomenclature, London, xxix +306 pp.
- KEMP C. (2015): Museums: the endangered dead. — *Nature* **518** (7539): 292-294. Doi: 10.1038/51818292a
- LESCHEN R.A.B. & I. LÖBL (2005): Phylogeny and classification of Scaphisomatini Staphylinidae: Scaphidiinae with notes on mycophagy, termitophily, and functional morphology. — *Coleopters Soc. Monographs* **3**: 1-63.
- LÖBL I. (1970a): Über einige Scaphidiidae (Coleoptera) aus der Sammlung des Muséum National d'Histoire Naturelle de Paris. — *Mitt. Schweiz. ent. Ges.* **43**: 125-132.
- LÖBL I. (1970b): Revision der paläarktischen Arten der Gattungen *Scaphisoma* LEACH und *Caryoscapa* GANGLBAUER der Tribus Scaphisomini (Col. Scaphidiidae). — *Revue suisse Zool.* **77**: 727-799.
- LÖBL I. (1971a): Scaphidiidae der Noona Dan Expedition nach den Philippinen und Bismarck Inseln (Insecta, Coleoptera). — *Steenstrupia* **1**: 247-253.
- LÖBL I. (1971b): Scaphidiidae von Ceylon (Coleoptera). — *Revue suisse Zool.* **78**: 937-1006.
- LÖBL I. (1972): Beitrag zur Kenntnis der Scaphidiidae (Coleoptera) von den Philippinen. — *Mitt. Schweiz. ent. Ges.* **45**: 79-109.
- LÖBL I. (1976): Drei neue Arten der Gattung *Scaphisoma* LEACH (Coleoptera, Scaphidiidae) von Indonesien. — *Entomol. Berichten* **36**: 8-11.
- LÖBL I. (1977a): Beitrag zur Kenntnis der Scaphidiidae (Coleoptera) Australiens. — *Revue suisse Zool.* **84**: 3-69.
- LÖBL I. (1977b): Wenig bekannte und neue Scaphidiidae (Coleoptera) von Neukaledonien, Samoa und von den Fidschiinseln. — *Revue suisse Zool.* **84**: 817-829.
- LÖBL I. (1978a): Beitrag zur Kenntnis der Gattung *Sapitia* ACHARD (Coleoptera, Scaphidiidae). — *Mitt. schweiz. ent. Ges.* **51**: 53-57.
- LÖBL I. (1978b): Two new Scaphidiidae (Coleoptera) from the New Hebrides. — *Pacific Insects* **19**: 109-111.
- LÖBL I. (1979a): Die Scaphidiidae (Coleoptera) Südindiens. — *Revue suisse Zool.* **86**: 77-129.
- LÖBL I. (1979b): Two new Sumatran Scaphidiidae associated with termites and one new species of the genus *Scaphisoma* LEACH from Java (Coleoptera). — *Sociobiology* **4**: 321-328.
- LÖBL I. (1981a): Über die Arten-Gruppe *rouyeri* der Gattung *Scaphisoma* LEACH (Coleoptera Scaphidiidae). — *Archives Sciences (Genève)* **34**: 153-168.
- LÖBL I. (1981b): Über einige Arten der Gattung *Scaphisoma* LEACH (Coleoptera, Scaphidiidae) aus Vietnam und Laos. — *Annals hist.-natur. Mus. nat. hung.* **73**: 105-112.
- LÖBL I. (1982): Little known and new Oriental species of the genus *Scaphisoma* LEACH (Coleoptera, Scaphidiidae). Pp. 5-16. — In: Special Issue to the Memory of Retirement of Emeritus Professor Michio Chûjô. Association of the Memorial Issue of Emeritus Professor Michio Chûjô, Nagoya, 145 pp.
- LÖBL I. (1986): Les Scaphidiidae (Coleoptera) du nord-est de l'Inde et du Bhoutan II. — *Revue suisse Zool.* **93**: 133-212.
- LÖBL I. (1997): Catalogue of the Scaphidiinae (Coleoptera: Staphylinidae). — *Instrumenta biodiversitatis* **1**: xiii + 190 pp.

- LÖBL I. (2006): On the Philippine species of Cypariini and Scaphidiini (Coleoptera: Staphylinidae: Scaphidiinae). — *Revue suisse Zool.* **113**: 23-49.
- LÖBL I. (2011a): On the Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) of the Philippines. — *Studies Reports Taxonomic Series* **7**: 301-314.
- LÖBL I. (2011b): On the Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) of the Philippines, II. — *Revue suisse Zool.* **118**: 695-721.
- LÖBL I. (2012): On the Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) of the Philippines, III: the genus *Baeocera* ERICHSON. — *Revue suisse Zool.* **119**: 351-383.
- LÖBL I. (2015a): On the Scaphidiinae (Coleoptera: Staphylinidae) of the Lesser Sunda Islands. — *Revue suisse Zool.* **122**: 75-120.
- LÖBL I. (2015b): *Scaphisoma poussereaui* sp.nov. from La Réunion (Coleoptera: Staphylinidae: Scaphidiinae), a range extension of the *S. tricolor* species group. — *Mitt. Schweiz. ent. Ges.* **88**: 367-370.
- OBERTHÜR R. (1883): Scaphidiides nouveaux. Pp. 5-16. — In: *Coleopterorum Novitates. Recueil spécialement consacré à l'étude des coléoptères. Tome 1. Rennes*, 80 pp, 2 pls.
- PIC M. (1915): Genres nouveaux. Espèces et variétés nouvelles. — *Melang. exot.-ent.* **16**: 2-13.
- PIC M. (1920a): Coléoptères exotiques en partie nouveaux. — *Échange* **36**: 22-24.
- PIC M. (1920b): Nouveautés diverses. — *Melang. exot.-ent.* **32**: 1-28.
- PIC M. (1921): Scaphidiides recueillis par feu L. Fea. — *Annali del Museo civico di Storia naturali di Genova* (3) **9**: 158-167.
- PIC M. (1922): Nouveautés diverses. — *Melang. exot.-ent.* **36**: 1-32.
- PIC M. (1923): Scaphidiidae exotiques nouveaux (Col.). — *Bull. Soc. ent. France* **1923**: 194-196.
- PIC M. (1926): Nouveautés diverses. — *Melang. exot.-ent.* **45**: 1-32.
- PIC M. (1947): Diversités entomologiques **2**: 1-16 [no title].
- VALLEJO B. Jr. (2014): Biogeography of Luzon Island, Philippines. Pp. 47-59. — In: TELNOV D. (ed.), *Biodiversity, biogeography and nature conservation in Wallacea and New Guinea. Volume II*. Riga: The Entomological Society of Latvia, 458 pp, 126 pls.

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**Figs 1-6:** Habitus of *Scaphisoma*; *S. anomalum* LÖBL (1); *S. bibiranense* LÖBL (2); *S. bicolor* nov.sp. (3); *S. bicoloripenne* nov.sp. (4); *S. bicuspidatum* nov.sp. (5); *S. binaluanum* PIC (6). Scale: 1.0 mm.



**Figs 7-13:** Habitus of *Scaphisoma*; (7), *S. biplagiatum* HELLER; (8), *S. casiguran* nov.sp.; (9), *S. cuyunon* nov.sp.; (10), *S. dispar* LÖBL; (11), *S. disparides* nov.sp.; (12), *S. javanum* LÖBL; (13), *S. furcigerum* nov.sp. Scale: 1.0 mm.

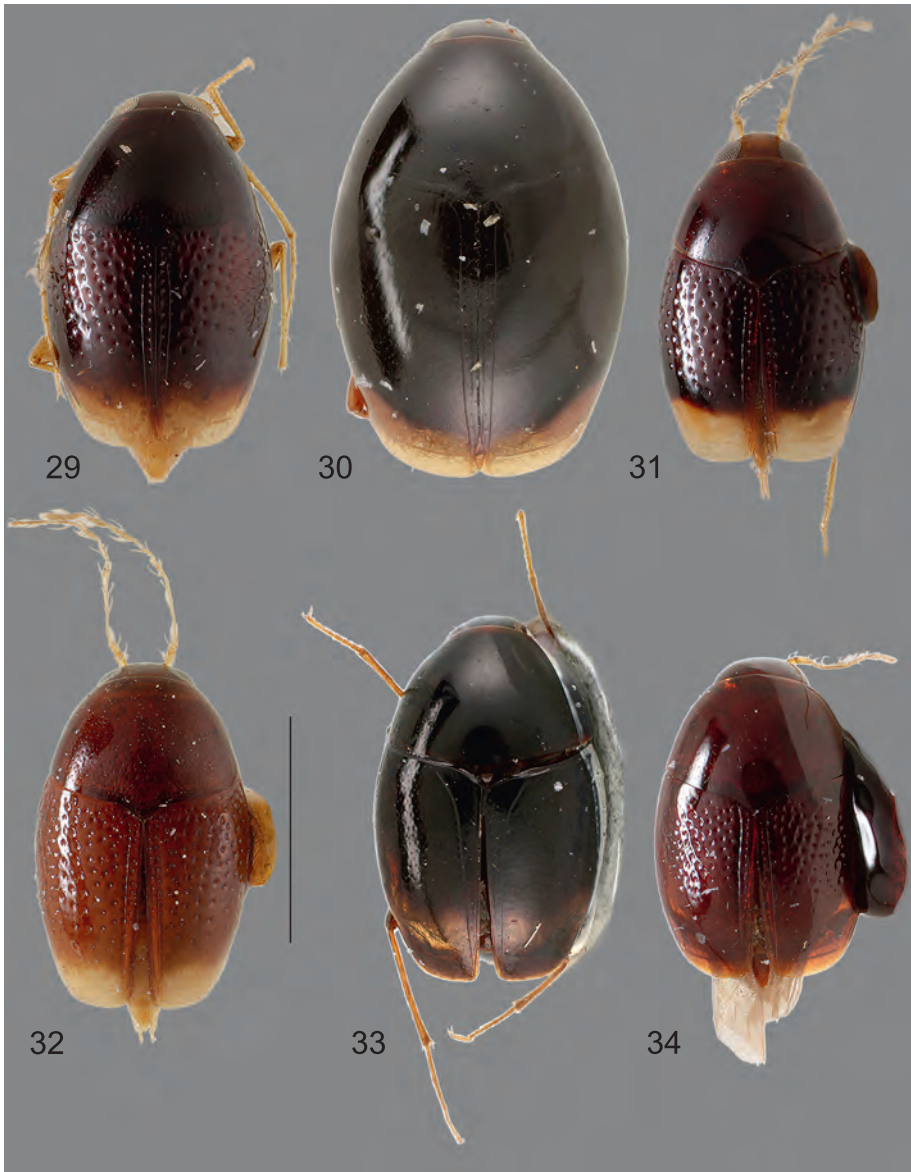




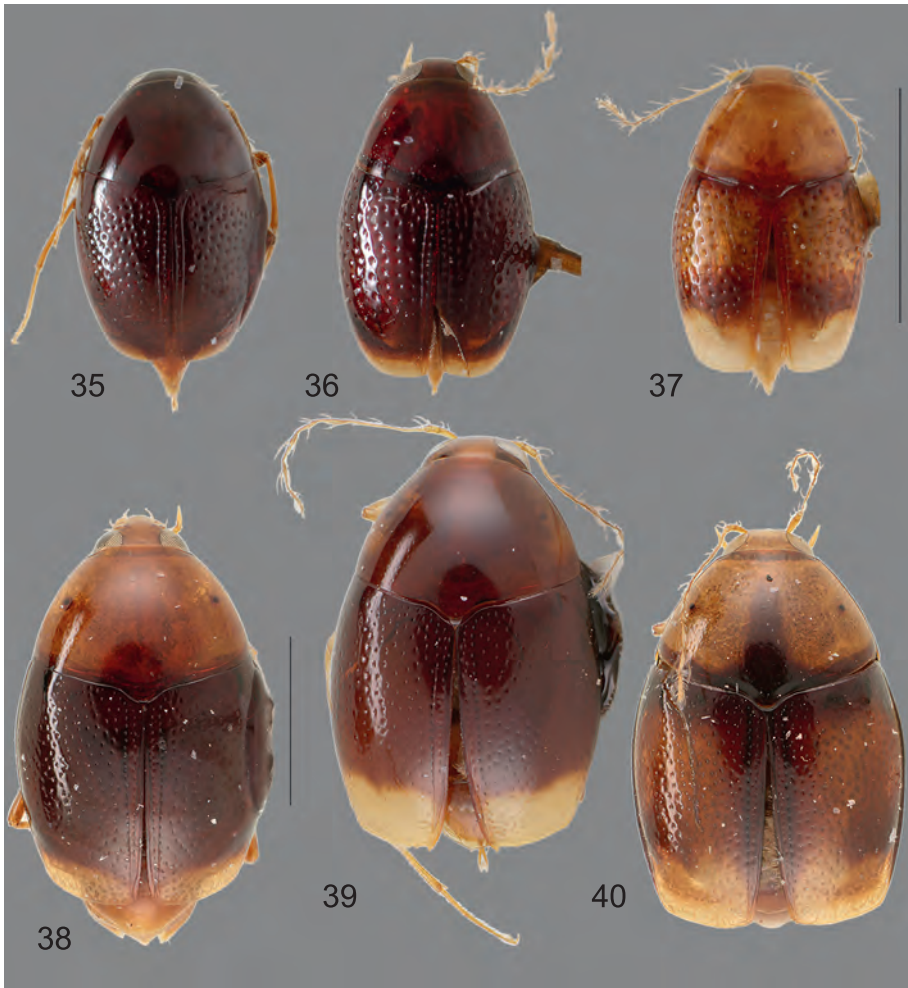
**Figs 14-21:** Habitus of *Scaphisoma*; (14), *S. furcillatum* nov.sp.; (15), *S. inopportunum* nov.sp.; (16), *S. lunabianum* nov.sp.; (17), *S. inexpectatum* nov.sp.; (18), *S. luteomaculatum* PIC; (19), *S. luteopygidiale* (PIC); (20), *S. maculosum* nov.sp.; (21), *S. mindanaosum* PIC. Scale: 1.0 mm.



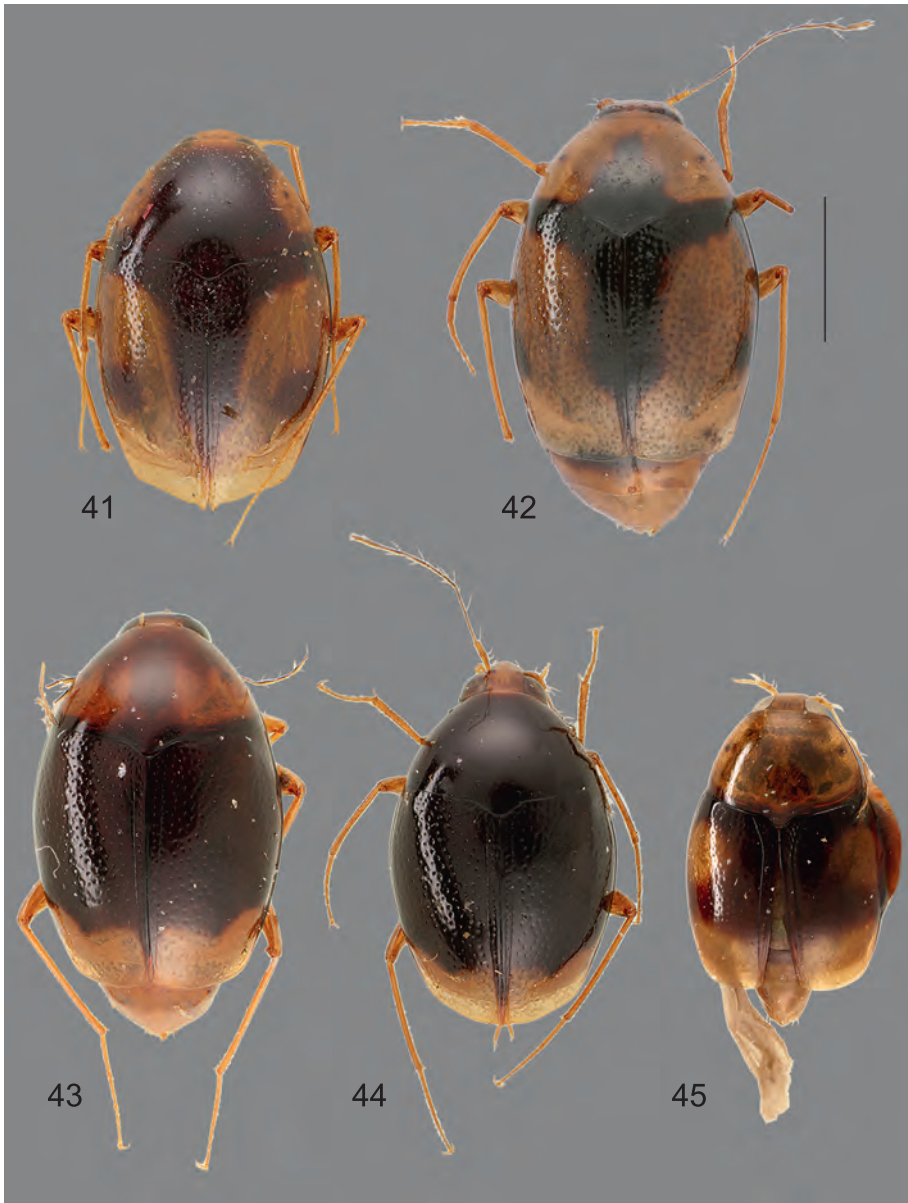
**Figs 22-28:** Habitus of *Scaphisoma*; (22), *S. mirum* nov.sp.; (23), *S. nabiluanum* nov.sp.; (24), *S. ochropenne* nov.sp.; (25), *S. opacum* nov.sp.; (26), *S. palawanum* PIC; (27), *S. pandanum* nov.sp.; (28), *S. pseudokalabikum* nov.sp. Scale: 1.0 mm.



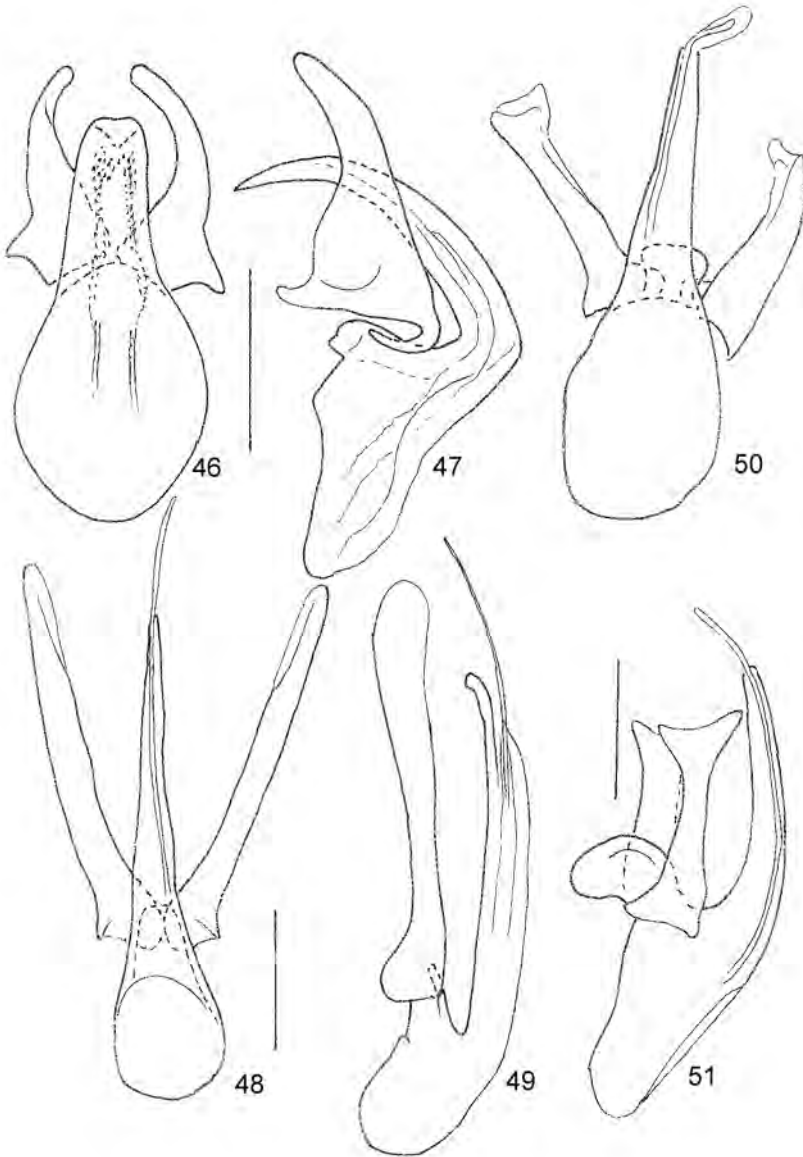
**Figs 29-34:** Habitus of *Scaphisoma*; (29), *S. rufescens*; (30), *S. scapulare* nov.sp.; (31), *S. sinuatum* nov.sp.; (32), *S. stigmatipenne* HELLER; (33), *S. subanun* nov.sp.; (34), *S. subconvexum* PIC. Scale: 1.0 mm.



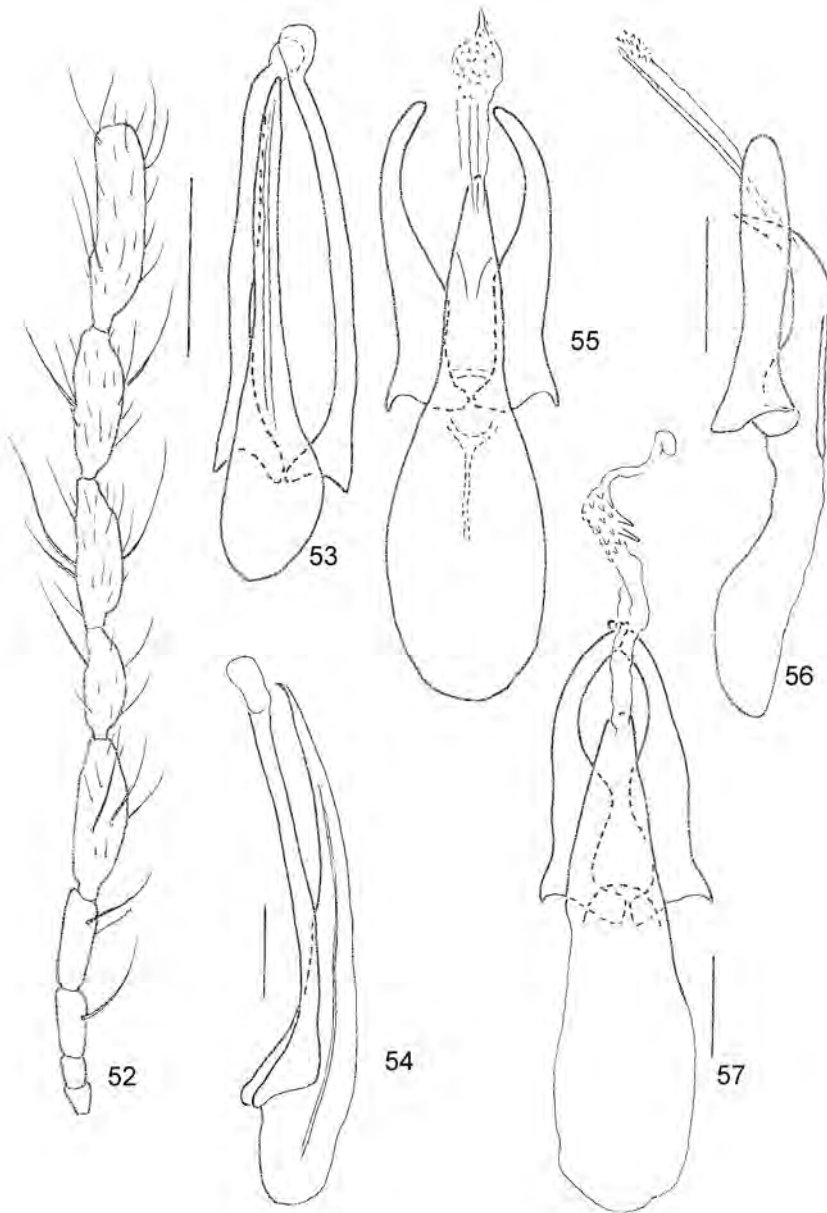
**Figs 35-40:** Habitus of *Scaphisoma*; (35), *S. subgracile* nov.sp.; (36), *S. surigaosum* (PIC); (37), *S. transversale* nov.sp.; (38), *S. tricolor* HELLER, male, (39), ditto, female; (40), *S. tricolorinotum* nov.sp. Scales: 1.0 mm.



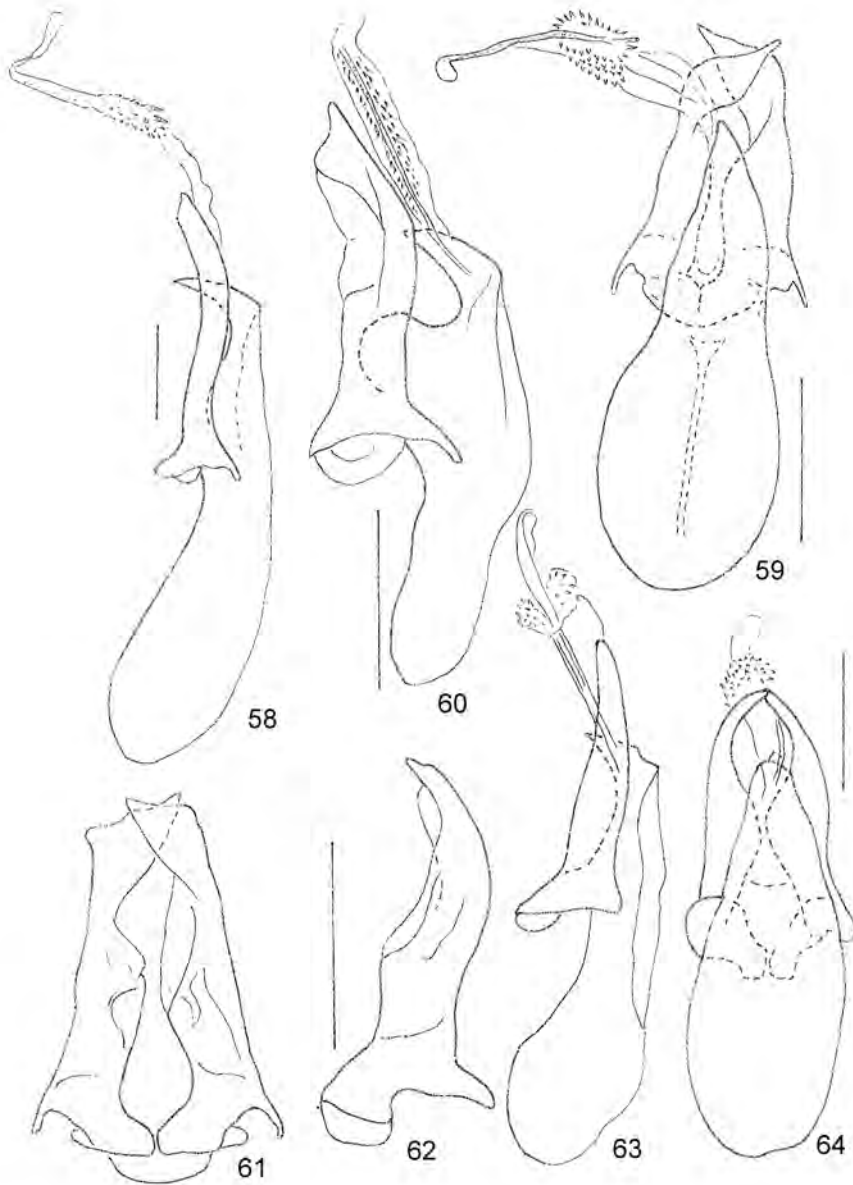
**Figs 41-45:** Habitus of *Scaphisoma*; (41), *S. tricoloripennne* nov.sp.; (42), *S. trifurcatum* nov.sp.; (43), *S. trilobum* nov.sp., male; (44), ditto, female; (45), *S. weneri* nov.sp. Scale: 1.0 mm.



**Figs 46-51:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (46, 47), *S. simplexoides* nov.sp.; (48, 49), *S. subgracile* nov.sp.; (50, 51), *S. subplanatum* nov.sp. Scale = 0.1 mm.

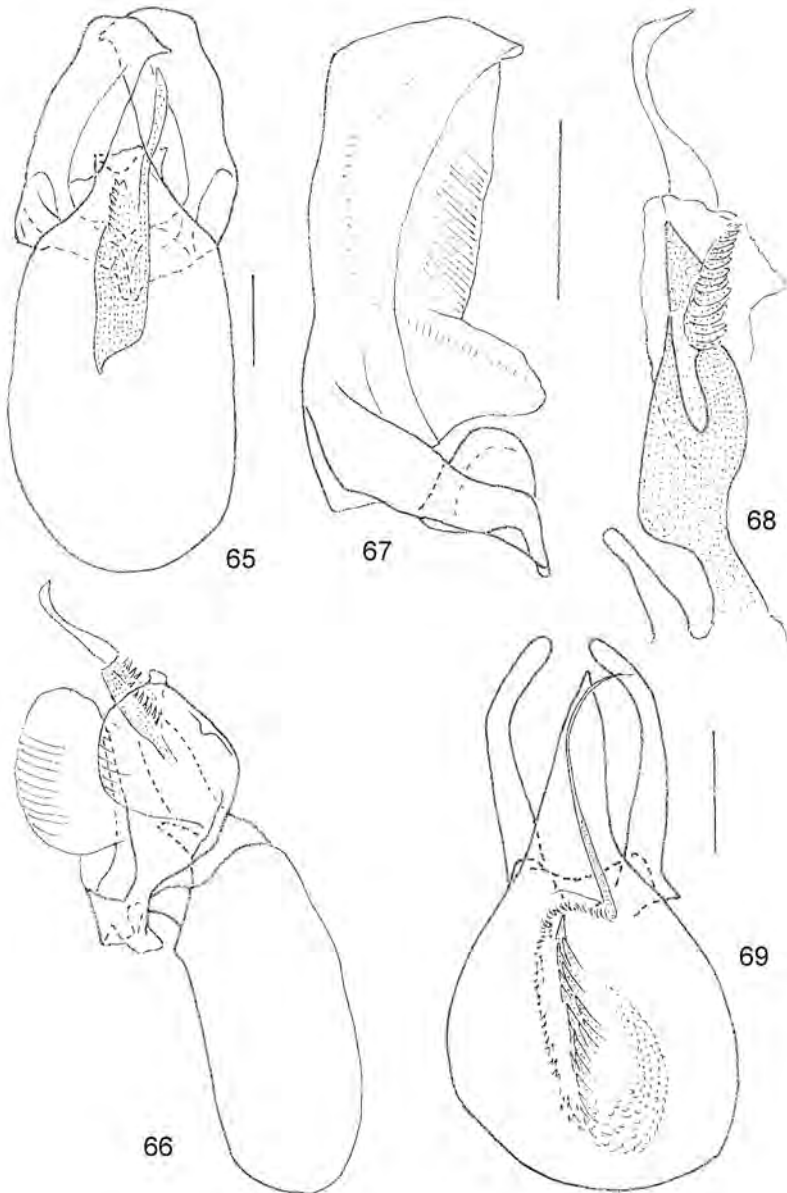


**Figs 52-57:** *Scaphisoma*; (52), antenna of *S. subpunctulum* nov.sp.; (53, 54), *S. diversum* nov.sp., aedeagus in dorsal and lateral views; (55, 56), *S. blefusca* nov.sp., aedeagus in dorsal and lateral views; (57), *S. ilonggo* nov.sp., aedeagus in dorsal view. Scale = 0.1 mm.

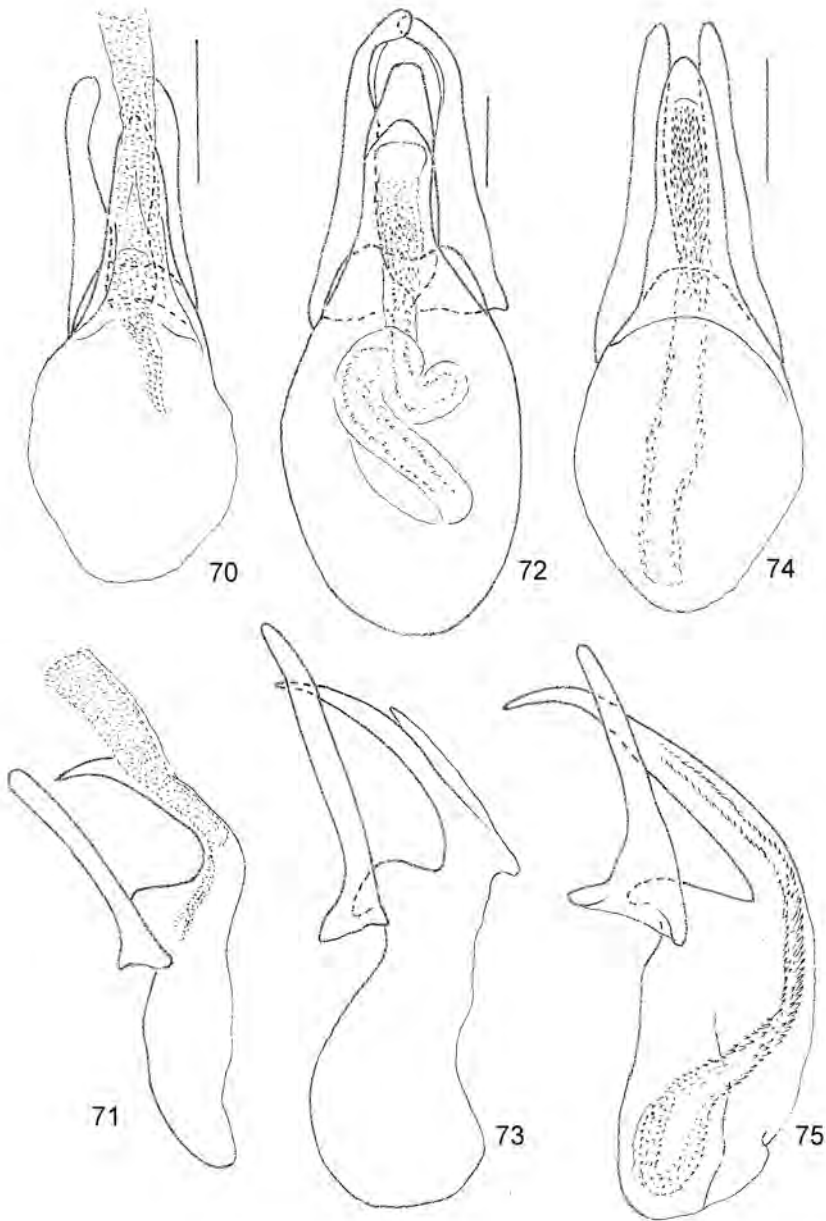


**Figs 58-64:** *Scaphisoma*; (58), *S. ilonggo* nov.sp., aedeagus in lateral view, internal sac extruded; (59, 60), *S. liliput* nov.sp., aedeagus in lateral and dorsal views, internal sac extruded; (61), ditto, parameres in ventral view; (62), ditto, paramere in lateral view; (63, 64), *S. nanellum* nov.sp., aedeagus in dorsal and lateral views. Scale = 0.1 mm.

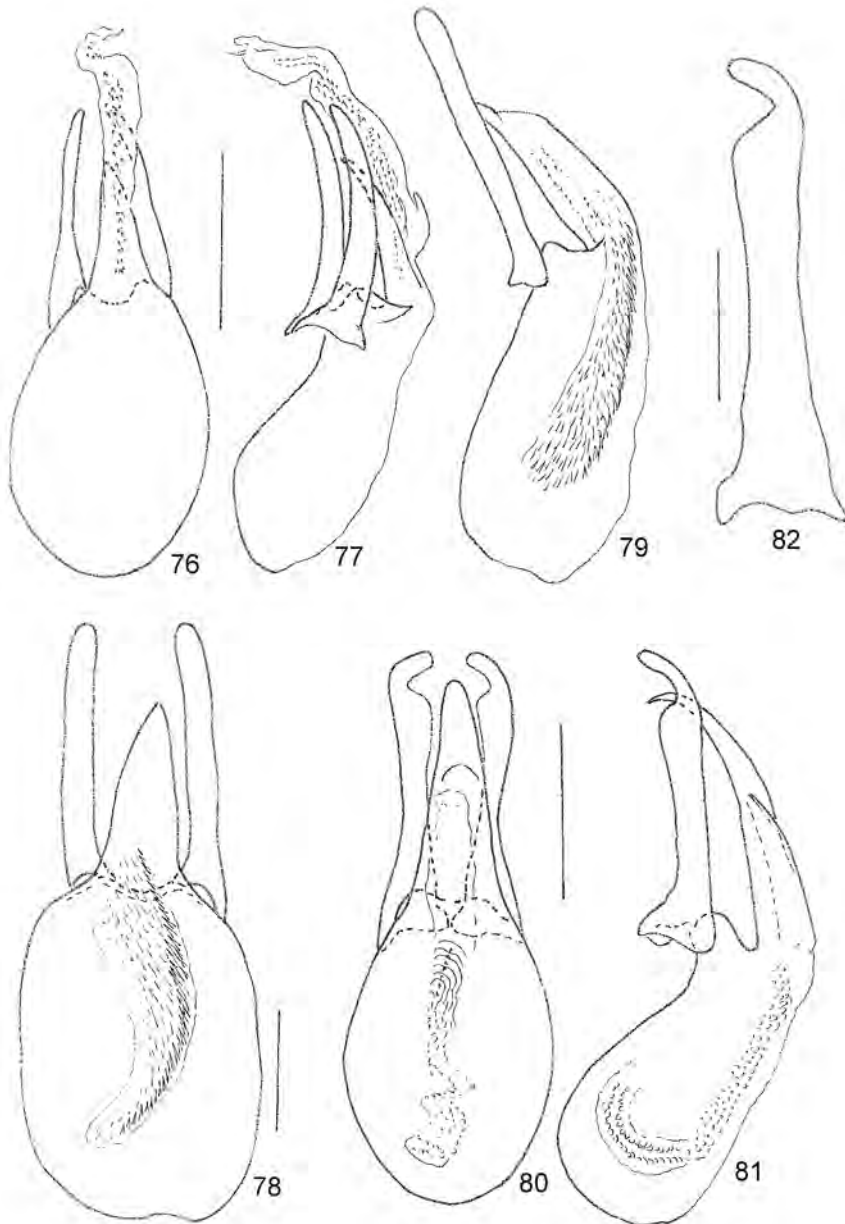




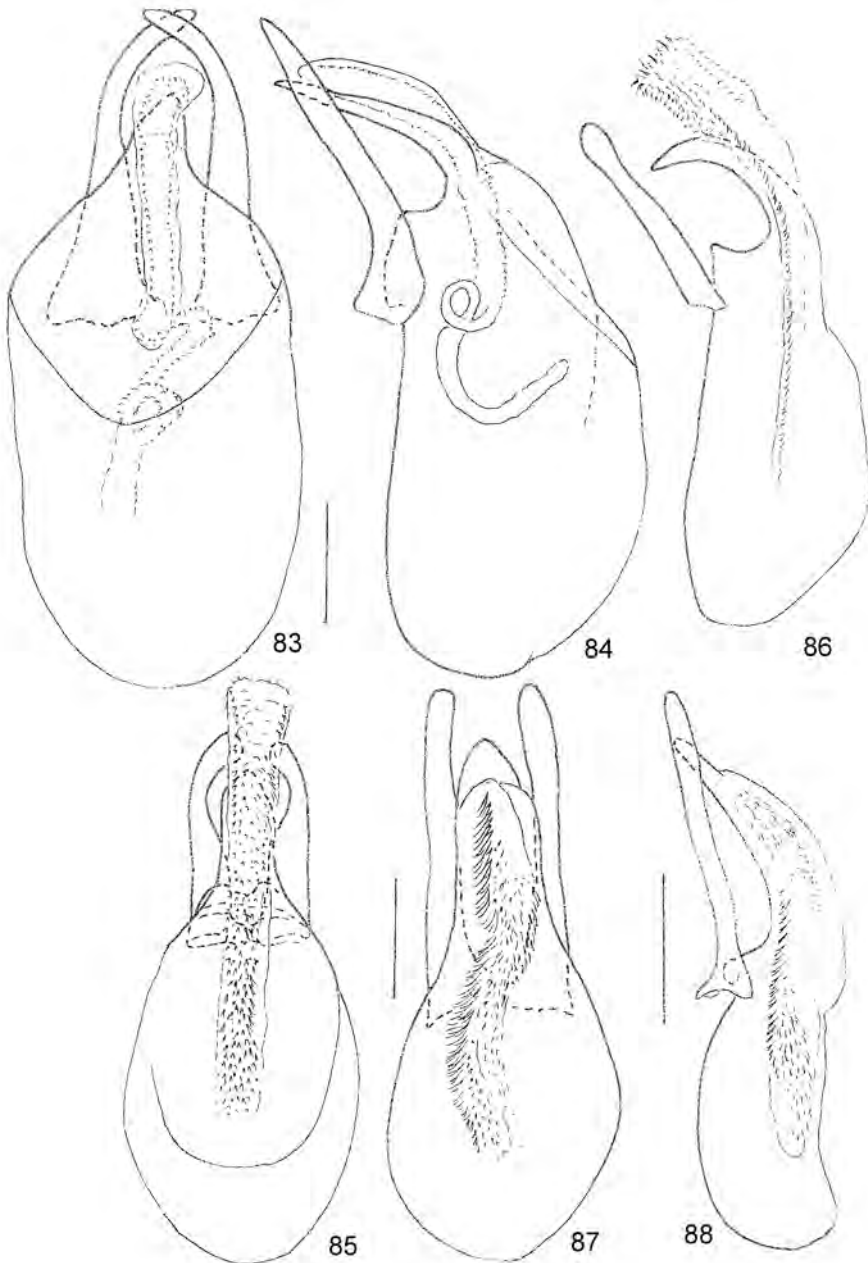
**Figs 65-69:** Aedeagi of *Scaphisoma*; (65-66), *S. lineare* nov.sp., in dorsal and lateral views; (67), ditto, paramere in ventral view; (68), internal sac and apex of median lobe in lateral view; (69), *S. caudatoides* nov.sp., aedeagus in dorsal view. Scale = 0.1 mm.



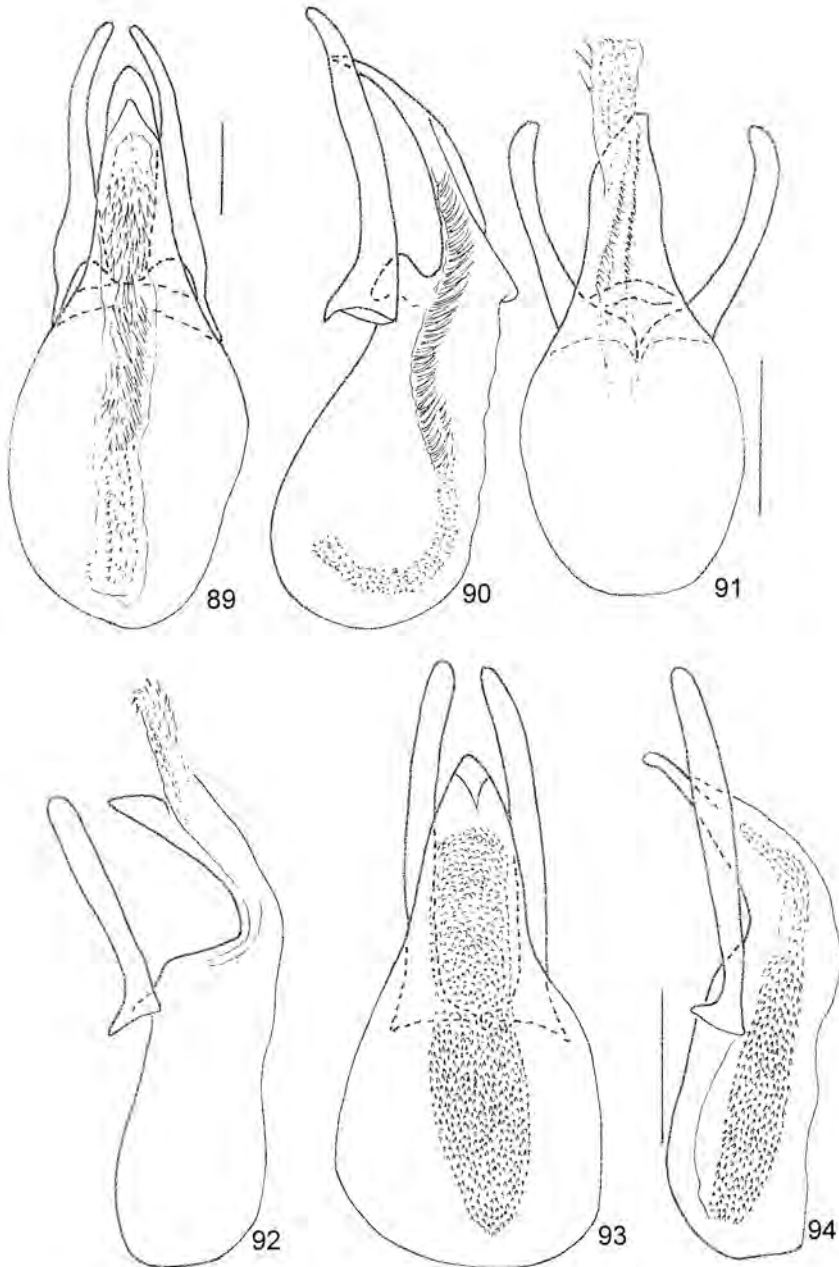
**Figs 70-75:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (70, 71), *S. apomontium* nov.sp.; (72, 73) *S. binaluanum* PIC; (74, 75), *S. bolmarum* nov.sp. Scale = 0.1 mm.



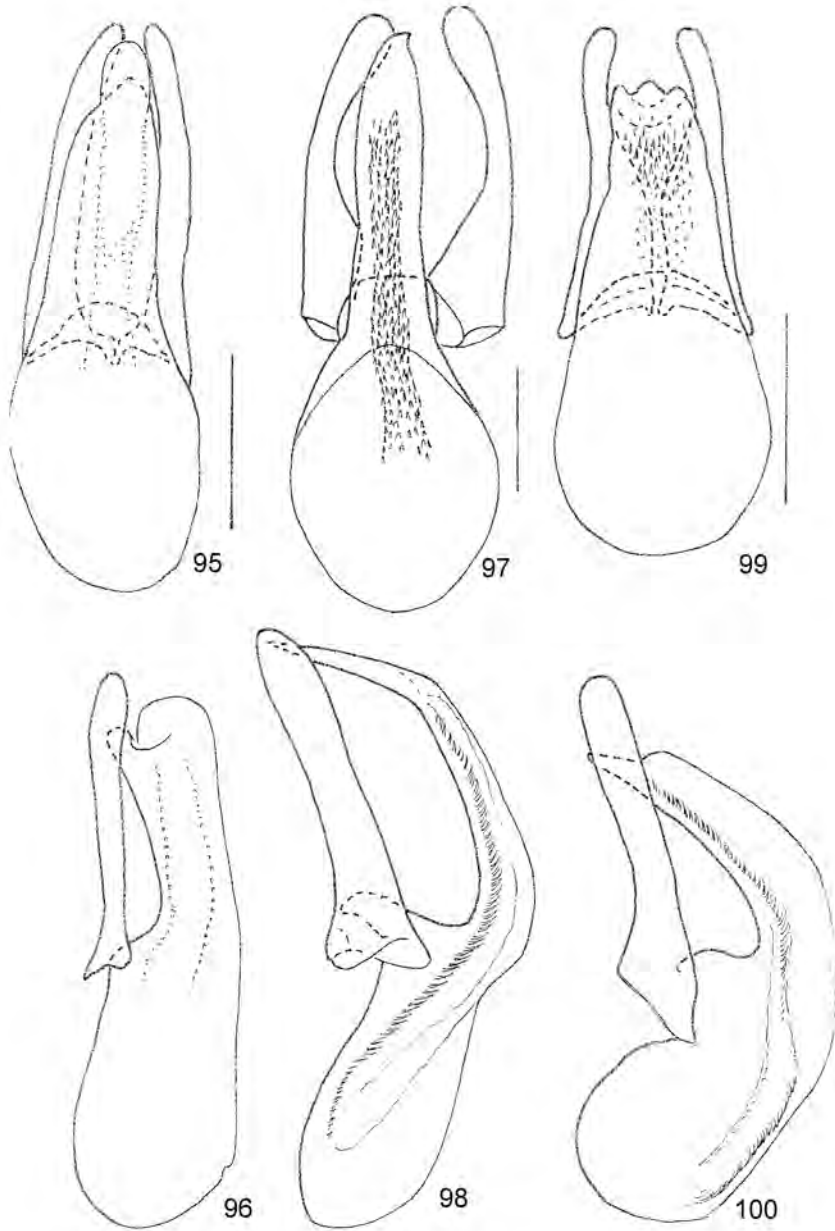
**Figs 76-82:** Aedeagi of *Scaphisoma*: (**76, 77**), *S. casiguran* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**78, 79**), *S. compactum* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**80, 81**), *S. deharvengi* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**82**), ditto, paramere in ventral view, scale = 0.1 mm.



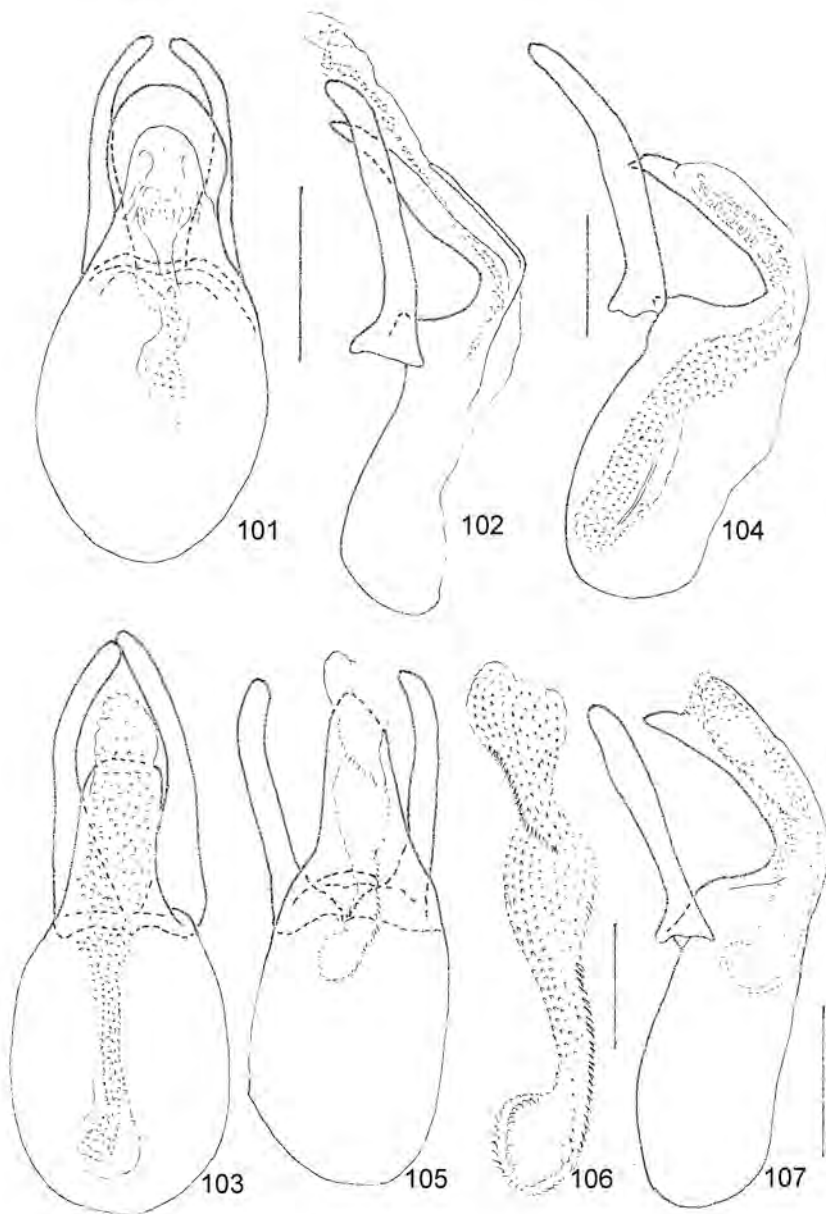
**Figs 83-88:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (83, 84), *S. densepunctatum* nov.sp., scale = 0.2 mm; (85, 86), *S. hexamerum* nov.sp., scale 0.1 mm; (87, 88), *S. kodadai* nov.sp., scale = 0.1 mm.



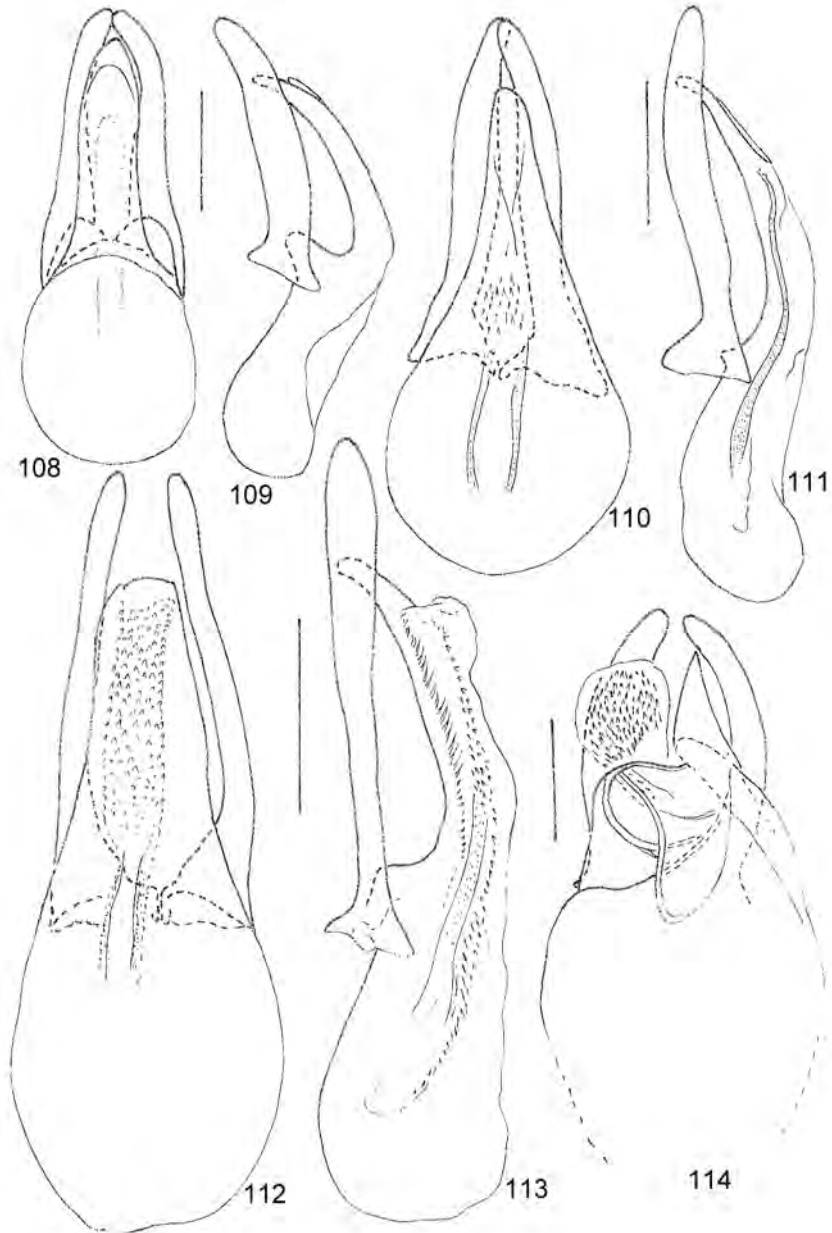
**Figs 89-94:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (89, 90), *S. lunabianum* nov.sp.; (91, 92), *S. maculosum* nov.sp.; (93, 94), *S. maramag* nov.sp. Scale = 0.1 mm.



**Figs 95-100:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (95, 96), *S. minutipenis* nov.sp.; (97, 98), *S. mirum* nov.sp.; (99, 100), *S. montivagum* nov.sp. Scale = 0.1 mm.

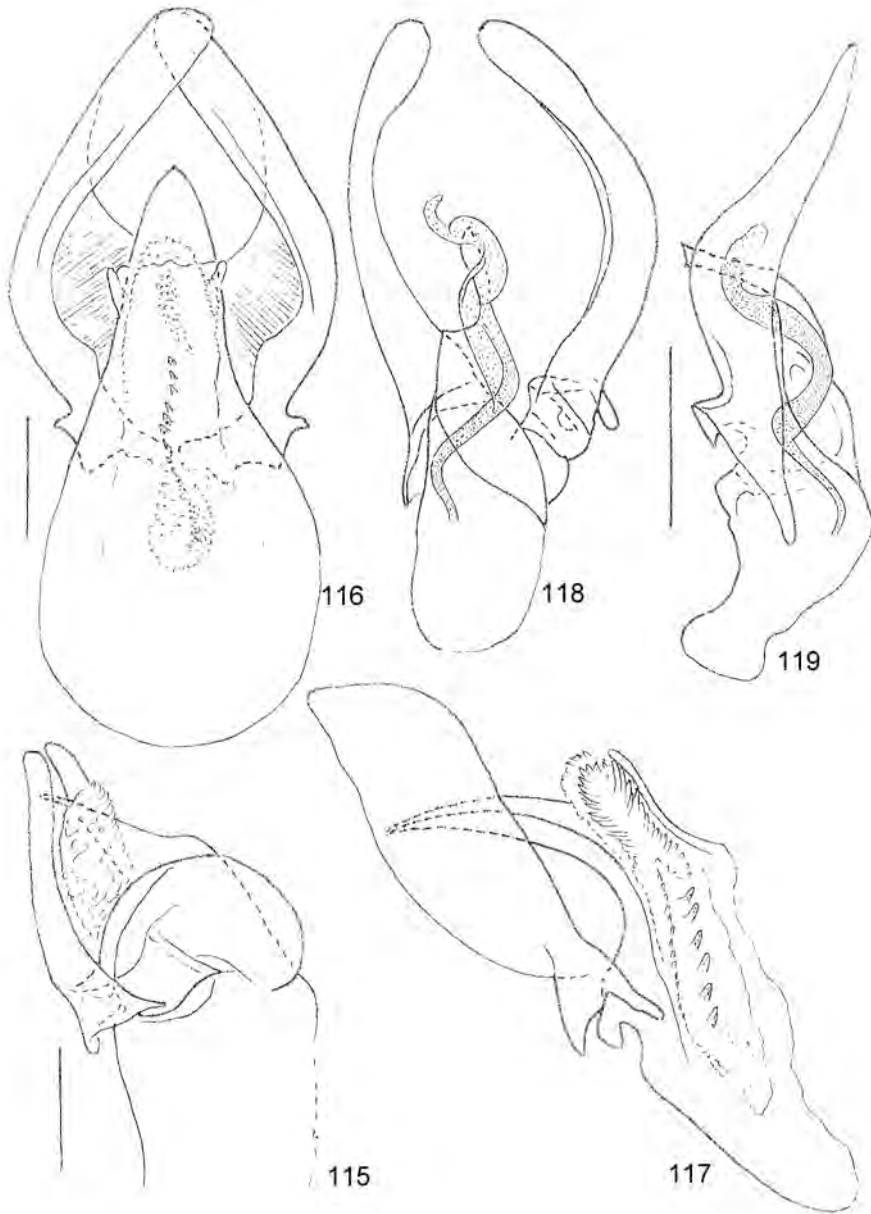


**Figs 101-107:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (101, 102), *S. nabiluanum* nov.sp., scale = 0.1 mm; (103, 104), *S. obscurum* nov.sp., scale = 0.1 mm; (105, 106), *S. sagax* nov.sp., scale 0.1 mm; (107), ditto, internal sac, scale = 0.05 mm.

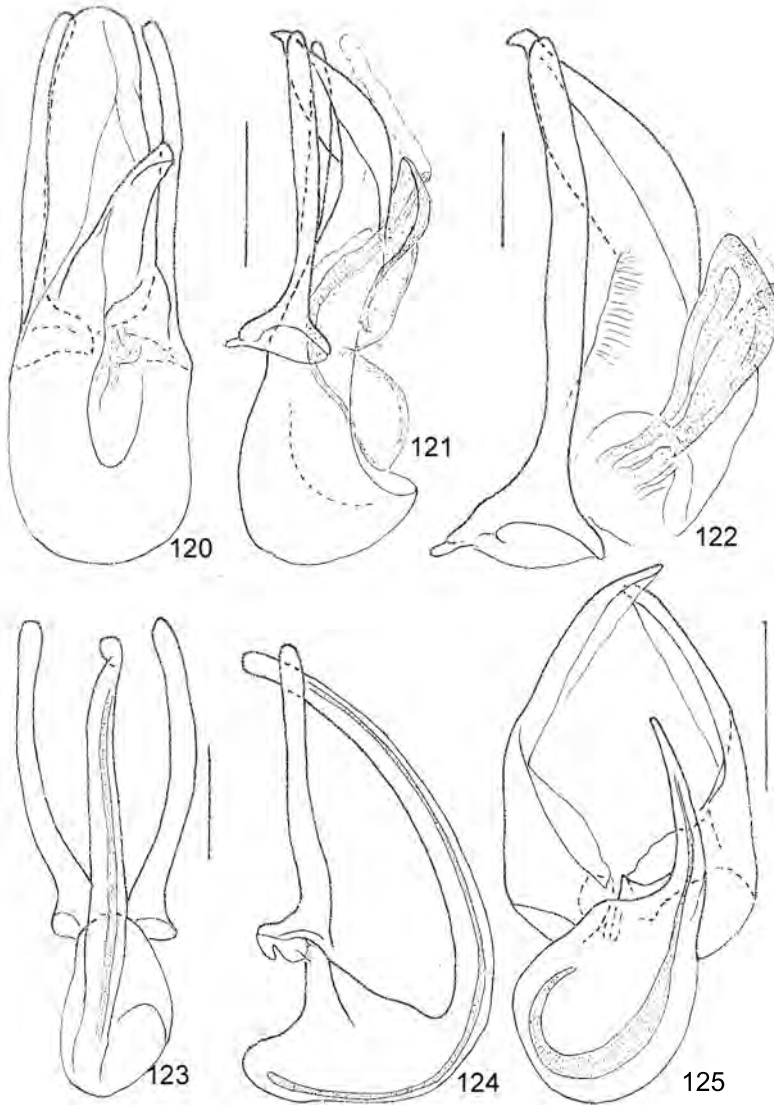


**Figs 108-114:** Aedeagi of *Scaphisoma*; (108, 109), *S. subanun* nov.sp., in dorsal and lateral views; (110, 111), *S. breviatum* nov.sp., in dorsal and lateral views; (112, 113), *S. opacum* nov.sp., in dorsal and lateral views; (114), *S. elpis* nov.sp., in dorsal view, without contours of proximal part of basal bulb. Scale = 0.1 mm.

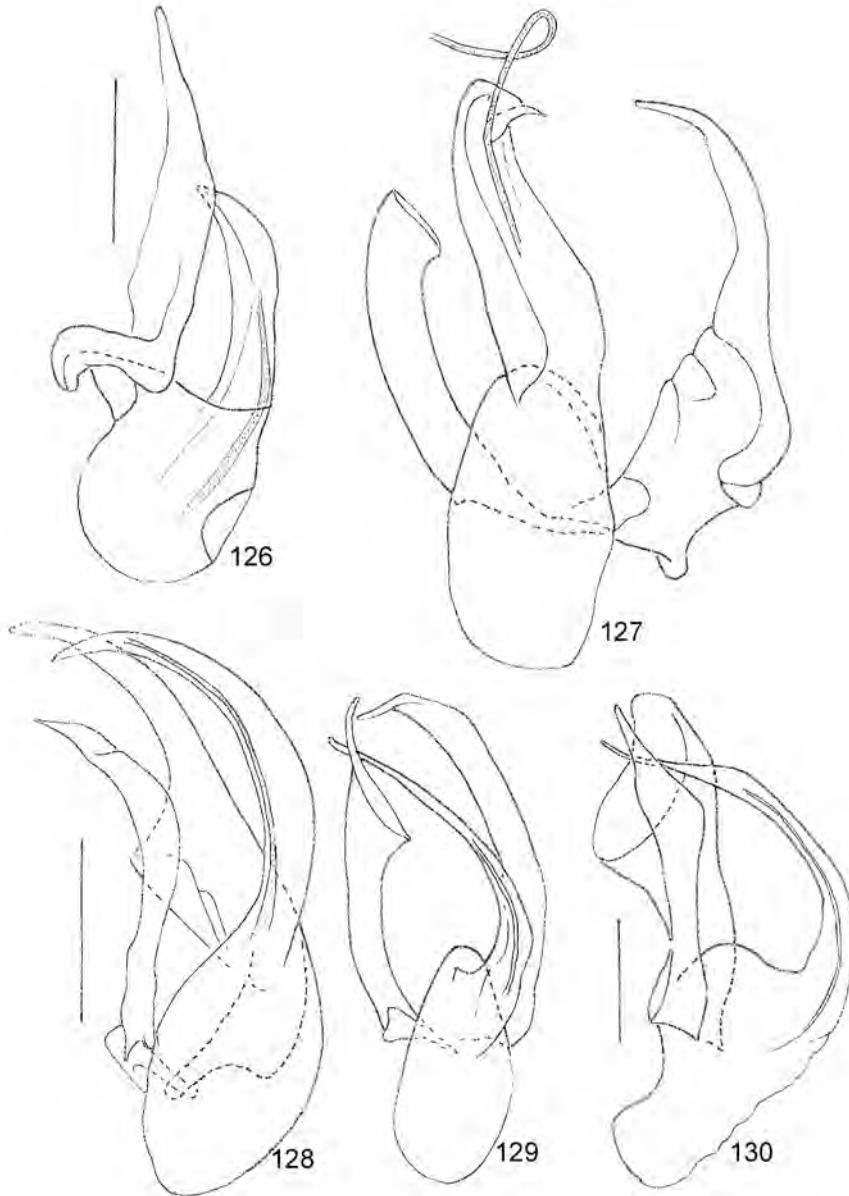




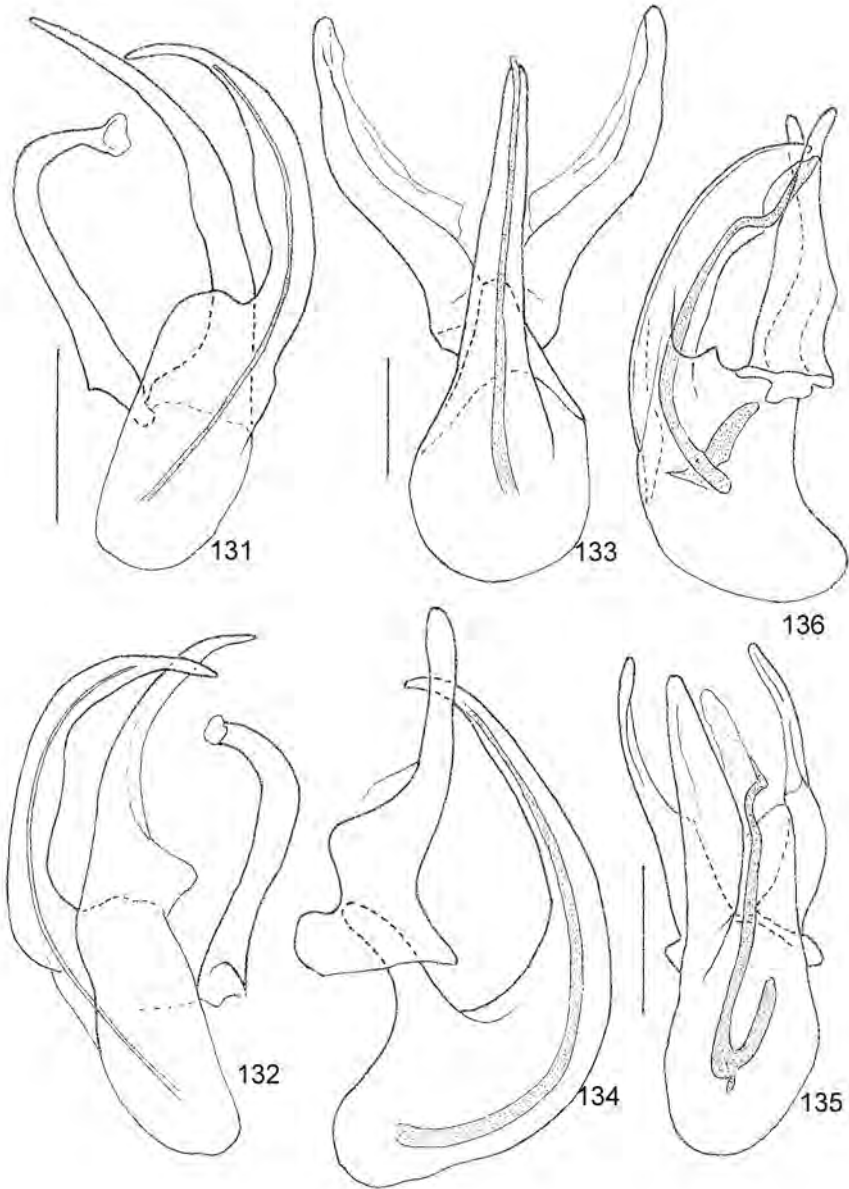
**Figs 115-119:** Aedeagi of *Scaphisoma*; (115), *S. elpis* nov.sp., lateral view, without contours of proximal part of basal bulb, scale = 0.1 mm; (116, 117), *S. alticola* nov.sp., in dorsal and lateral views, scale 0.2 mm; (118, 119), *S. bicuspidatum* nov.sp., in dorsal and lateral views, scale 0.2 mm.



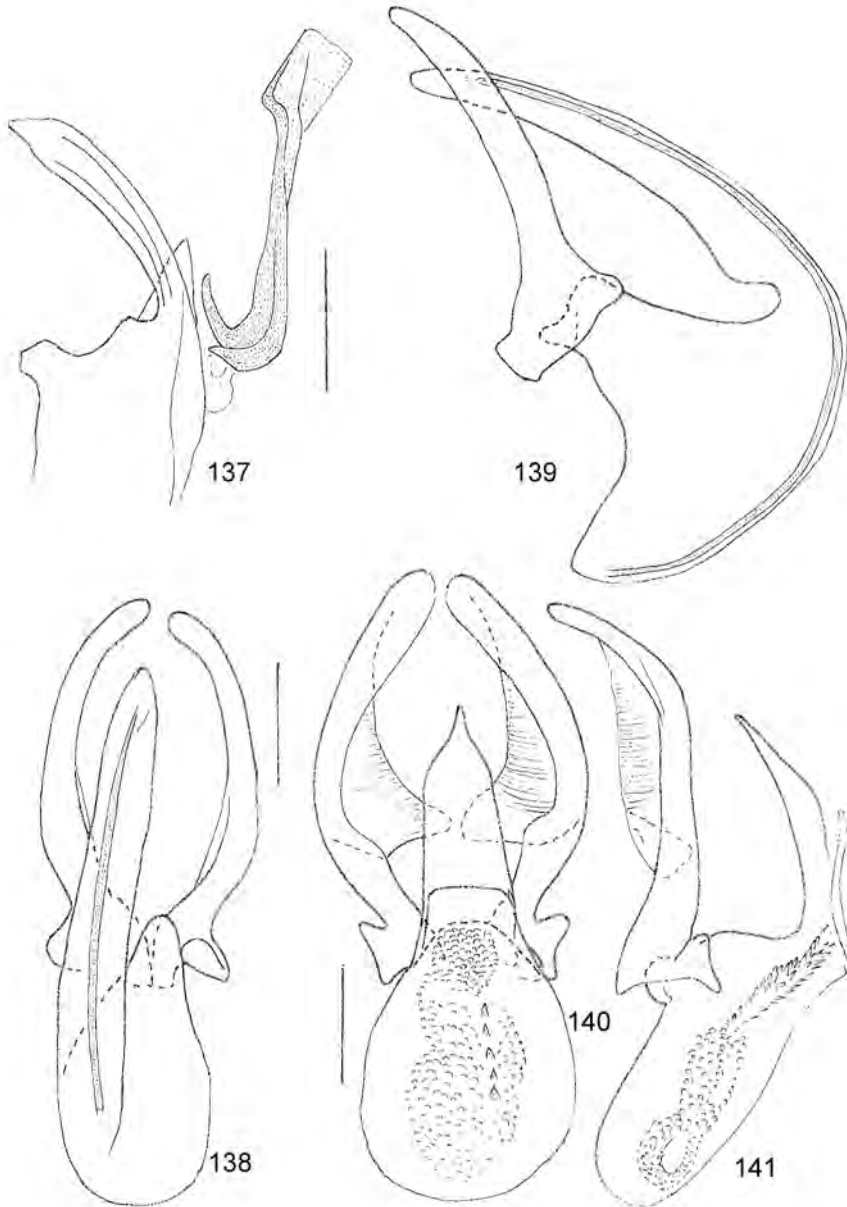
**Figs 120-125:** Aedeagi of *Scaphisoma*; (**120, 121**), *S. scurrile* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**122**), ditto, apical process and paramere in lateral view, scale = 0.1 mm; (**123, 124**), *S. centripunctulum* nov.sp., in dorsal and lateral views, scale = 0,1 mm; (**125**), *S. inconventum* nov.sp., in dorsal view, oblique, scale = 0.1 mm.



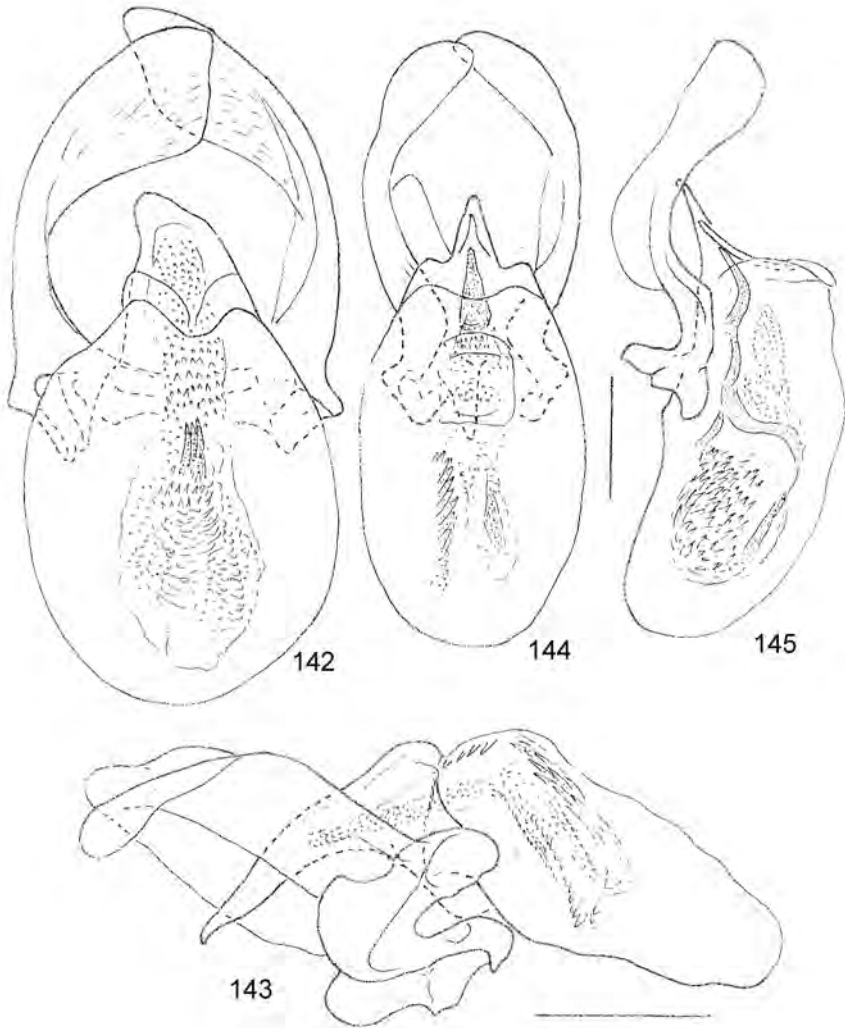
**Figs 126-130:** Aedeagi of *Scaphisoma*; (126), *S. inconvetum* nov.sp., in lateral view; (127, 128), *S. inopportunum* nov.sp., in dorsal and lateral views; (129, 130) *S. oviforme* nov.sp., in dorsal and lateral views. Scale = 0.1 mm.



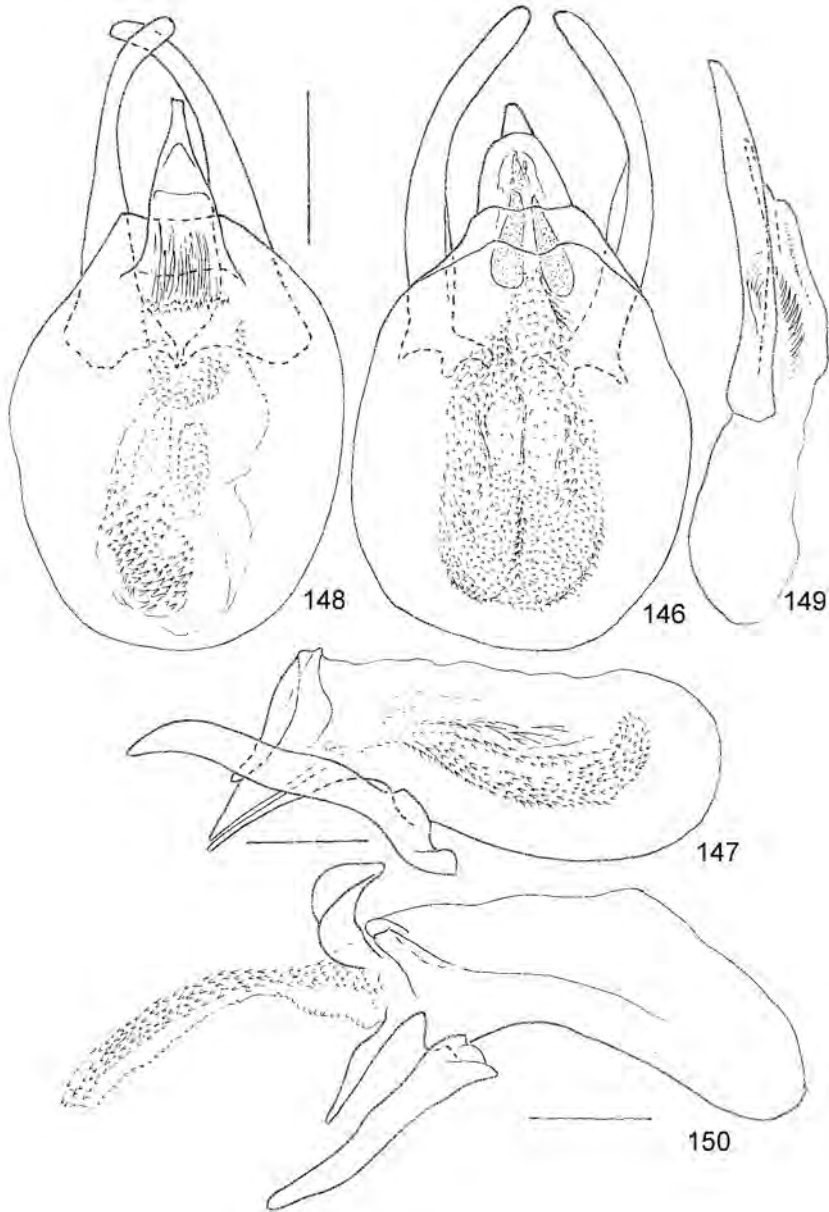
**Figs 131-136:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (131, 132), *S. palawanum* PIC; (133, 134), *S. pandanum* nov.sp.; (135, 136), *S. scapulare* nov.sp. Scale = 0.1 mm.



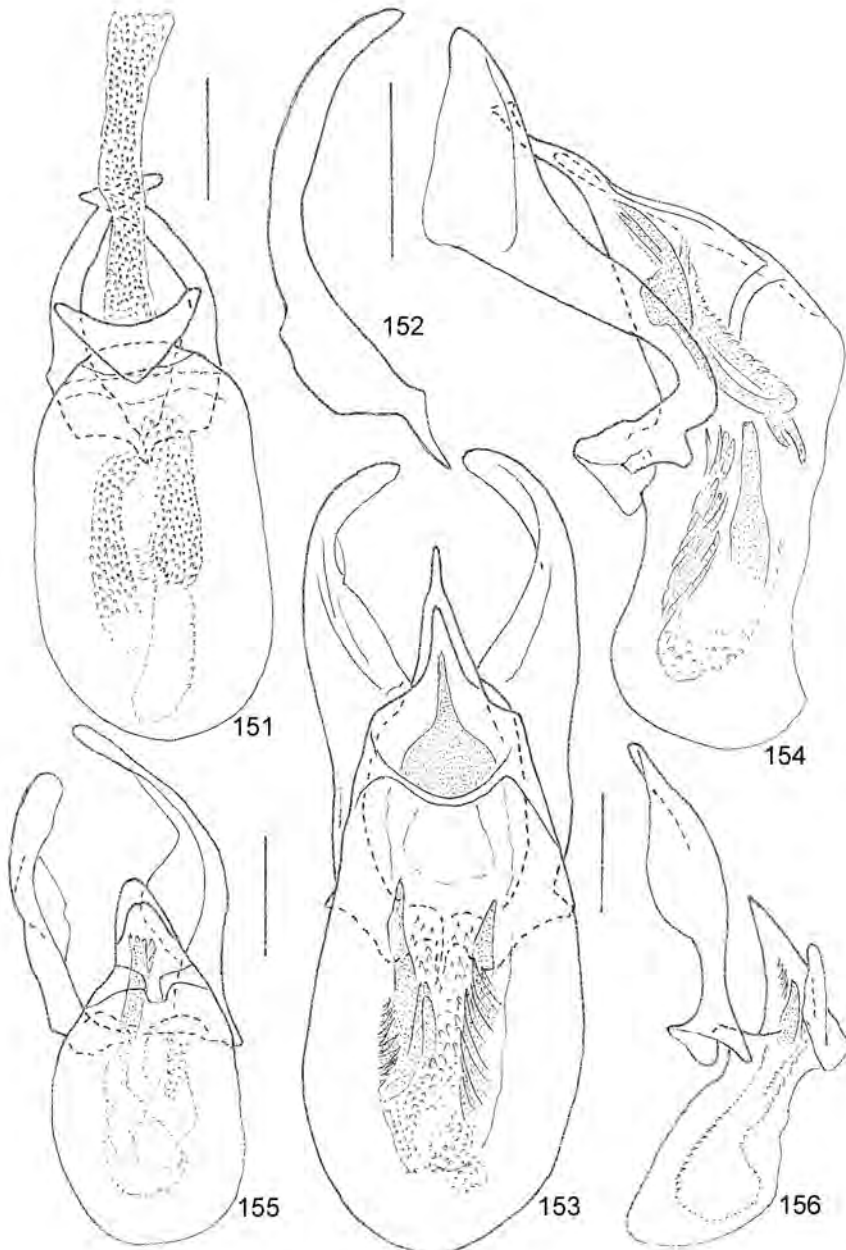
**Figs 137-141:** Aedeagi of *Scaphisoma*; (137), *S. scapulare* nov.sp., apical part of median lobe with extruded internal sac, scale = 0.1 mm; (138, 139), *S. tagalog* nov.sp., aedeagus in dorsal and lateral views, scale = 0.1 mm; (140, 141), *S. angulosum* nov.sp., aedeagus in dorsal and lateral views, scale = 0.2 mm



**Figs 142-145:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (**142, 143**), *S. bicoloripenne* nov.sp., scale = 0.2 mm; (**144, 145**) *S. biplagiatum* HELLER, scale = 0.1 mm.

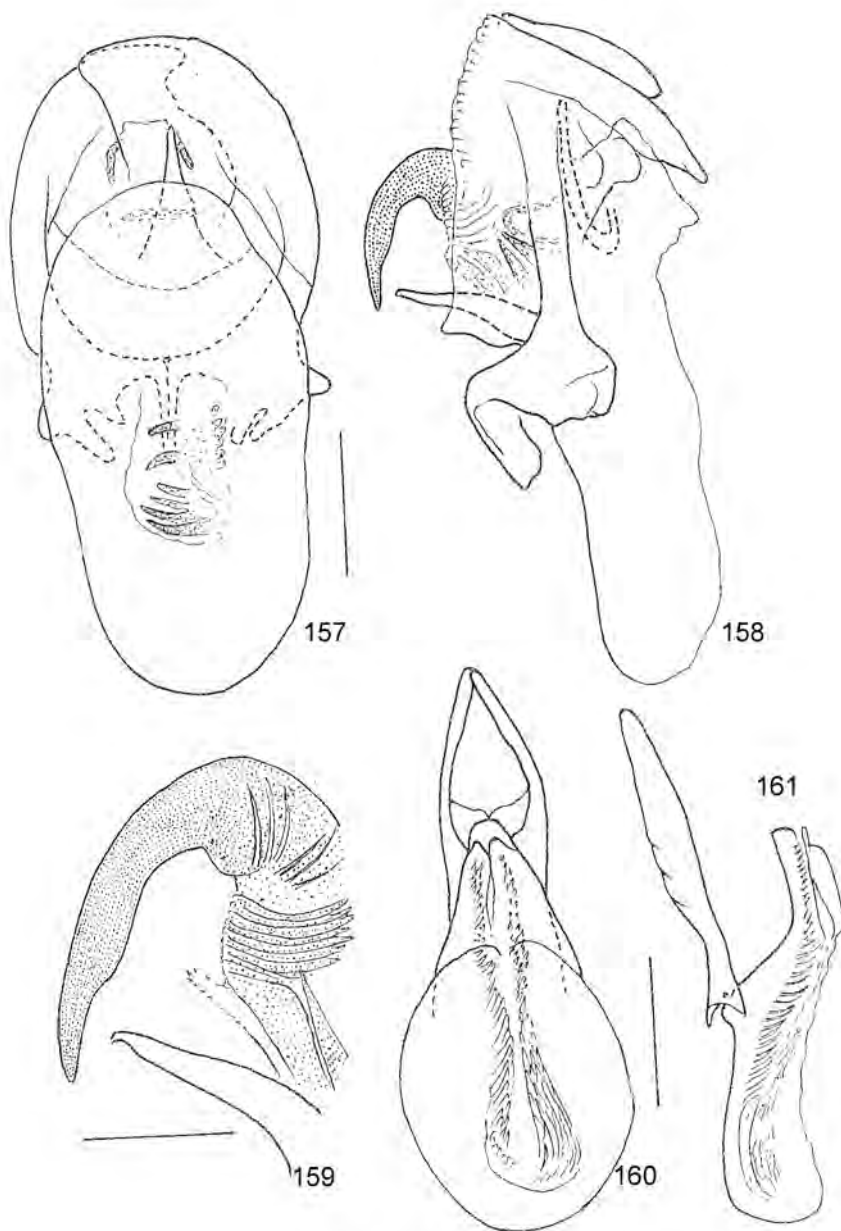


**Figs 146-150:** Aedeagi of *Scaphisoma*; (**146, 147**), *Scaphisoma cuyunon* nov.sp., in dorsal and lateral views, scale = 0.1 mm; (**148, 149**), *S. hexameroides* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**150**), *S. iridescens* nov.sp., in lateral view, scale = 0.2 mm.

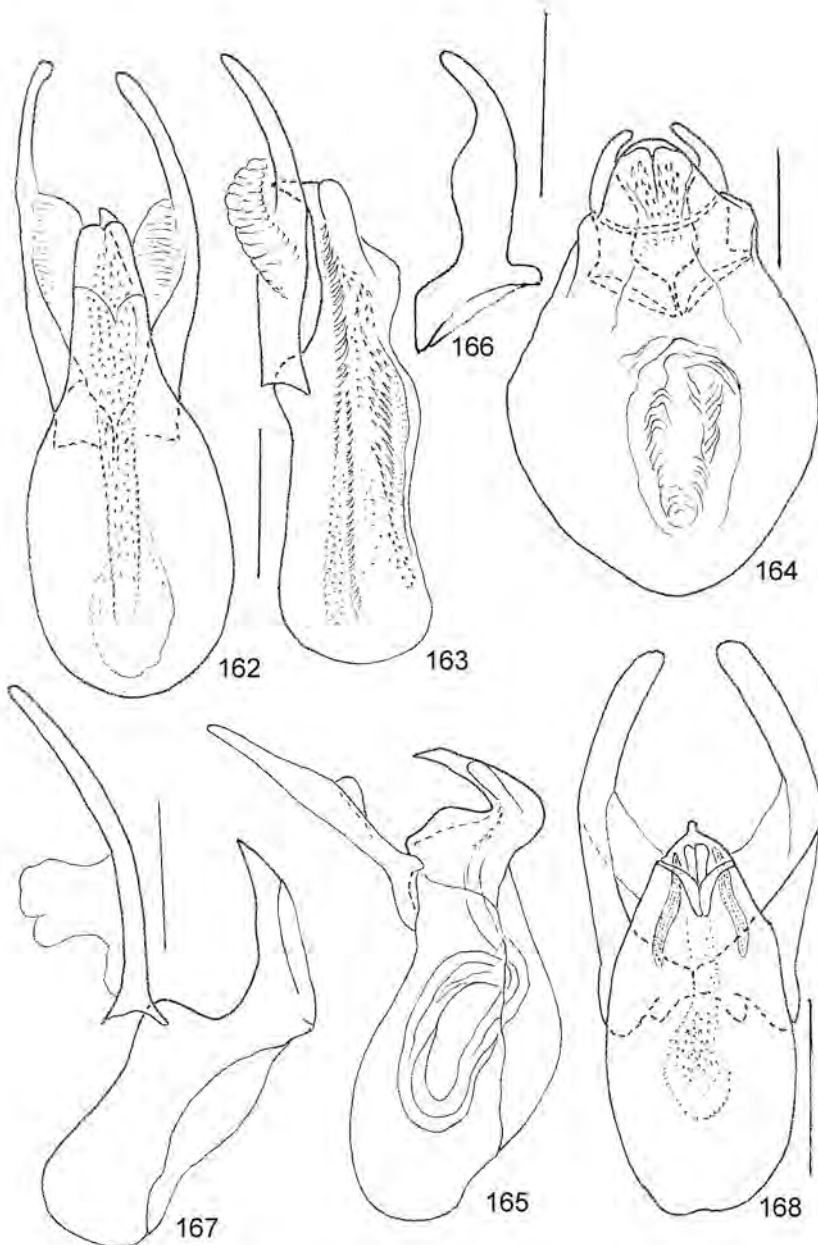


**Figs 151-156:** Aedeagi of *Scaphisoma*; **(151)**, *S. iridescens* nov.sp., aedeagus in dorsal view, internal sac extruded; **(152)**, ditto, paramere in dorsal view, scale = 0.2 mm; **(153, 154)**, *S. werneri* nov.sp., aedeagus in dorsal and lateral views, scale = 0.2 mm; **(155, 156)**, *S. dissymmetricum* nov.sp., aedeagus in dorsal and lateral views, scale = 0.1 mm.

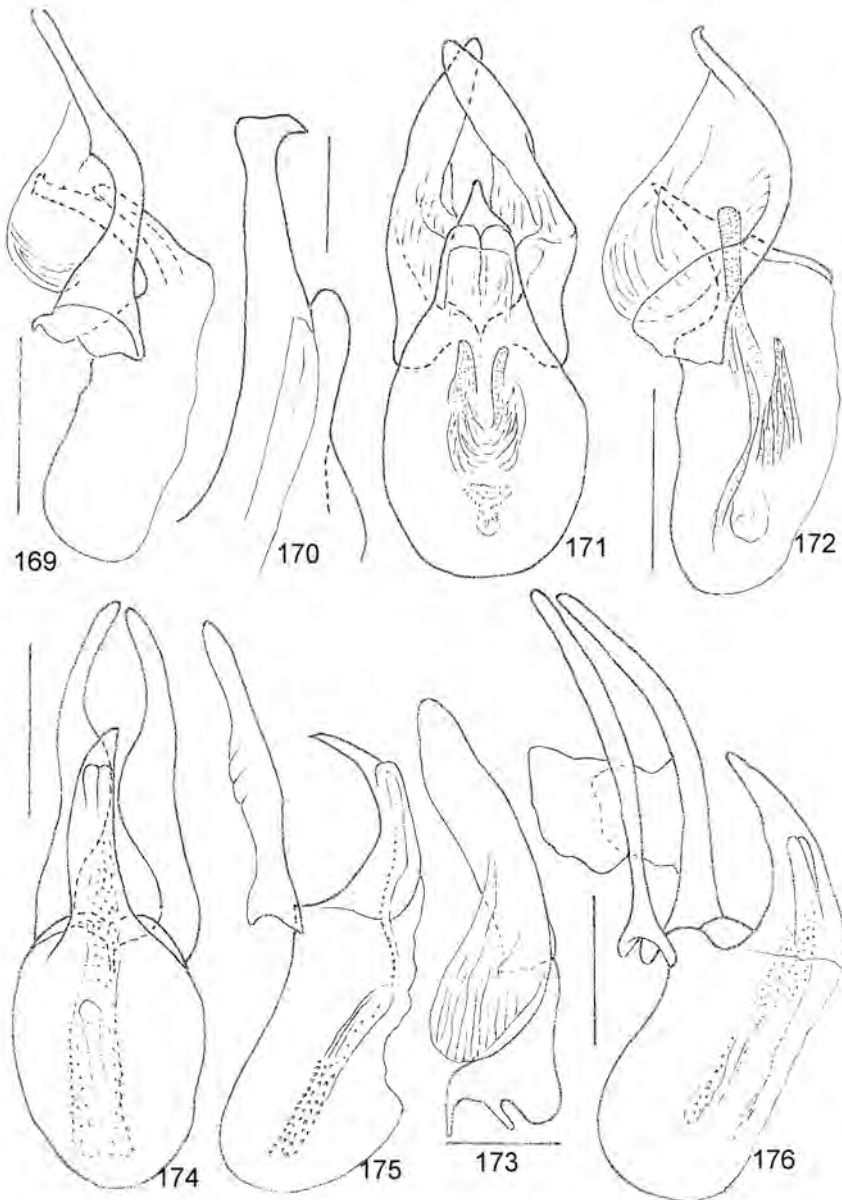




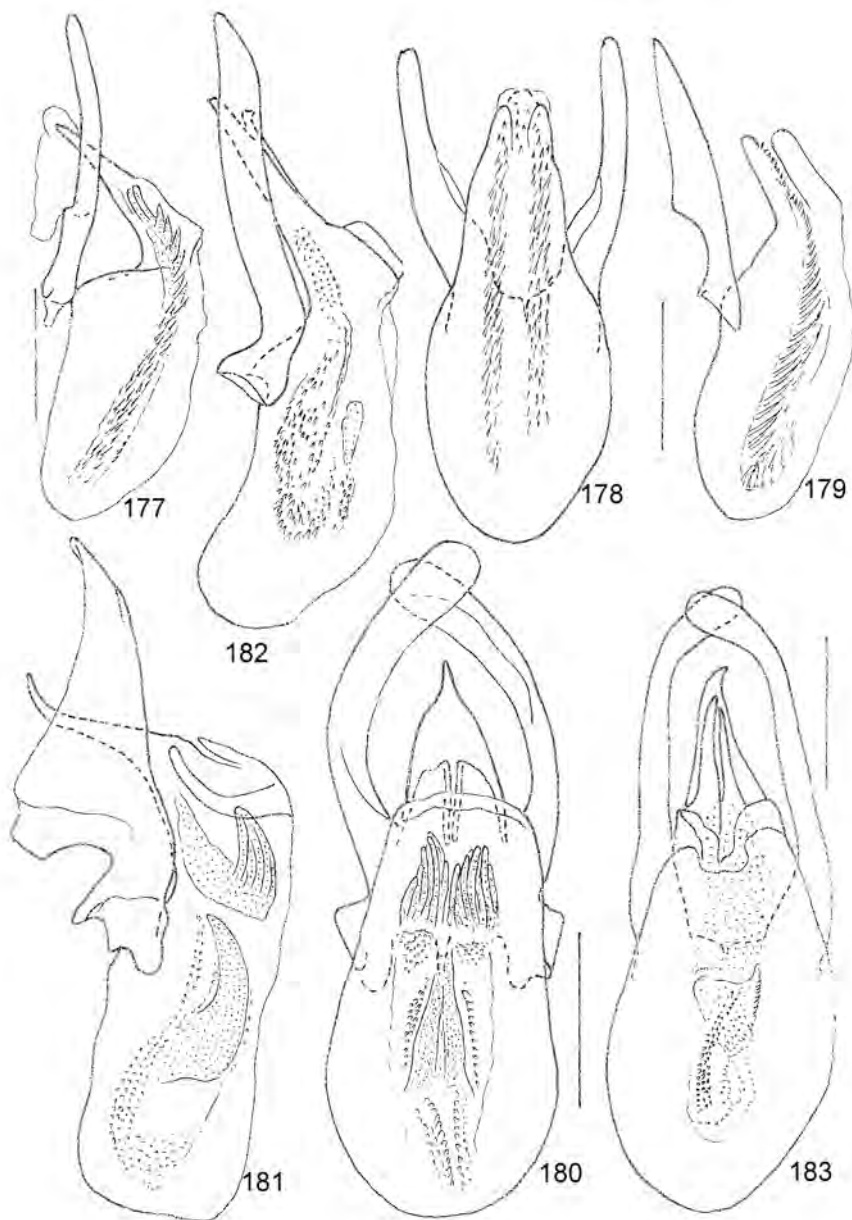
**Figs 157-161:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (**157-159**), *S. hamatum* nov.sp., internal sac extruded, scale = 0.2 mm; (**159**), ditto, apical part of median lobe with internal sac, scale = 0.1 mm; (**160, 161**), *S. banguiense* LÖBL, scale = 0.1 mm.



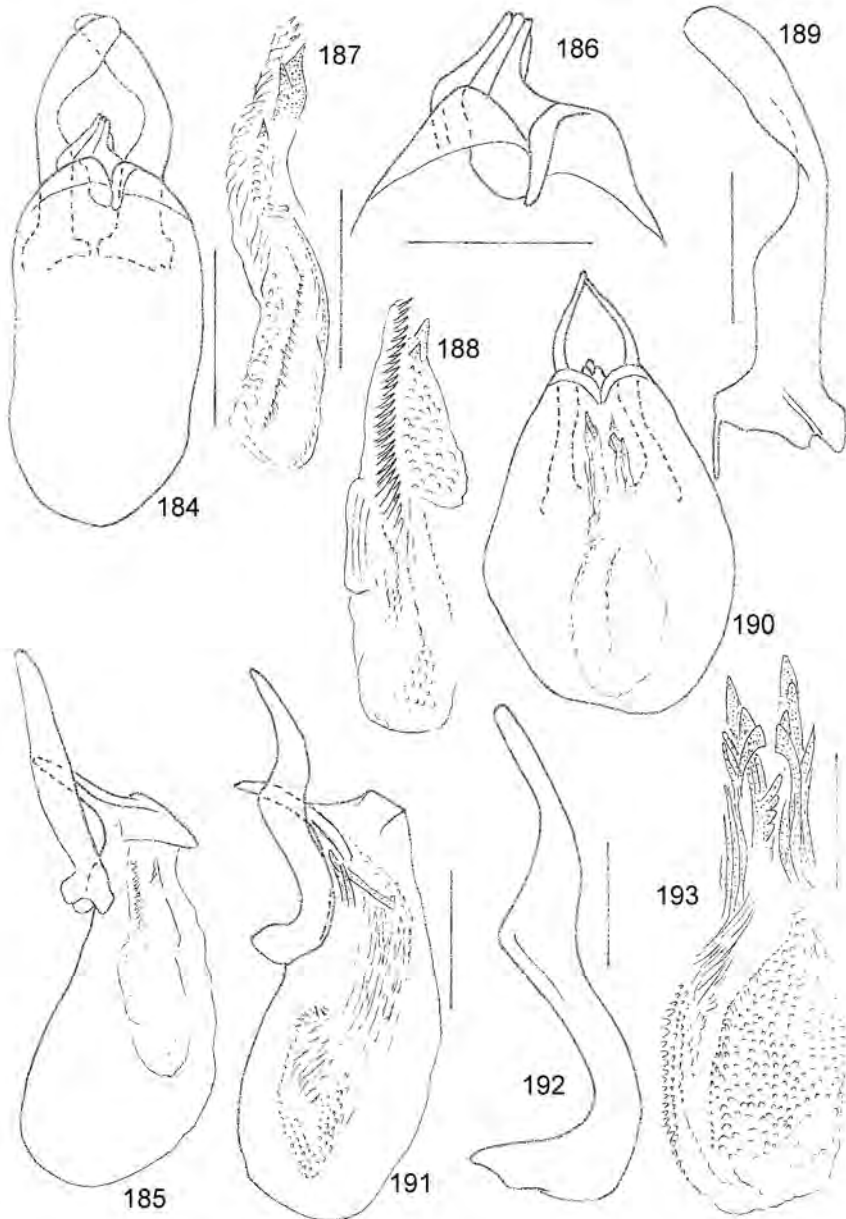
**Figs 162-168:** Aedeagi of *Scaphisoma*; (162, 163), *S. inexpectatum* nov.sp., in dorsal and lateral views, scale = 0.1 mm; (164, 165), *S. inflexum* nov.sp., in dorsal and lateral views, scale = 0.1 mm; (166), ditto, parameres in ventral view, scale = 0.1 mm; (167), *S. luteopygidiale* (PIC), in lateral view, scale = 0.1 mm; (168), *S. ochropenne* nov.sp., in dorsal view, scale = 0.2 mm.



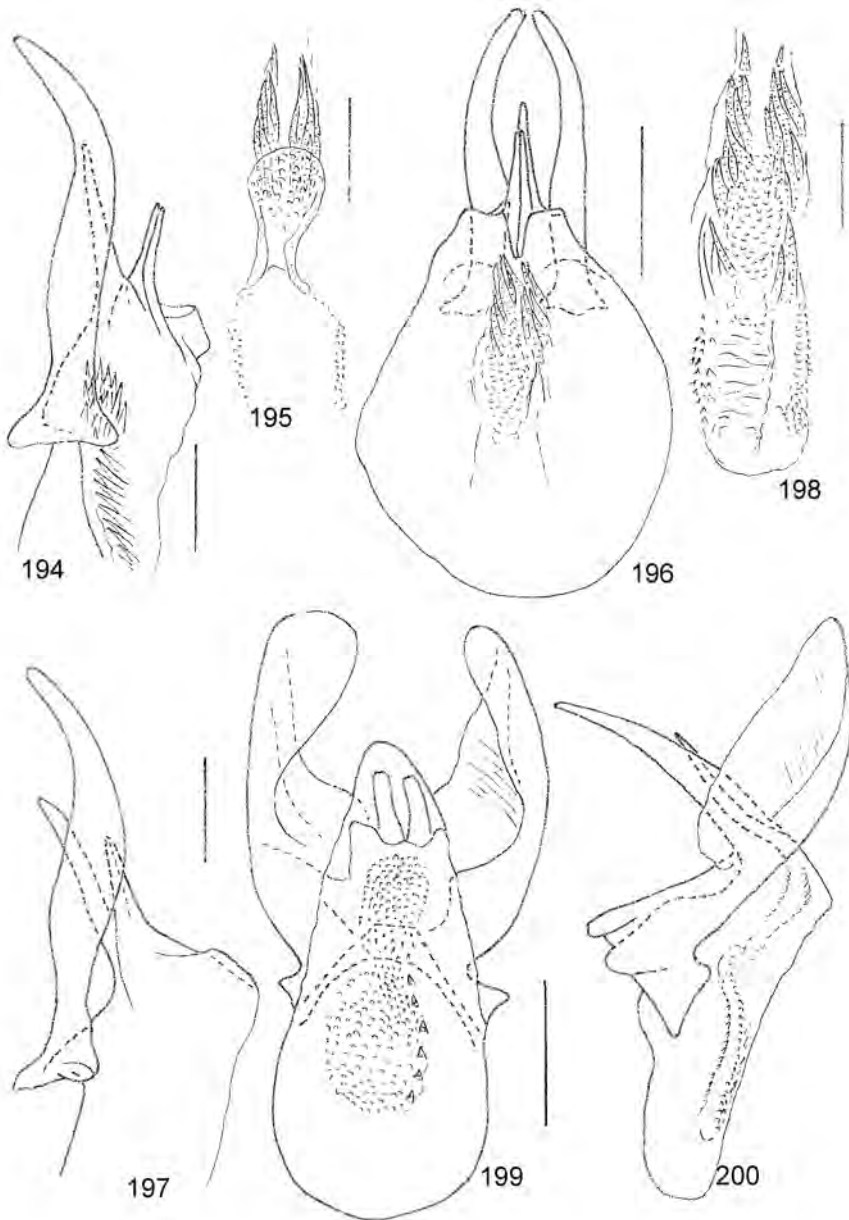
**Figs 169-176:** Aedeagi of *Scaphisoma*; **(169)**, *S. ochropenne* nov.sp., in lateral view, scale = 0.2 mm; **(170)**, ditto, apical process of median lobe, lateral view, scale = 0.05 mm; **(171, 172)**, *S. pseudokalabutum* nov.sp., in dorsal and lateral views, scale 0.1 mm; **(173)**, paramere in ventral view, scale = 0.1 mm; **(174, 175)**, *S. sinuatum* nov.sp., in dorsal and lateral views, scale 0.1 mm; **(176)**, *S. stigmatipenne* HELLER, in lateral view, scale = 0.1 mm.



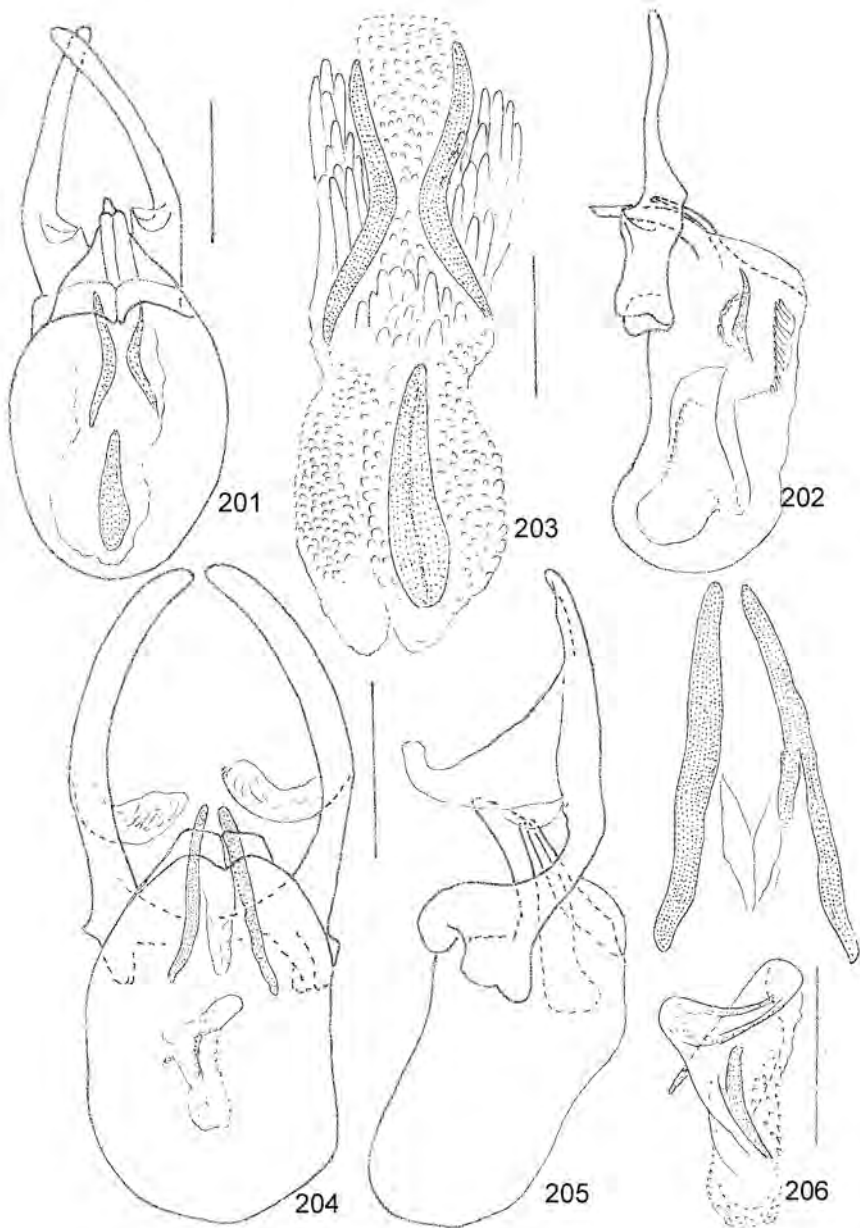
**Figs 177-183:** Aedeagi of *Scaphisoma*; (177), *S. surigaosum* (PIC), in lateral view, scale 0.2 mm; (178, 179), *S. transversale* nov.sp., in dorsal and lateral views, scale = 0.1 mm; (180, 181), *S. acutululum* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (182, 183), *S. apomontanum* nov.sp., in dorsal and lateral views, scale = 0.2 mm.



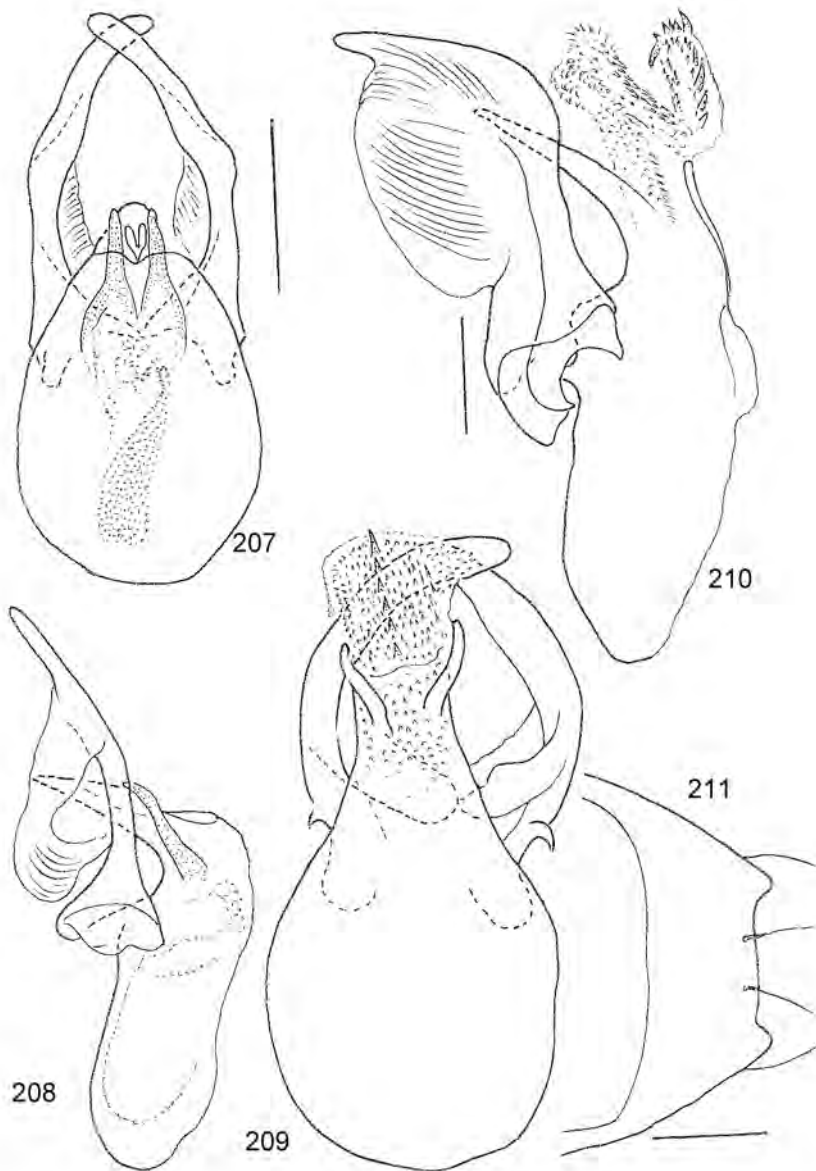
**Figs 184-193:** Aedeagi of *Scaphisoma*; (**184, 185**), *S. conflictum* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**186**), ditto, apical part of median lobe, in dorsal view, scale = 0.1 mm; (**187, 188**), ditto, internal sac in dorsal and ventral views, scale = 0.1 mm; (**189**), ditto, paramere in ventral view, scale = 0,1 mm; (**190, 191**), *S. confusum* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (**192**), ditto, parameres in lateral view, scale 0,1 mm; (**193**), ditto, internal sac in dorsal view, scale = 0.1 mm.



**Figs 194-200:** Aedeagi of *Scaphisoma*; **(193)**, *S. dispar* LÖBL, in lateral view, without proximal part of basal bulb, scale = 0.05 mm; **(195)**, ditto, internal sac in dorsal view, scale = 0.05 mm; **(196)**, *S. disparides* nov.sp., in dorsal view, scale = 0.1 mm; **(197)**, ditto, in lateral view, without proximal part of basal bulb, scale = 0.05 mm; **(198)**, ditto, internal sac in dorsal view, scale = 0.05 mm; **(199, 200)**, *S. distinctum* nov.sp., in dorsal and lateral views, scale = 0.2 mm.

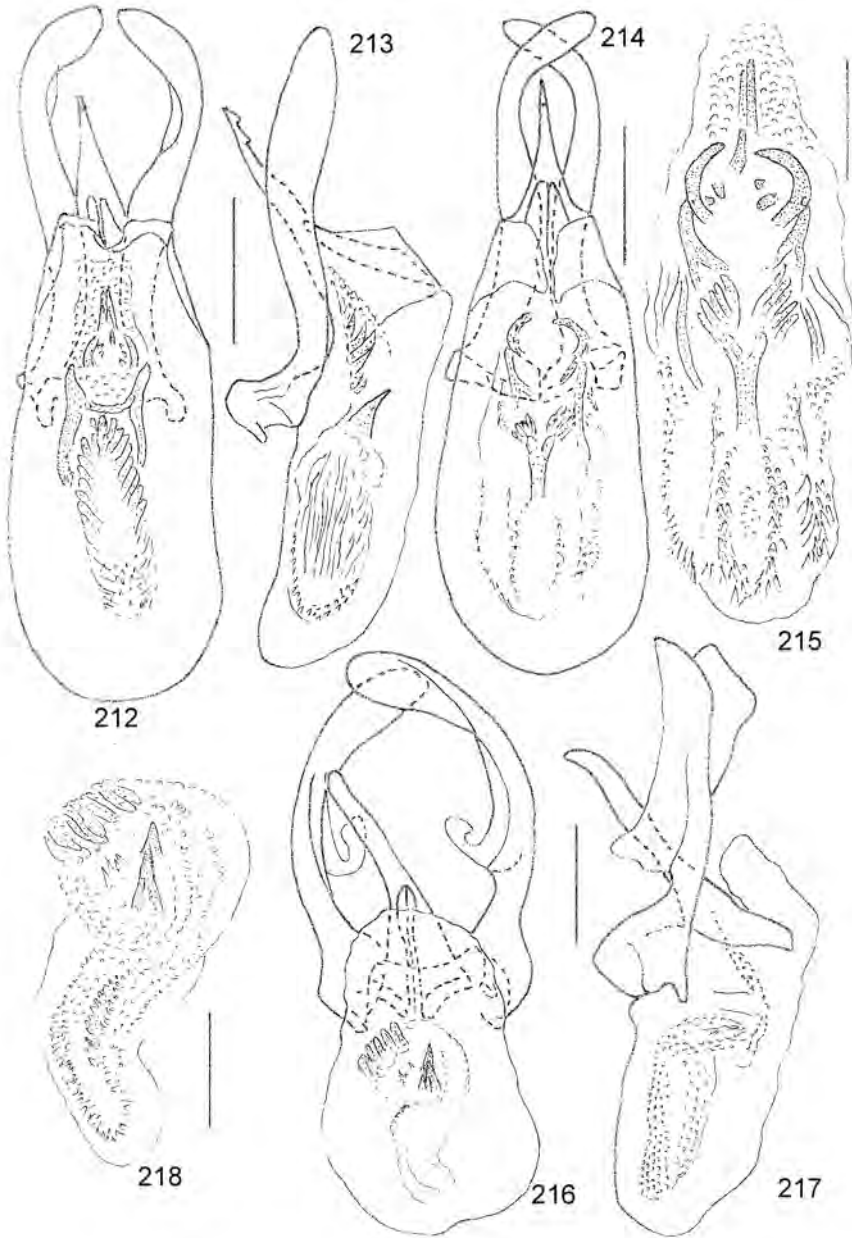


**Figs 201-206:** Aedeagi of *Scaphisoma*; (201, 202), *S. furcatum* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (203), ditto, internal sac, scale = 0.1 mm; (204, 205), *S. furcigerum* nov.sp., in dorsal and lateral views, scale = 0.2 mm; (206), ditto, internal sac, scale = 0.2 mm.

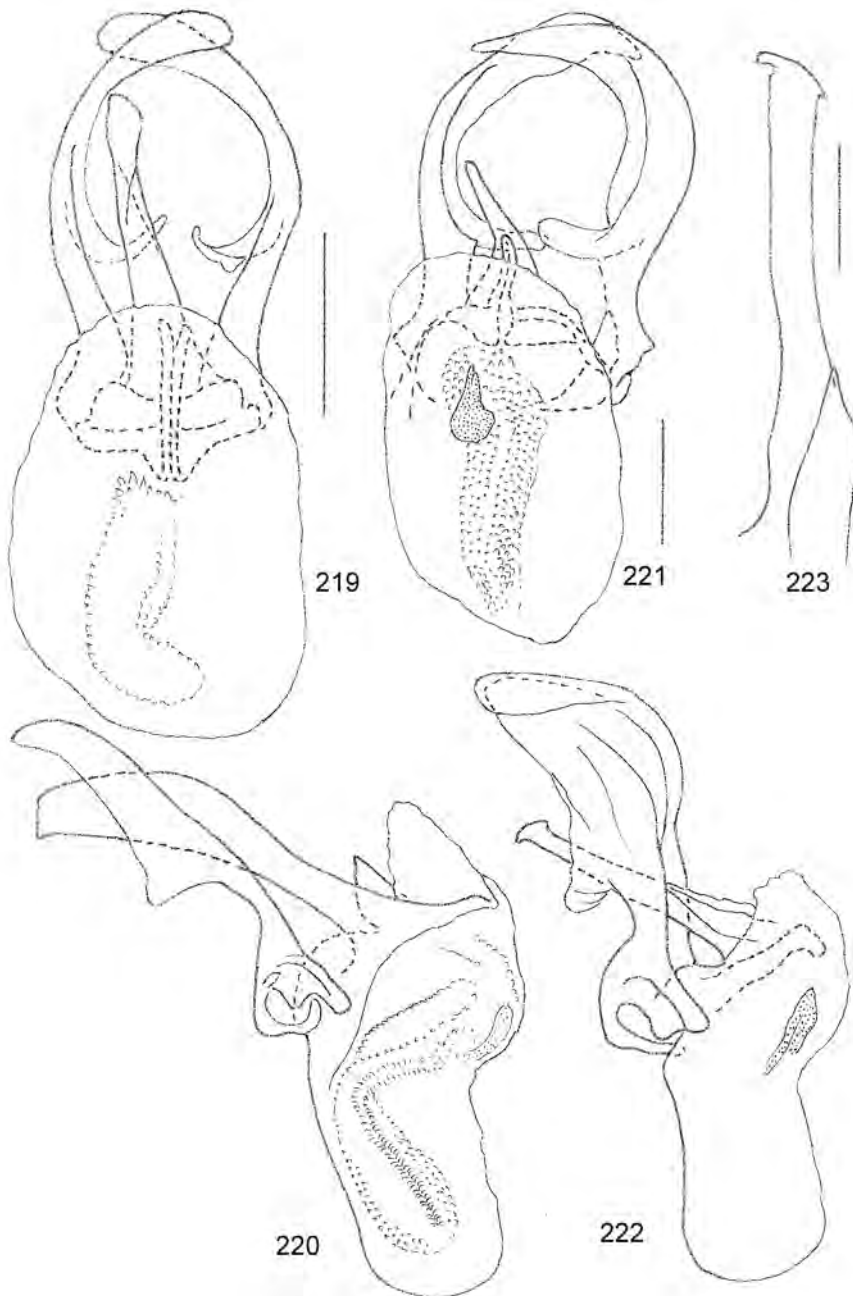


**Figs 207-211:** *Scaphisoma*; (207, 208); *S. furcillatum* nov.sp. aedeagus in dorsal and lateral views, scale = 0.2 mm; (209, 210), *S. glabrellum* nov.sp., aedeagus in dorsal and lateral views, internal sac extruded, scale = 0.2 mm; (211), ditto, apical part of male sternite 6, scale = 0,2 mm.

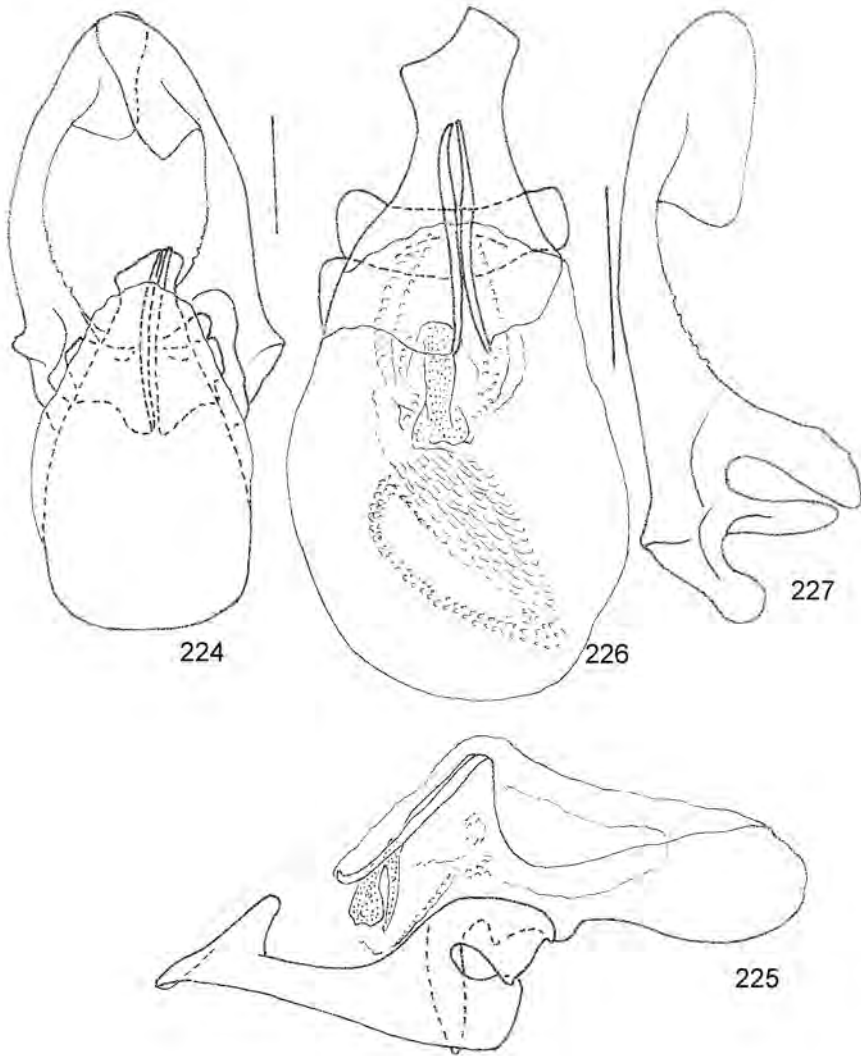




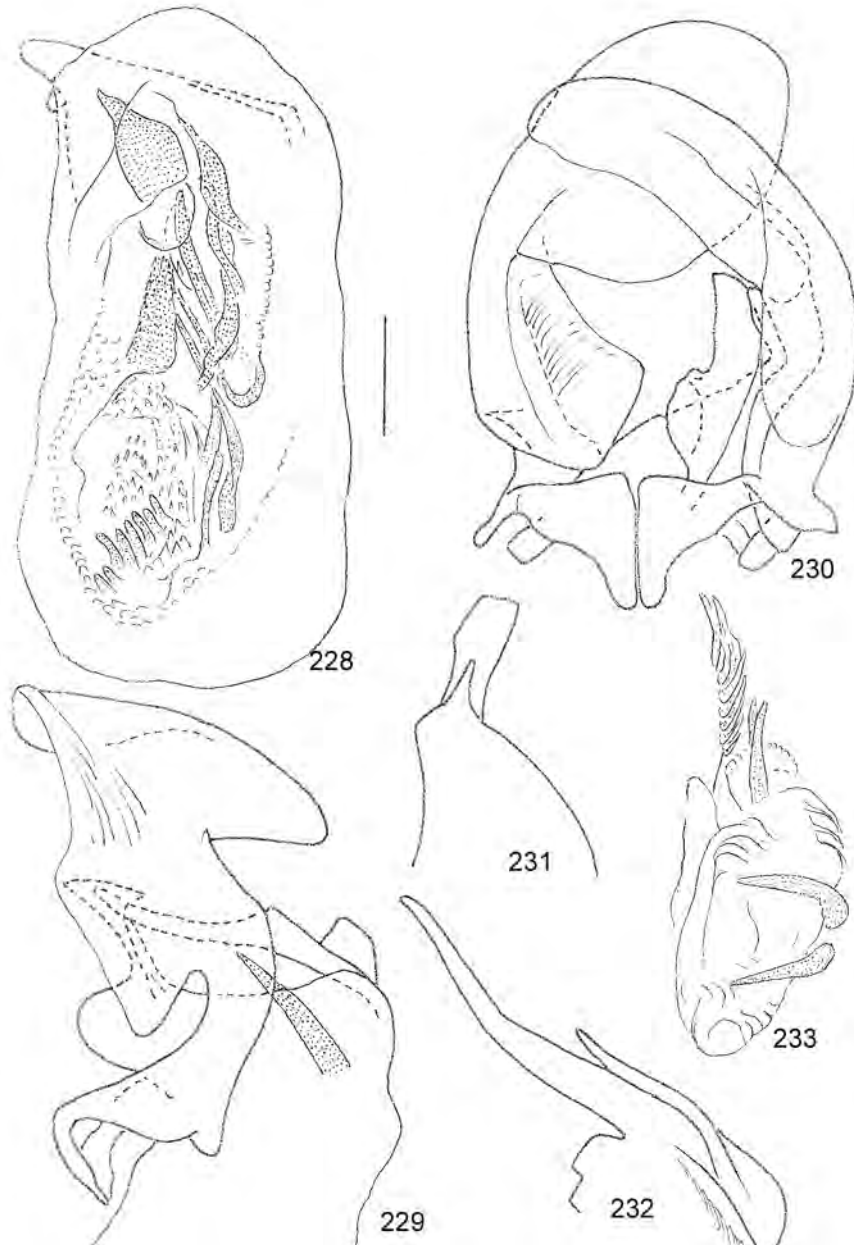
**Figs 212-218:** Aedeagi of *Scaphisoma*; (212, 213); *S. jankodadai* nov.sp., in dorsal and lateral views, scale 0.2 mm; (214), *S. luzonicum* PIC, in dorsal view, scale = 0.2 mm; (215), ditto, internal sac, scale = 0.1 mm; (216, 217), *S. bilobum* nov.sp., in dorsal and lateral views, scale 0.2 mm; (218), ditto, internal sac, scale = 0.1 mm.



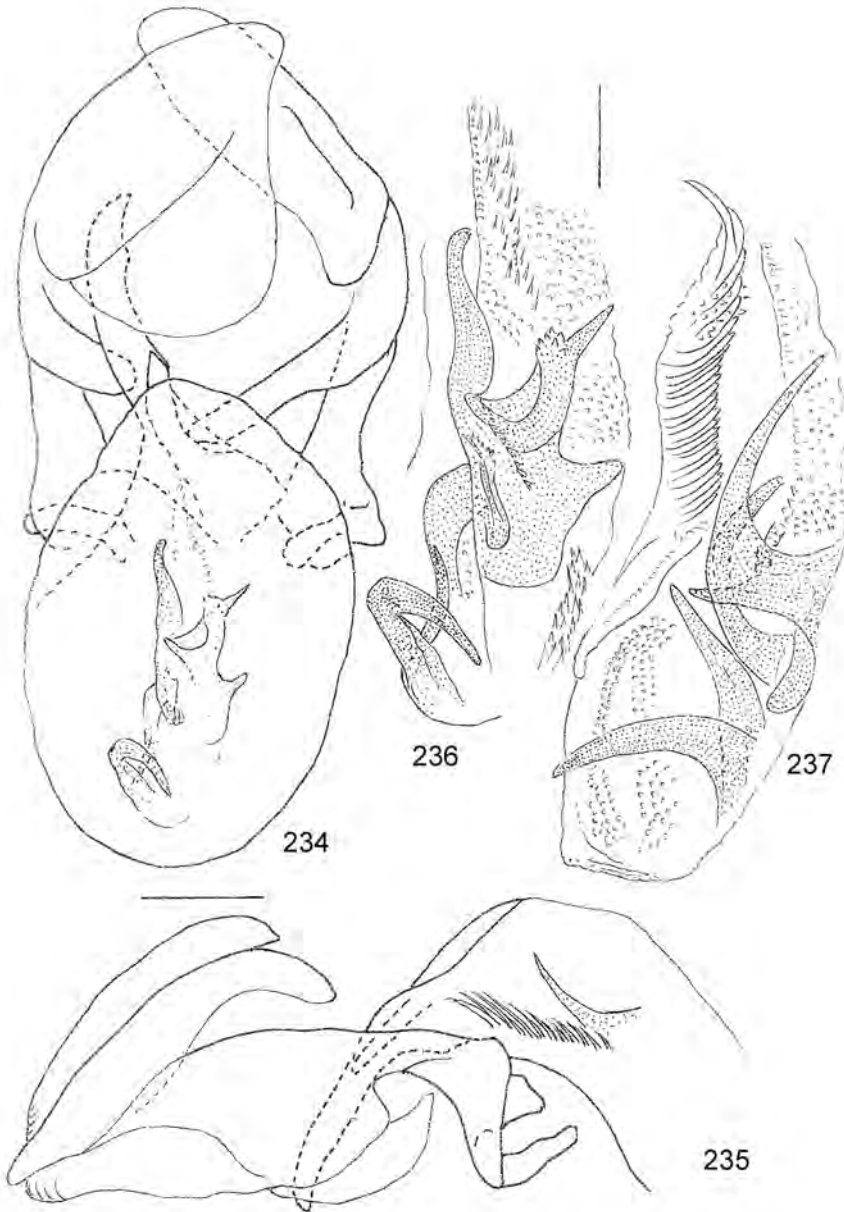
**Figs 219-223:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (219, 220), *S. duplex* nov.sp., scale = 0.2 mm; (221, 222), *S. nishikawai* nov.sp., scale = 0.2 mm; (223), ditto, apical process of median lobe in lateral view, scale = 0.1 mm.



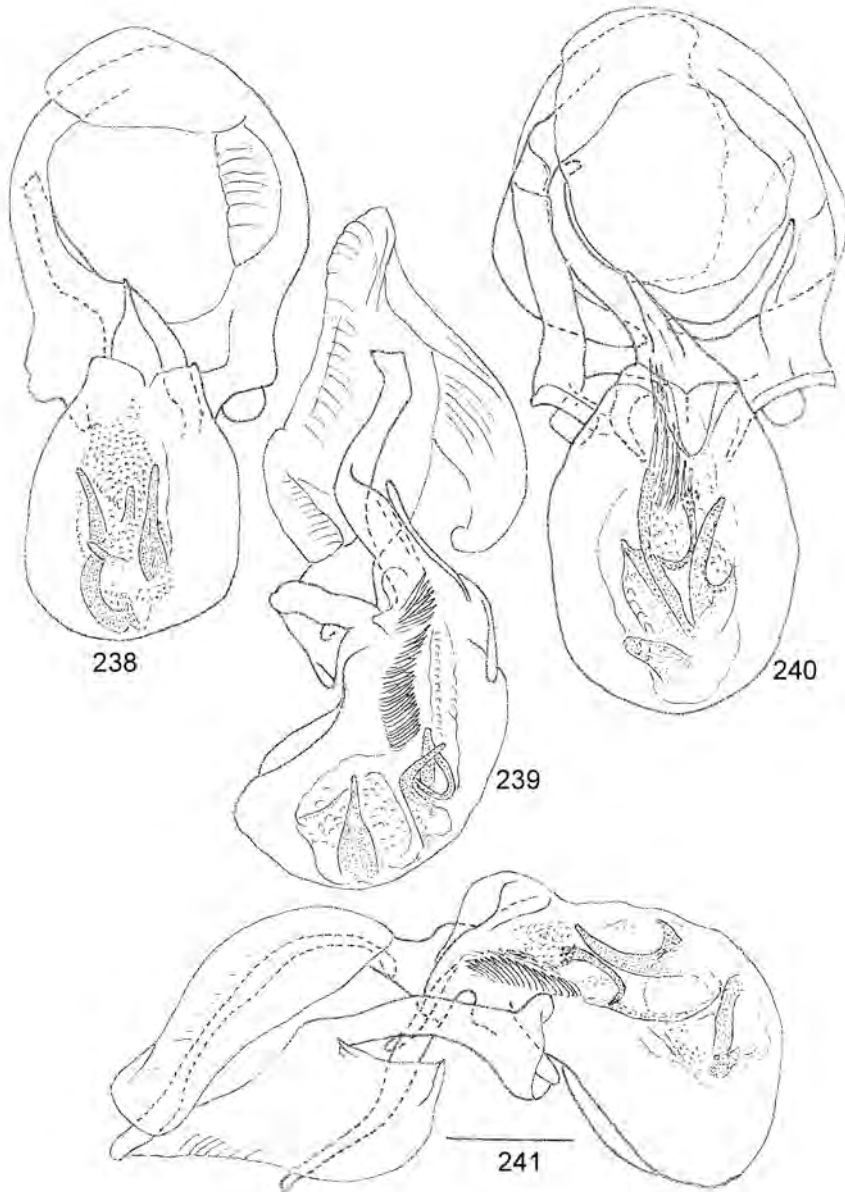
**Figs 224-227:** Aedeagus of *Scaphisoma spatuloides* nov.sp.; (224, 225), in dorsal and lateral views; (226), median lobe, without expanded dorsal side of basal bulb; (227), paramere in lateral view. Scale = 0.2 mm



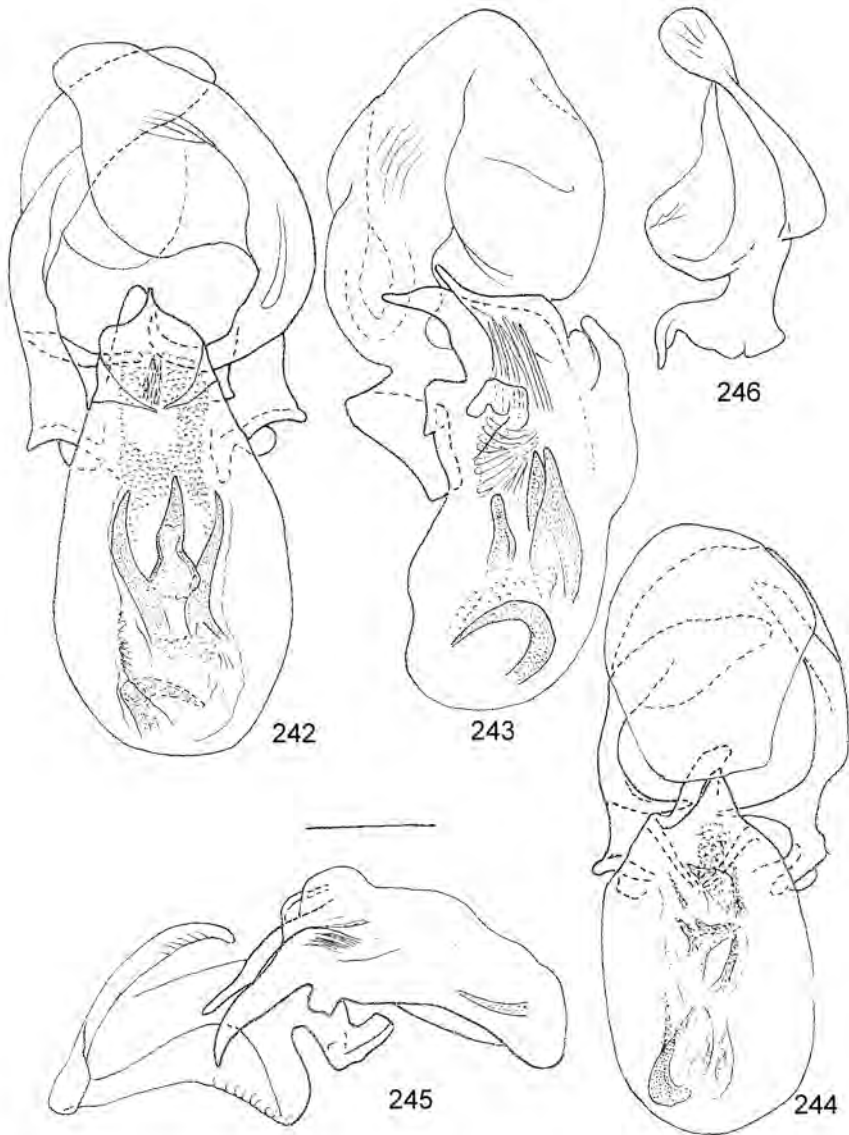
**Figs 228-233:** Aedeagi of *Scaphisoma*; (228); *S. pulchrum* nov.sp., median lobe in dorsal view; (229), ditto, aedeagus in lateral view, without proximal part of basal bulb; (230), ditto, parameres in ventral view; (231, 232), *S. signaticolle* nov.sp., apical process of median lobe in dorsal and lateral views; (233), internal sac. Scale = 0.2 mm.



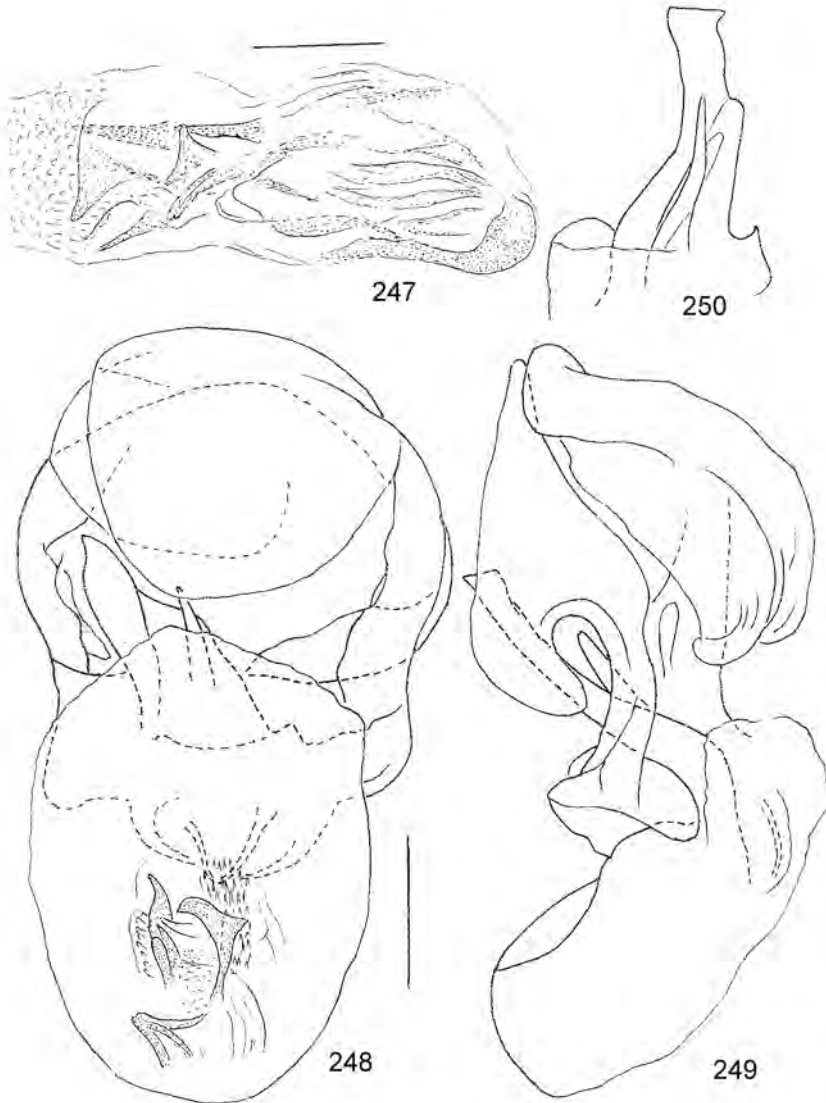
**Figs 234-237:** Aedeagus of *Scaphisoma tricolor* HELLER; (234), in dorsal view; (235), in lateral view, without proximal part of basal bulb, scale = 0.2 mm; (236, 237), internal sac in dorsal and lateral views, scale = 0.1 mm.



**Figs 238-241:** Aedeagi of *Scaphisoma* in dorsal and lateral views; (238, 239), *S. tricoloratum* nov.sp., in lateral view, without right paramere; (240, 241), *S. tricolorinotum* nov.sp. Scale = 0.3 mm.

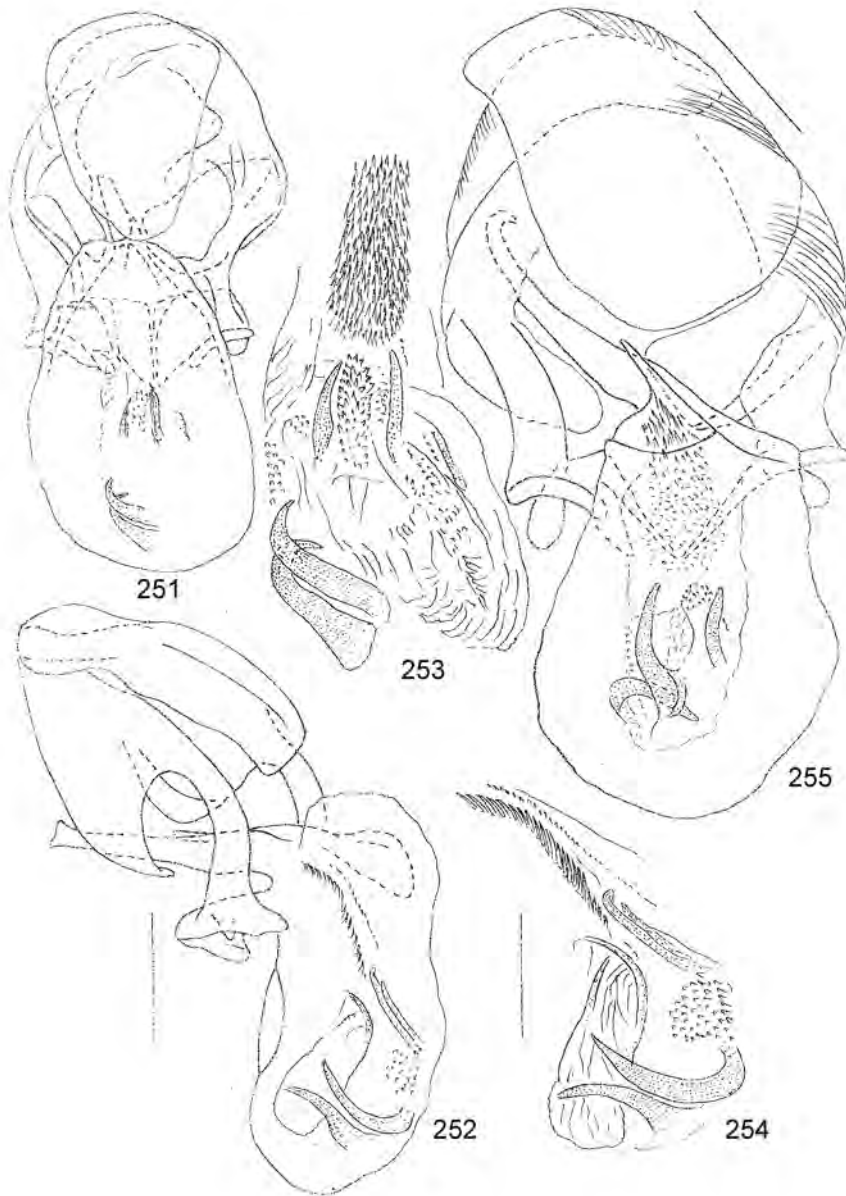


**Figs 242-246:** Aedeagi of *Scaphisoma* in dorsal and lateral views, in lateral view without right paramere; (242, 243), *S. tricoloripenne* nov.sp.; (244, 245); *S. tridens* nov.sp.; (246), ditto, right paramere in ventral view. Scale = 0.3 mm.

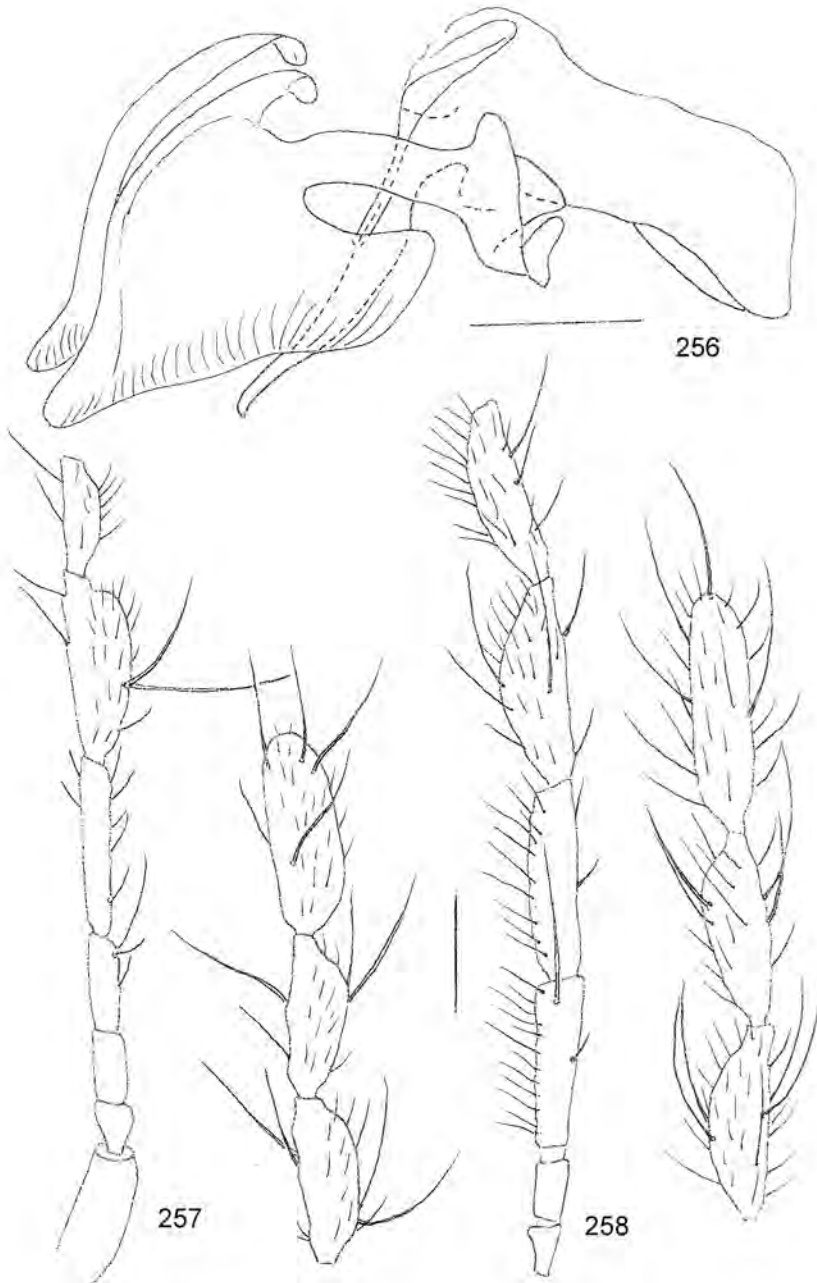


**Figs 247-250:** Aedeagi of *Scaphisoma*; (247), *S. tridens* nov.sp., internal sac, scale = 0.1 mm; (248, 249), *S. trifurcatum* nov.sp., aedeagus in dorsal and lateral views, scale = 0.3 mm; (250), ditto, apical part of median lobe, oblique view, scale = 0.1 mm.





**Figs 251-255:** Aedeagi of *Scaphisoma*; (251, 252), *S. trilobum* nov.sp., in dorsal and lateral views, scale = 0.3 mm; (253, 254), ditto, internal sacs, in dorsal and lateral views, scale = 0.15 mm; (255), *S. trimaculatum* nov.sp., aedeagus in dorsal view, scale = 0.3 mm.



**Figs 256-258:** *Scaphisoma*; (256), *S. trimaculatum* nov.sp., aedeagus in lateral view, scale = 0.3 mm; (257), *S. bicolor* nov.sp., antennomeres II-XI, scale = 0.1 mm; (258), *S. lienhardi* nov.sp., antennomeres III-XI, scale = 0.1 mm.