

# *Anacaena sipekorum* sp.n. from Meghalaya (India) (Coleoptera: Hydrophilidae)

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## Abstract

A new species of *Anacaena* THOMSON, 1859 (Coleoptera: Hydrophilidae), *Anacaena sipekorum*, is described from Meghalaya (north-eastern India). Habitus, aedeagus and other morphological details are illustrated.

**Key words:** Coleoptera, Hydrophilidae, *Anacaena*, taxonomy, new species, India.

## Introduction

The water beetle fauna of Meghalaya (north-eastern India) is very poorly investigated. *Anacaena laevoides* KOMAREK, 2006 is the only species of *Anacaena* THOMSON described from this state so far. An expedition to Meghalaya in 2008 conducted by M. Fikáček, H. Podskalská, and P. Šípek yielded a new species which is described herein.

## Material and methods

Four specimens of *Anacaena* from Meghalaya were examined and compared with specimens from India (KOMAREK 2006), China (KOMAREK 2012), Taiwan (KOMAREK 2011) and South-East Asia. The male genitalia were dissected, macerated and cleared in concentrated lactic acid and examined several hours later using a light microscope Olympus BX 41 and a binocular Leica MZ 12.5 with diffuse and focused light sources. Measurements were taken with a binocular Olympus SZ-CTV with micrometric eyepiece, and drawings were made with CorelDRAW X5. The morphological terminology is based on KOMAREK (2004, 2007).

### Abbreviations:

E.I. Elytral index (= largest elytral length / largest elytral width)  
 NMP National Museum Praha (Czech Republic)  
 NMW Naturhistorisches Museum Wien (Austria)

## *Anacaena sipekorum* sp.n.

TYPE LOCALITY: India, Meghalaya State, E Khasi Hills, 25°12'48"N 91°39'48"E.

TYPE MATERIAL: **Holotype:** ♂ (NMP): "INDIA, Meghalaya State (7+9) / E Khasi Hills, 11 km SW Cherra- / punjee, Laitkysew [near to the southern border of Meghalaya], 25.iv.2008 / 25°12'48"N 91°39'48"E, 735 m / Fikáček, Podskalská, Šípek [sic!] lgt. \ small lithotelmata on stony / banks of a stream, exposed, / partly with mud [and] gravel on bottom". **Paratypes:** 1 ♀ (NMP): same geographical and ecological data, 2 ♂♂ (NMP, NMW): same geographical data, but different habitat notes: "small dendrotelmata with / submerged rotting leaves / [one ex. with the addition:] secondary evergreen tropical / forest (recovered plantation)".

DIFFERENTIAL DIAGNOSIS: This species differs from all other species of *Anacaena* from India by the stripes on the elytra and by features of the aedeagus (ventral plate-like reinforcement, very broad median lobe, wide manubrium). Elytral stripes are present in different species from China (*A. pui* KOMAREK, 2012 and *A. gaoligongshana* KOMAREK, 2012) and from South-East Asia. *Anacaena sipekorum* can be distinguished from these species by the aedeagus.



Fig. 1: Habitus of *Anacaena sipekorum*; scale bar = 2.0 mm.

DESCRIPTION: Total length 2.1–2.4 mm; maximum width 1.2–1.4 mm; E.I. 1.19–1.32. Habitus (Fig. 1) oblong oval, with greatest width at midlength; elytra about 3.1–3.5 × as long as pronotum in dorsal view.

Head: Labrum and clypeus light brown; preocular patches present, distinctly or indistinctly separated from mesal portion of clypeus; frons slightly darker than clypeus. Irregular punctures very fine, weakly impressed, without setae; interspaces 1–2 × as large as punctures; very indistinct series of minute, indistinct, densely arranged punctures present along inner margin of eyes. Microsculpture absent. Clypeus large, straight to slightly emarginate anteriorly, without distinct angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and

ventral portion of almost equal size. Interocular distance ca.  $3.5 \times$  as large as horizontal diameter of dorsal portion of one eye. Frontoclypeal suture indistinct. Nine antennomeres; antennomere 3 not elongate; apical segment of antennal club as long as wide. Maxillary (Fig. 2) and labial palpi yellow, contrasting with black mentum, submentum and gula. Maxillary palpomere 2 distinctly inflated; palpomere 4 widest at midlength, slender, with straight inner margin and curved outer margin; distal third with distinct infuscation. Mentum ca.  $1.7\text{--}1.8 \times$  as wide as long; anterior margin with deep mesal incision; ventral punctures moderately fine, with denser distribution in anterior half; microsculpture absent; lateral margins distinctly projecting, setiferous, forming distinct anterior angles. Labial palpi slender, slightly longer than lateral edge of mentum; palpomere 3 slightly larger than palpomere 2.

Thorax: Pronotum light brown, with small central infuscation. Microsculpture absent. Lateral margins and hind corners broadly curved. Punctuation as fine as on head, weakly impressed; interspaces about  $1\text{--}2 \times$  as wide as one puncture. Hypomeron yellowish. Prosternum dark brown, convex, without carina. Elytra light brown with distinct darker brown longitudinal stripes, not explanate postero-laterally, without impressions. Very fine setae present on apical margins. Shoulder regions not accentuated. Punctures slightly coarser than on head and pronotum, distinctly impressed; distribution irregular and dense; interspaces about as wide as one puncture; short subserial arrangement of coarse punctures recognizable along lateral margins. Microsculpture absent. Epipleura and pseudepipleura yellowish. Mesoventrite with low, crescent-shaped protuberance in caudal third, with short, sharply pointed, median extension. Metaventrite with median bulge; almost completely pubescent; pubescence less distinct or absent on small central area. Thoracic ventrites dark brown to black; legs light brown; spine-like setae missing on procoxa and protrochanter; femoral hairlines distinct; ventral face of profemur pubescent on proximal  $4/5$ , with oblique hairline; mesofemur almost completely pubescent except on apical portion, with slightly convex hairline; metafemur (Fig. 3) pubescent on proximal  $3/4$  with rounded hairline; metatarsus about as long as metatibia.

Abdominal ventrites dark brown to black, entirely covered with dense hydrofuge pubescence; ventrite 1 without carina; ventrite 5 without emargination.

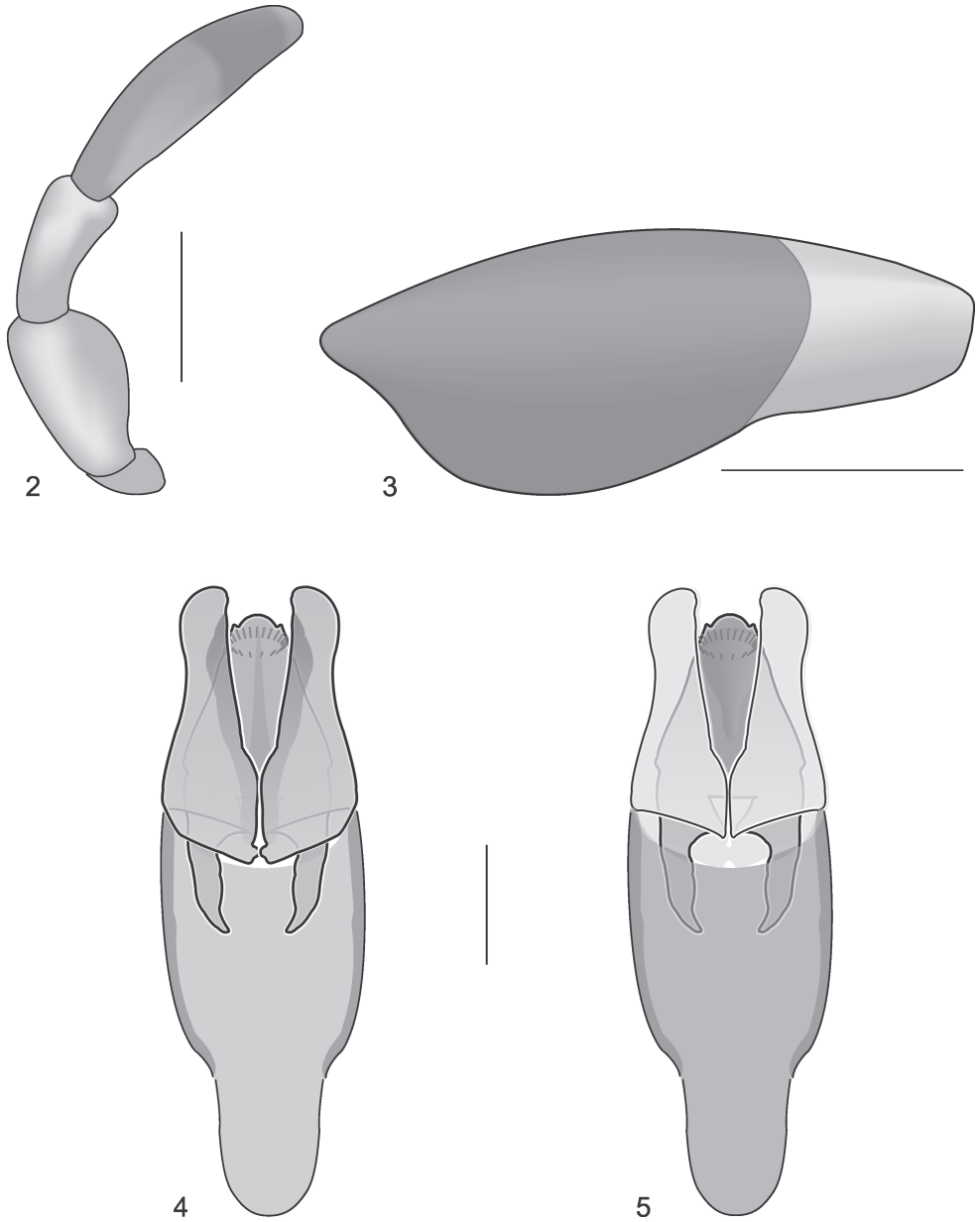
Aedeagus (Figs. 4–5): Main piece of phallobase about as long as parameres, longer than wide; manubrium evenly converging, extended, forming a very wide distal lobe; borderline between unpigmented and pigmented part of ventral face of phallobase indistinct, close to base of parameres; parameres with lateral and mesal margins distinctly curved, with distinct constriction distal to midlength; distance between lateral margins of parameres not wider than diameter of phallobase; apices widened, asymmetrical, pointing mesad; basal portion distinctly wider than apical part; ventral portion of bases narrowly contacting each other, indistinctly reaching into phallobase; dorsal portion indistinctly curved. Broad median lobe distinctly shorter than parameres, wider than one paramere; stronger pigmentation present on mesal region of dorsal surface; ventral surface with triangular, oblong plate-like reinforcement with sinuate margins; lateral margins slightly sinuate; corona in apical position; basal apophyses slightly shorter than main piece, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by mesally directed tooth.

DISCUSSION: The status as a species is mainly based on the aedeagus; the ventral plate-like reinforcement of the median lobe has hitherto not been observed in other species of *Anacaena*.

ECOLOGY: The specimens were found in a stream in a secondary evergreen tropical forest with stony ground and submerged leaves.

DISTRIBUTION: India (Meghalaya).

ETYMOLOGY: The specific epithet refers to the recently married collectors Hana Šipkova (formerly Podskalská) and Petr Šipek. Both are working as entomologists in Prague.



Figs. 2–5: *Anacaena sipekorum*; 2) maxillary palpus; 3) metafemur, ventral view; 4) aedeagus, dorsal view, 5) aedeagus, ventral view; scale bars: 2, 4, 5 = 0.1 mm, 3 = 0.2 mm.

### Discussion

Structural features of *Anacaena sipekorum* do not allow to assess the phylogenetic relationships to other species of the genus. The elytral stripes do also occur in other species of *Anacaena* but it is unclear whether this feature is a synapomorphy or has developed several times independently. The specific modification of the ventral face of the median lobe is possibly an autapomorphy of the new species. However, it is conceivable that hitherto undiscovered closely related species with this modification occur in the area.

### Acknowledgements

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### Zusammenfassung

*Anacaena sipekorum*, eine neue aquatische Hydrophiliden-Art aus Meghalaya (Nordost-Indien) wird beschrieben. Der Aedeagus und weitere morphologische Merkmale werden abgebildet.

### References

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### Book review

**BALLERIO, A., REY, A., ULIANA, M., RASTELLI, M., RASTELLI, S. ROMANO, M. & COLACURCIO, L. 2010: Coleotteri Scarabeoidei d'Italia.** – In Serra Tarantola, M. (ed.): *Piccole Faune*, 13 pp. + DVD. [in Italian] ISBN: 978-88-97107-16-3

Available from: [dvd.scarabeidi@yahoo.it](mailto:dvd.scarabeidi@yahoo.it); Price: € 30.-

This excellent publication contains a general introduction about the diversity, ecology and biology of scarabs as well as about the study of Scarabaeoidea in Italy. It is divided into four parts (“What are scarabs?”, “Scarabs diversity”, “Scarabs and man”, “Scarabs in Italy”), each part is divided into several paragraphs. This section contains about 200 illustrations.

“Elenco sistematico” (= checklist), this is the main part of the DVD (containing about 1.000 full focus photos of the habitus plus several hundred photos of beetles taken in their natural habitat). The checklist is also available as a pdf. By clicking on each species or subspecies the user can access the species/subspecies sheet. Species with doubtful occurrence in Italy are in square brackets. Each sheet contains the species name and alternative names (synonyms, alternative combinations, etc.), but only if they are still in use in contemporary literature (therefore this is not a complete list of synonyms), a short text detailing size (“Dimensioni”), general distribution (“Distribuzione generale”), bionomics (“Bionomia”) and sometimes remarks (“Note”). Species with doubtful occurrence in Italy have a shorter text, limited to size and remarks. Each sheet contains one or two main photos. Each photo has a legend with label data of the photographed specimen, including depository collection. By clicking on these photos you can enlarge them twice and then again, by clicking on the enlarged image, you can obtain the full sized photo. To go back to the main sheet from the enlarged photos you have to click on the square button on the top left.

There is also a map of Italy containing all the regions forming Italy, the regions where a species occurs are highlighted in red. The majority of sheets have a lateral menu of yellow buttons, these can be of three types: a) “problemi di identificazione” (= identification problems): you access a further section containing some aid for identification of species difficult to identify), b) “altre immagini” (= further images): you access a section containing more habitus photos, often lateral and ventral views, as well as photos taken in habitat (by clicking on each photo you can start a viewer with enlarged photos), and c) “video” (= videos”).

“Chiavi dicotomiche” (= dichotomous keys): keys to all species and subspecies, illustrated with the aid of photographs or drawings, by clicking on each species name you can access its sheet.

“Tavole fotografiche” (= synoptical plates): these allow the reader to have an overview of the whole diversity of a family or subfamily or tribe: a thumbnail photo of all species belonging to the chosen group will appear, by clicking on the name of each species you can access its sheet.

“Elenco alfabetico” (= alphabetical index): the index contains all species, by clicking on the species name you can access its sheet.

“Confronta due taxa” (= compare two taxa): you access a section divided into four fields. On the right field you find two columns with a full list of the species and subspecies. By clicking on the species you choose (or on the sex symbol, in the case female and male photos are available), the photo of the species/subspecies you required will appear on the left. The photo contains a movable square frame. If you click on the square frame you will see that the detail contained in the square will appear enlarged next to the photo. The same applies to the bottom fields. So that you can compare two species (the whole habitus and a morphological detail).

Further information is available at: <http://web.tiscali.it/cdentomologici/> and <http://web.tiscali.it/cdentomologici/DVD%20Scarabeidi%20locandina.pdf>

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