

## Two new Genera of brachypterous Mezirinae from Malaysian Rainforests

(Heteroptera, Aradidae)

by

Ernst HEISS \*)

Zwei neue Gattungen brachypterer Mezirinae aus den Regenwäldern Malaysias  
(Heteroptera, Aradidae)

**Synopsis:** Most of the apterous or brachypterous forms of described Aradidae are known from the unique ecosystems of the tropical and subtropical rainforests. From material collected in the Cameron Highlands in Malaysia two new genera, *Pahangiessa* gen. n. with the species *P. bulboscutellata* sp. n. and *Hutanicoris* gen. n. with *H. carinatus* sp. n. are described. A specimen from Sumatra is classified as *H. carinatus sumatrensis* ssp. n.

**Key words:** Heteroptera, Aradidae, Malaysia, new genera, rainforest.

### 1. Introduction:

Of the 42 genera of Mezirinae known so far from the Oriental Region (KORMILEV & FROESCHNER, 1987) about 2/3 are macropterous, 5 genera are exclusively apterous, 3 genera (*Mastigocoris* MATS. & US., *Parapictinus* KORM. and *Scironocoris* KORM.) include apterous and brachypterous, or brachypterous and macropterous species respectively. 5 genera (*Apaniocoris* KORM. from Sulawesi, *Axapisocoris* KORM. & HEISS from Sri Lanka, *Bengalaria* HEISS from Northern India and Nepal, *Lophocoris* US. & MATS. from Sumatra, *Smetanacoris* HEISS from Borneo) are represented by brachypterous forms only. The new Malaysian species belong to different genera which are described as new.

The reduction of wings is a typical adaptation of Aradidae to rainforest conditions and all apterous and most brachypterous forms were described from the tropical and subtropical belt of primary rainforest, which is still insufficiently explored. Due to worldwide increasing devastation of the rainforests it can be expected, that numerous unknown taxa will be extinct before they can be discovered and described.

The specimens upon which this study is based were all (but one) collected by the author and are held in his special Aradid-collection.

Measurements were made with an ocular micrometer, 40 units = 1 mm; length of head is measured from apex of clypeus or projecting jugal appendages to transverse carina delimiting the vertex posteriorly.

---

\*) Address of the author: Entomol. Research Group, Tiroler Landesmuseum, Josef-Schraffl-Straße 2a, A-6020 Innsbruck, Austria.

## 2. Subfamily Mezirinae:

### *Pahangiessa* gen. n.

#### Diagnosis:

Resembling the brachypterous genera *Axapisocoris* and *Bengalaria* but is recognized by its transverse head with stylate eyes, distinct postocular tubercles and the humped scutellum.

#### Description:

*Brachypterous*. Body form elongate, ovale. Surface granular and punctate with distinct yellow pilosity on raised structures, head and appendages.

Head. Transverse, distinctly shorter than width across eyes; jugal appendages long, exceeding clypeus and reaching at least apex of antennal segment I. Antenniferous tubercles long, apices blunt, laterally bent and diverging, at the basis with 2 (1 + 1) prominent setous tubercles on a lower and a higher level. Eyes slightly stylate, globose. Postocular tubercles prominent, its pointed apex reaching outer border of eyes. Vertex flat, granulate at middle with 2 (1 + 1) smooth oblique depressions on either side. Antennae short, 1.1 - 1.2 x as long as width of head, first segment longest and thickest, II to IV shorter and slender. Rostrum arising preapical from a slit like atrium. Rostral groove wide and shallow, open posteriorly, rostrum not exceeding the rostral groove.

Abdomen. Short, more than 3 x as wide as long, lateral margins expanded and dorsally reflexed, anterolateral lobes rounded. Collar thin. Disk rather flat with a median depression in the shape of an inverted triangle, laterad with 2 (1 + 1) smooth oblique areas, its borders marked by granules.

Scutellum. About 2 x as wide as long, its margins granulate, apex broadly rounded. Disk with a median longitudinal hump, its surface beset with granules bearing long setae, lateral and posterior areas smooth.

Hemelytra. Reduced to (unfunctional) apically truncate pads which reach the level of the apex of scutellum; anterolateral borders carinate and reflexed, surface flat with coarse granulation.

Metanotum. Mostly concealed by hemelytral pads, only a small transversal portion is uncovered and visible posteriorly.

Abdomen. Mediotergites (mtg) I and II fused but separated by a suture from metanotum and tergal disk, raised medially with 2 (1 + 1) oblique depressions laterad. Tergal disk formed by fused mtg III to VI wider than long. Usual pattern of glabrous areas is marked by smooth oblique depressions laterad of median elevation, their anterolateral margins at mtg IV to VI marked by triangular elevations which decrease in size posteriorly. Mtg VII strongly raised medially in male, convex and with 2 (1 + 1) conical protuberances in female. Dorsal laterotergites (dltg) II to VII distinct, moderately elevated along transverse margins, posterolateral angles slightly producing. Paratergites VIII of male clavate, reaching 1/2 of pygophore; tergite VIII of female bilobate, reaching 1/3 of truncate tergite IX.

Ventral side. Prosternum with a median triangular elevation, separated from mesosternum by a suture, the latter with a circular depression at middle. Metasternum separated from mesosternum and venter by a transverse suture, broadly depressed medially, surface of sternal depressions smooth. Pleural region granulate. Metathoracic scent gland canals obliquely elevated and curved dorsally, visible from above. Mediosternites (mst) I to III fused, smooth. Mst IV to VII distinct, surface also smooth. Laterosternites II to VII marked by a suture, granulate. Spiracles II to VII ventral, II to VI placed in the middle of laterosternites, VII closer to exterior margin, VIII dorsolateral and visible from above.

Genital structures. Male genital capsule globose with a rounded median elevation extending posteriorly, bearing a longitudinal cleft. Parameres blade shaped with transverse carinae and setae on ventral side.

Legs. With long erect setae. Trochanters distinct, femora moderately inflated; tibiae cylindrical, straight, preapical comb on fore tibia present. Claws with thin pseudopulvilli.

Type species: *Pahangiessa bulboscutellata* sp. n.

Etymology. Named after Pahang, the Malaysian province of the type locality. Gender feminine.

Distribution. Known only from mainland Malaysia.

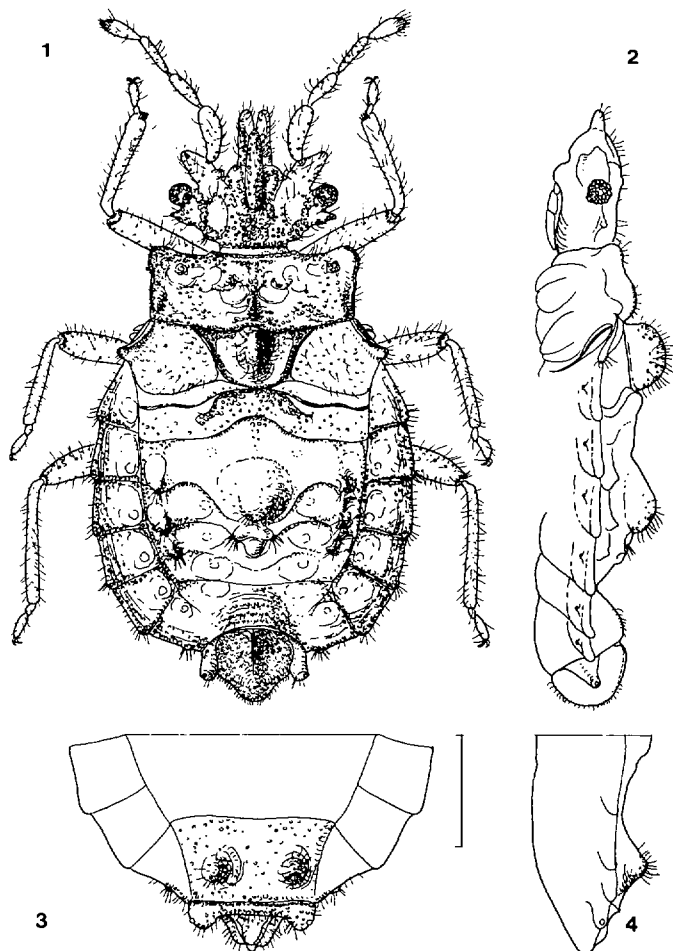
*Pahangiessa bulboscutellata* sp. n. (Figs. 1 - 8)

Diagnosis:

Being the only species included to date, it can be recognized by the characters given in the generic diagnosis.

Description:

Male. Brachypterous.



Figs 1 - 4: *Pahangiessa bulboscutellata* gen. et sp. n. 1 – Holotype male, dorsal; 2 – dto. lateral; 3 – terminal segments of female, dorsal; 4 – dto. lateral. Scale 1 mm.

**Head.** Strongly transverse, shorter than width across eyes (50/58); jugal appendages as long as antennal segment I. Apex of antenniferous tubercles not reaching lateral border of eyes. Relative length of antennal segments I to IV 19/15/16.5/16. Ratio length of antennae to width of head 1.14.

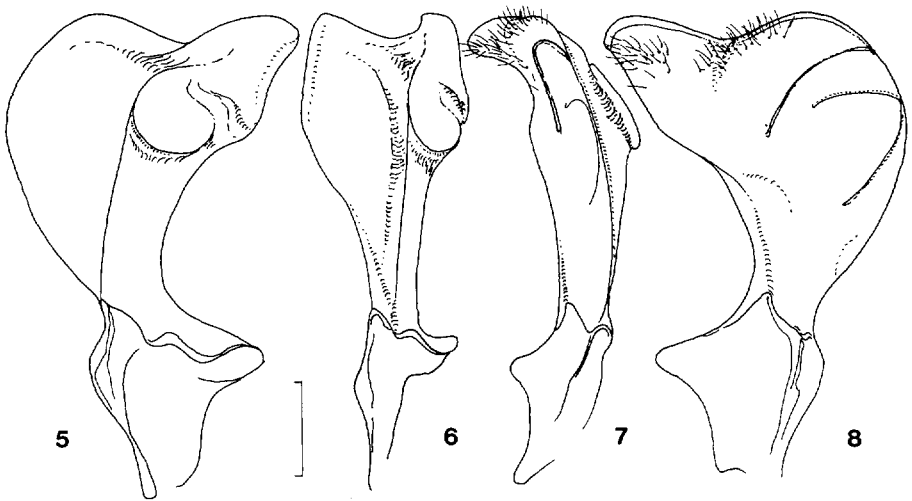
**Pronotum.** 3.08 x as wide as long (24/74), collar granulate, rounded expanded anterolateral angles not projecting over collar.

**Scutellum.** Twice as wide as long (22/44), median hump rounded, beset with setae-bearing granules.

**Hemelytra.** Without clavus or membrane; basolateral border thickened, curved and reflexed.

**Abdomen.** Wider than long with convex sides, widest across tergite III. Anterior sutures of fused mtg I + II and III semicircular at middle. Median elevation of disk highest on mtg III which extends posteriorly partly covering mtg IV; the latter with lower elevation, tapering posteriorly and produced over mtg V. Spiracles II to VII ventral, VIII dorsolateral and visible from above.

**Parameres** as figs 5 - 8.



Figs 5 - 8: *Pahangiessa bulboscutellata* gen. et sp. n. — left paramere in different positions, (5) is dorsal. Scale 0.1 mm.

**Coloration.** Cinnamomeous to brown, tarsi and apex of antennal segment IV yellowish.

**Female.** Similar to male but jugal appendages slightly longer than antennal segment I, apex diverging; antenniferous tubercles longer and more curved, apex reaching lateral border of eyes. Head length/width 56/60. Relative length of antennal segments I to IV 22/15/18/17. Ratio length of antennae to width of head 1.20. Pronotum 24/80; scutellum 26/50.

**Etymology.** Refers to the bulbously elevated scutellum.

**Measurements.** Holotype ♂: Length 5.3 mm, max. width across tergite III 2.9 mm. Paratype ♀: Length 6.1 mm, width across tergite III 3.25 mm.

**Holotype:** ♂, Malaysia, Pahang, Cameron Highlands, Gunung Batu Brinchang at 1800 m, on rotten logs associated with fungi, 23.11.83 leg. Heiss.

**Paratypes:** 1 ♂, 1 ♀ from the same locality.

*Hutanicoris* gen.n.

Diagnosis:

Small species resembling *Kiritshenkiessa* KORM. (1 sp., South India) or *Mastigocoris* MATS. & US. (8 sp., Sri Lanka to Philippines), but the first is apterous and all brachypterous forms of the latter have a triangular scutellum with 2 (1 + 1) characteristic small lobes at middle of base, which overlap pronotum. It is recognized by the small size, the subrectangular medially strongly depressed scutellum and the unique genital structures of the male.

Description:

Brachypterous. Body elongate with subparallel sides, constricted anteriorly. Surface coarsely punctate with short curled hairs on raised ridges, lateral margins, head and appendages.

Head. Slightly shorter than width across eyes; clypeus short, raised at base, its apex rounded and reaching only basal 1/4 of antennal segment I; jugal appendages not present. Antenniferous tubercles short and blunt with subparallel lateral margins. Eyes ovale, inserted by 1/2 of its diameter. Postocular tubercles blunt, rounded and at most reaching outer border of eyes. Vertex granulate at middle, flanked by 2 (1 + 1) smooth callosities laterad. Antennae twice as long as width of head across eyes, segment I short but thickest, II shortest, III longest and cylindrical, IV clavate with recessed conical apex, which is covered by long setae. Rostrum arising preapical from a slit like atrium, rostral groove with parallel granulate borders, open posteriorly. Rostrum not exceeding rostral groove.

Pronotum. Trapezoidal, converging anteriorly, without a distinct collar. Anterolateral margins formed by elevated granular ridges which are followed posteriorly by 2 (1 + 1) smaller granulate carinae which reach posterior margin. Laterad of these carinae a lower lateral part of pronotum is visible, bearing a round producing tubercle anteriorly. Median depression of disk not extending to anterior margin which is raised and granulate, the depression flanked by 2 (1 + 1) oblique rugose callosities which are delimited at the outer lateral margin by 2 (1 + 1) longitudinal elevated and granulate ridges.

Scutellum. Subrectangular with broadly rounded apex. Disk strongly depressed medially, its anterior and posterior margin raised, laterally confined by 2 (1 + 1) even higher subparallel ridges.

Hemelytra. Reduced to subrectangular posteriorly truncate pads, but covering completely the metanotum. Basolateral margins carinate, surface irregularly rugose.

Abdomen. Mediotergites I + II fused, forming a transverse plate. Its anterior margin raised and broadly rounded along scutellum, straight and carinate along hemelytral pads, its anterolateral angles formed by raised granulate callosities. Posterior half depressed. Tergal disk with fused mtg III to VI, flat, with a small median ridge extending over 3/4 of length, laterad with oblique depressions. Mtg VII with a triangular median elevation and 2 (1 + 1) deep depressions laterad in male; posterior margin raised and carinate in female, depressed anteriorly. Dltg II + III fused, IV to VII distinct, its posteroexterior angles increasingly elevated from dltg III to VI, carinate along lateral margin on dltg II. Lateral margin seemingly doubled, formed by the dorsally reflexed margin of laterosternites. Paratergites VIII of male small, pyriform, reaching 1/2 of pygophore. In female they are small rounded lobes between which the apically rounded tergite IX is visible at a lower level.

Ventral side. Pro-, meso- and metasternum depressed at middle with raised borders, separated by a thin suture. Metathoracic scent gland canal forming an elongate oblique elevation which is visible from above anterolaterally of the wing pads. Metapleura smooth with a tubercle-like elevation of unknown function at middle. It is present but less developed in female. Mediosternites I to III fused, IV to VII separated by deep sutures. Spiracles II not discernible, III and IV ventral close to lateral margin, V and VI sublateral on a tubercle but not visible from above, VII lateral, situated on the reflexed laterosternite and visible from above, VIII terminal.

Genitalic structures. Male genital capsule elongate, narrowly rounded at apex. Dorsal opening covered posteriorly by a transverse, moveable subtriangular sclerite with carinate posterior border, which partly conceals a triangular plate which is also moveable and hinged at its posterolateral edges. The dorsally visible paramer-like ovate structures on each side of the basal sclerite belong to and are fused to the triangular median plate which covers the aedeagus. These are cup-shaped, hollow and posteriorly open projections. Moveable parameres as common in all (so far investigated) Mezirinae are missing and this type of fused structures is yet unreported.

Legs. Trochanters distinct, femora moderately incrassate; tibiae cylindrical, straight; preapical comb present on fore tibiae. Claws with thin pseudopulvilli.

Type species. *Hutanicoris carinatus* sp.n.

Etymology. Named for its living habitat, hutan meaning jungle or forest in Malay language and greek coris-bug. Gender masculine.

Distribution. Malaysian Peninsula and Sumatra.

### *Hutanicoris carinatus* sp.n. (Figs. 9 - 16)

#### Diagnosis:

Recognized by the characters given in the generic diagnosis, the distinctly carinate anterolateral margins of pronotum, the smooth surface of posterior half of fused mtg I + II and anterior portion of mtg III.

#### Description:

Male. Brachypterous.

Head. Slightly shorter than width across eyes (20/22); relative length of antennal segments I to IV 13/17/18/11, ratio length of antennae to width of head 2.2.

Pronotum. Transverse, constricted anteriorly, more than twice as wide as long (18/43). Anterolateral margins forming a subrectangular elevated ridge.

Scutellum. Wider than long (17/28), distance between lateral parallel carinate borders as wide as vertex between eyes.

Hemelytra. Wing pads with thickened basolateral margins followed by a longitudinal carina mesad. Surface transversely rugose. Posterior margin inclined but straight.

Abdomen. Lateral margins subparallel, posteroexterior angles of dltg III to VII only slightly produced. Posterior half of fused mtg I + II depressed laterad of median elevated area which slopes posteriorly; surface of this portion and anterior part of mtg III flat, without granulation and rugosities. Spiracles III to VI ventral, increasingly closer to lateral margin but not visible from above; VII lateral on reflexed margin of laterosternite VII and visible from above, VIII terminal.

Genitalic structures. See generic description and figs. 11 - 14.

Coloration. Brown with partly paler antennae and tarsi.

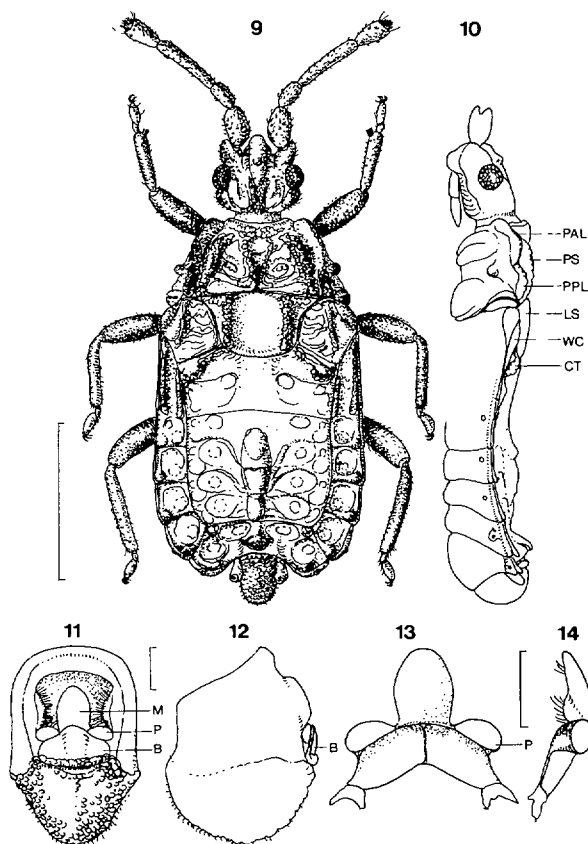
Female. Similar to male but lateral margins of abdomen more rounded, widest across tergite III. Length/width of head 22/23.5, relative length of antennal segments I to IV 13/7/18/11, ratio length of antennae to width of head 2.08. Pronotum l/w 19/48; scutellum 17/34.

Etymology. Refers to the conspicuous carinae of pronotum and scutellum.

Measurements. Holotype ♂: Length 2.95 mm, width across tergite III 2.65 mm. Paratypes ♀♀: Length 3.15, 3.20 mm, width across tergite III 3.1 and 3.15 mm.

Holotype. Male, Malaysia, Pahang, Cameron Highlands, Gunung Batu Brinchang at 1800 m, on rotten log associated with fungi, 23.11.83 leg. Heiss.

Paratypes 1 ♂, 2 ♀♀ from the same locality.



Figs 9 - 14: *Hutanicoris* gen. et sp. n. 9 – Holotype male, dorsal; 10 – dto. lateral; 11 – genital capsule, dorsal; 12 – dto. lateral; 13 – triangular median sclerite, dorsal; 14 – dto. lateral. Abbreviations: B – basal subtriangular sclerite; CT – carina of mtg. I; LS – lateral carinate border of scutellum; M – triangular median sclerite; P – cup-shaped projections of M; PAL – anterolateral pronotal ridge; PPL – posterolateral pronotal carina; PS – sublateral pronotal ridge; WC – carina of wingpad. Scale 1 mm (9 - 10), 0.1 mm (11 - 14).

*Hutanicoris carinatus sumatrensis* ssp.n. (Fig. 17)

Diagnosis:

Differing from the nominate form by wider abdomen, less developed anterolateral ridges of pronotum, narrower depression of scutellum and rugose surface of mtg II and III.

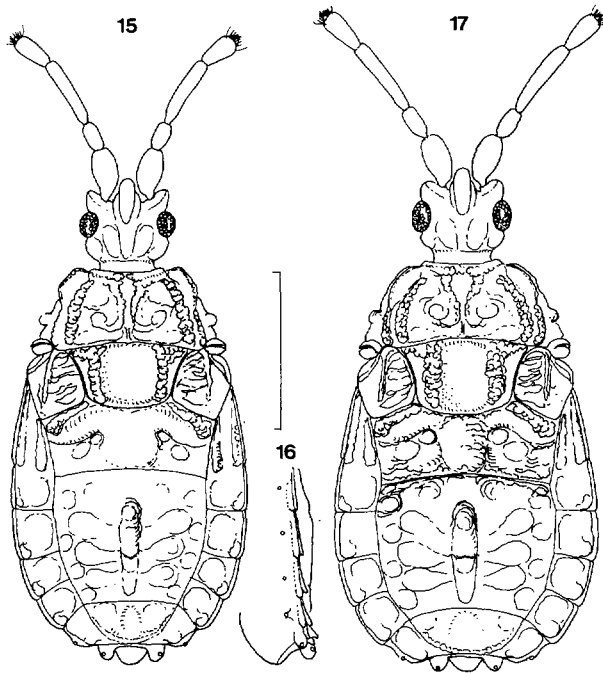
Description:

Female. Brachypterous.

Head. Length/width across eyes 21/25; relative length of antennal segments I to IV 13/8/20/12; ratio length of antennae to width of head 2.12. Antenniferous tubercles and postocular lateral lobes less developed.

Pronotum. Length/width 19/50; anterolateral carinate margins less developed.

Scutellum. Length/width 19/36; carinate lateral borders wider and more granulate, leaving a median depression, which is narrower than the vertex.



Figs 15 - 17: *Hutanicoris* species. 15 – *Hutanicoris carinatus* sp. n., female paratype, habitus dorsal; 16 – dto., terminal segments lateral; 17 – *Hutanicoris carinatus sumatrensis* ssp. n., female holotype, habitus dorsal, Scale 1 mm.

Abdomen. Posterior half of fused mtg I + II more rugose, margin elevated, higher than level of anterior part of mtg III which has also a more rugose surface.

Measurements. Holotype female: Length 3.3 mm, width of abdomen across tergite III 3.35 mm.

Holotype: Female, Indonesia, W-Sumatra, Bukittinggi, Gn. Singgalang 2100 - 2600 m, leg. A. Riedel.

### Discussion:

The fact that the specimens of the nominate form are from the Malaysian peninsula and the single specimen is from Sumatra showing some morphological differences led to the decision to give it subspecific rank at this time. Further material of both sexes might reveal specific characters.

Acknowledgments: I thank Mr. A. Riedel (Friedberg) for the donation of the specimen from Sumatra he collected with several other interesting Aradidae.

Zusammenfassung: Die einzigartigen Ökosysteme der tropischen und subtropischen Regenwälder bilden den Lebensraum der meisten bekannten apteren und brachypteren Formen der Familie Aradidae. Von eigenen Aufsammlungen in den Cameron Highlands Malaysias werden zwei neue Gattungen, *Pahangiessa* gen. n. mit der Art *P. bulboscutellata* sp. n. und *Hutanicoris* gen. n. mit der Art *H. carinatus* sp. n. beschrieben. Ein Belegstück aus Sumatra wird zu *H. carinatus sumatrensis* ssp. n. gestellt.



#### 4. References:

- HEISS, E. (1982): New and little known Aradidae from India in the Muséum d'Histoire naturelle de Genève (Heteroptera: Aradidae). — *Revue suisse Zool.* **89**: 245 - 267.
- (1989): A new genus and two new species of micropterous Mezirinae from Sabah (Heteroptera, Aradidae). — *Entomofauna* **10**(1): 1 - 13.
- KORMILEV, N.A. (1971): Mezirinae of the Oriental Region and South Pacific (Hemiptera - Heteroptera: Aradidae). — *Pac. Ins. Monogr.* **26**: 1 - 165.
- (1983): New Oriental Aradid Bugs in the Collection of the British Museum (Natural History) (Insecta: Hemiptera). — *J. Nat. Hist.* **17**: 437 - 469.
- KORMILEV, N.A. & R.C. FROESCHNER (1987): Flat Bugs of the World. A Synonymic List (Heteroptera: Aradidae). — *Entomography* **5**: 1 - 246.
- KORMILEV, N.A. & E. HEISS (1979): New Aradidae from Ceylon and Malaya in the British Museum (N.H.) (Heteroptera). — *Oriental Insects* **13**: 155 - 162.
- MATSUDA, R. & R.L. USINGER (1957): Heteroptera: Aradidae. — *Insects of Micronesia* **7**: 117 - 172.
- USINGER, R.L. & R. MATSUDA (1959): Classification of the Aradidae. — London, British Museum, 410 pp.

# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Berichte des naturwissenschaftlichen-medizinischen Verein Innsbruck](#)

Jahr/Year: 1993

Band/Volume: [80](#)

Autor(en)/Author(s): Heiss Ernst

Artikel/Article: [Two new Genera of brachypterous Mezirinae from Malaysian Rainforests \(Heteroptera, Aradidae\). 327-335](#)