

**New Isometopinae from the Oriental and Australian Regions
(Heteroptera: Miridae)**

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ABSTRACT. New species of the genera *Myiomma* PUTON, 1872 (*M. jankotejai* sp. n. and *M. amaranion* sp. n.), and *Paratotta* sp. prop. *orientalis* HERCZEK, 1993 (Miridae, Isometopinae) from the collection of the Natural History Museum in London are described. These species come from Indonesia and Papua-New Guinea.

KEY WORDS: Heteroptera, Isometopinae, *Myiomma*, *Paratotta*, *Isometopus*, new species, Oriental and Australian Region.

INTRODUCTION

Heteropterans of the small subfamily Isometopinae are miniature insects, about 1.8-4 mm long, most of them 2-3 mm in length, and they are generally strongly cryptic in habits. Only *Gigantometopus rossi* SCHWARTZ & SCHUH (1990) from Sumatra is in this respect exceptional, its length is 6.98 mm with 5 meso- and 6 metafemoral trichobotria which is atypical for this subfamily. All representatives of this group are rather strongly flattened dorso-ventrally. Their trophic requirements are still being debated and have not been determined definitively; various sources advocate different, often conflicting views. Whether isometopines should be treated as a zoophagous or phyto- mycetophagous group remains a matter of discussion (MCATEE & MALLOCH 1924; SCHUH 1976; WHELLER & HENRY 1978; COBBEN 1978; GHOURI & GHOURI 1983). Yet all known information strongly indicates that insometopines are usually found inhabiting bark, where they feed on scale insects (WHELLER & HENRY 1978), or they are predators of soft-bodied insects (see a review of the isometopin biology in AKINGBOHUNGBE 1996).

It seems that Isometopinae are one of the least studied subfamilies of Miridae. This is mainly due to their cryptic way of life, which makes a systematic study of their bionomy more difficult and poses problems for the collection of material. So far over 170 species of modern fauna have been described. They have been grouped in 31 genera, of which the most numerous are *Isometopus* FIEB. (63 species) and *Myiomma* PUT. (46 species). The majority of species of these two genera were described from Africa (AKINGBOHUNGBE 1996; HERCZEK 2004). At the same time, as many as 15 genera are monotypic.

Because investigation of the large and widespread genera *Myiomma*, especially in the Oriental and Australian Regions where they are practically unknown, is far from sufficient, comparison of the species under consideration is still premature. Therefore we omit section on "Comparison" in their description. If we take such feature as, for instance, a bisinuated posterior margin of the pronotum characteristic of the described species, it can also be found in many other species not only in the *Myiomma* from different regions (e.g. *M. samuelsoni* MYIAM., Japan; *M. lansbury* CARV., India; *M. dundoensis* HOB., Africa, *M. ornatum* HENRY, Panama; *M. brasilianum* HENRY), but also in some other genera, e.g. *Isometopus*, *Magnocellus*, *Corticollis*, *Lindbergiola*, *Ptisca* and *Paloniella*. Therefore this feature can hardly be used for determining their similarity or relativity.

In spite of variable sex ratios in many species of isometopines, the differences between *M. kotejai* n. sp. and *M. amaranion* n. sp. (e.g. the shape and the orientation of head and clypeus, position of ocelli, configuration of pronotum, general or pattern coloration, etc.) are so great that there is no doubt that they belong to different species. However, the coloration of both species and the shape of pronotum are different (comparison is very difficult in this case, as different sexes have to be contrasted).

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TAXONOMY

Order Hemiptera LINNAEUS, 1758

Suborder Heteroptera LATREILLE, 1810

Infraorder Cimicomorpha LESTON, PENDERGRAST et SOUTHWOOD, 1954

Family Miridae HAHN, 1833

Subfamily Isometopinae FIEBER, 1860

Genus *Myiomma* PUTON, 1872

Type species: *Myiomma fieberi* PUTON, 1872

Myiomma jankotejai sp. n.

(Figs 1–3, 9)

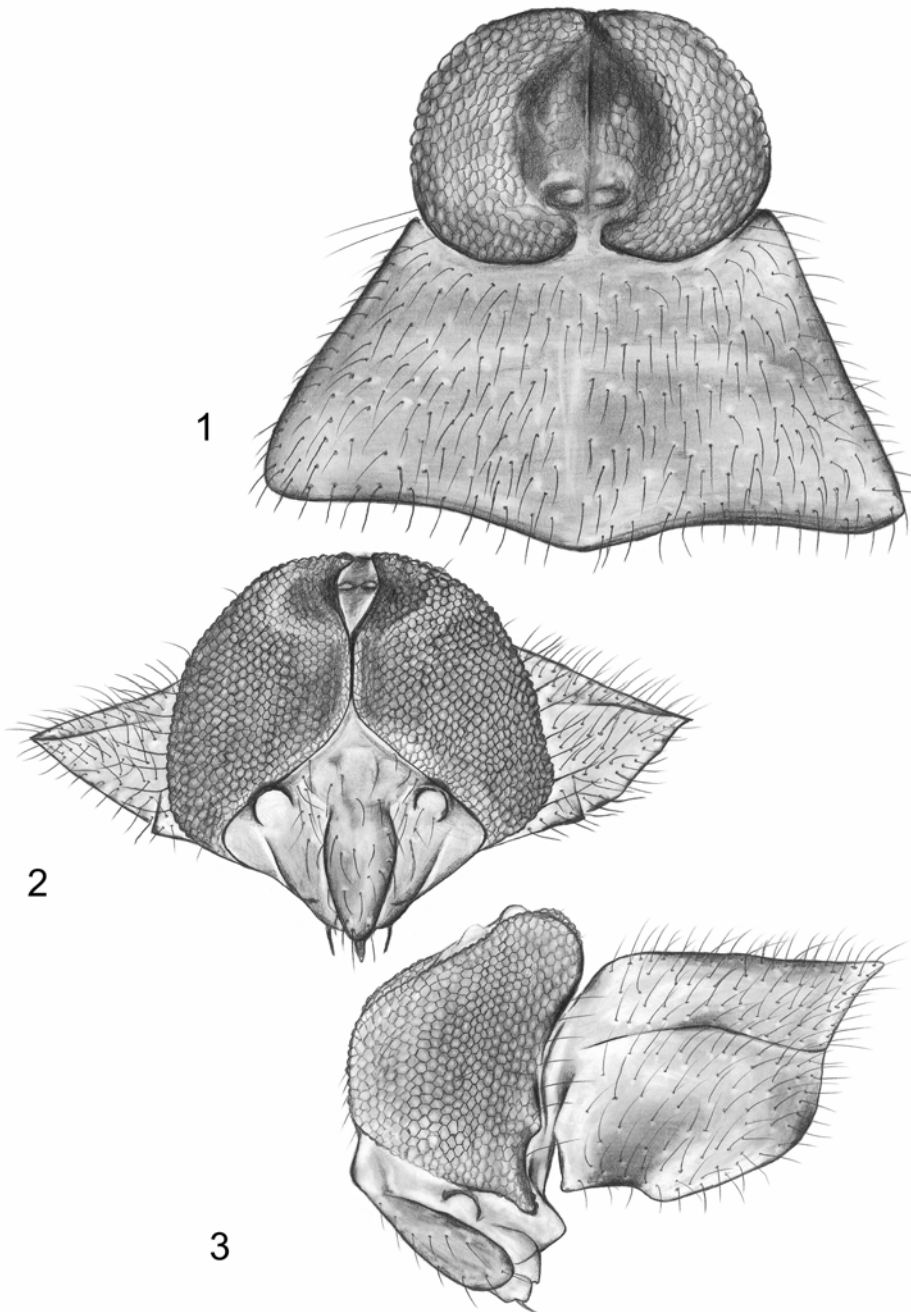
Description

Body somewhat elongate and oval, twice as long as wide, lateral sides slightly convex; dorsal surface shining, punctate, especially on pronotum and clavus, densely covered with quite long, pale, adpressed hairs (Fig. 9). General color golden-yellow; lateral margins of head behind genae, antennal joints III and IV, and basal 2/3 of hind tibiae brown; ventral side of body brownish; ostiolar peritreme with adjacent area, eyes, ocelli and base of forehead red; apical part of forehead and clypeus dark brown; first two abdominal tergites and ring in the middle part of hind femora also reddish.

Head globular (Fig. 1), height almost equal (1.1) to width; middle part of head behind base of forehead and before ocelli depressed (possibly due to dehydration of the body, which is not wholly sclerotized); posterior margin of head weakly sinusoidally emarginate, somewhat overlapping with anterior margin of pronotum (Fig. 3); clypeus narrow, rather swollen and impunctate. Face covered with relatively long, semierect setae (Figs 2, 3). Eyes very large, occupying the greater part of head (Figs 1, 2), in side view reaching pronotum, covering postgenae and occiput. In front view, inner margins of eyes meet and are almost contiguous at the back of head, behind ocelli (Fig. 2); ocelli quite small, contiguous with inner margins of eyes; interocellar distance slightly bigger than diameter of ocellus. Antennae slender, joint I short, slightly thicker than base of joint II; two apical joints distinctly thinner, almost equal in length. Pronotum slightly wider than twice the median length; lateral margins nearly straight and narrowly flattened, posterior margin slightly bisinuated; calli weakly marked, only apical part of pronotum slightly swollen; humeral angles of pronotum rather rounded. The middle portion of mesoscutum and of flat scutellum roundly depressed. Membrane pale, weakly rugose along its length. Small cell poorly marked. Hind legs with swollen femora and slender tibiae. Tarsal segment II more than twice as long as segment I; claws fine, short, weakly curved.

Measurements (in mm)

Length of body from apex of hemelytra: 1.82, width: 0.88; length of head 0.23, width 0.40, height 0.43; width of vertex: 0.05; length of eye 0.23, width of eye 0.21, height 0.31; antenna joints: I-0.07, II-0.47, III-0.20, IV- 0.19; labial segments: I-0.16, II-0.26, III-0.20, IV-0.18; length of pronotum: 0.29 (min.), 0.31 (max.); width: 0.38 (min.), 0.68 (max.); length of mesoscutum: 0.06, width: 0.39; length of scutellum: 0.29, width: 0.31; claval commissure: 0.30; hind legs: length of femur: 0.52, width: 0.18; length of tibia: 0.88; length of tarsus: 0.18 (I-0.05, II-0.14)



Figs 1-3. *Myiomma jankotejai* sp. n. Head and pronotum: 1 - dorsal view ; 2 - frontal view; 3 - lateral view.

Material examined

Holotype female, Indonesia, Sulawesi Utara, Dumoga - Bone N.P.; Fog 13, 230m, 11, Plot A; R. Ent. Soc. Lond. Project Wallace, BMNH 1985-11

Etymology

Named after an outstanding Polish hemipterologist and our good friend, the late Professor JAN KOTEJA.

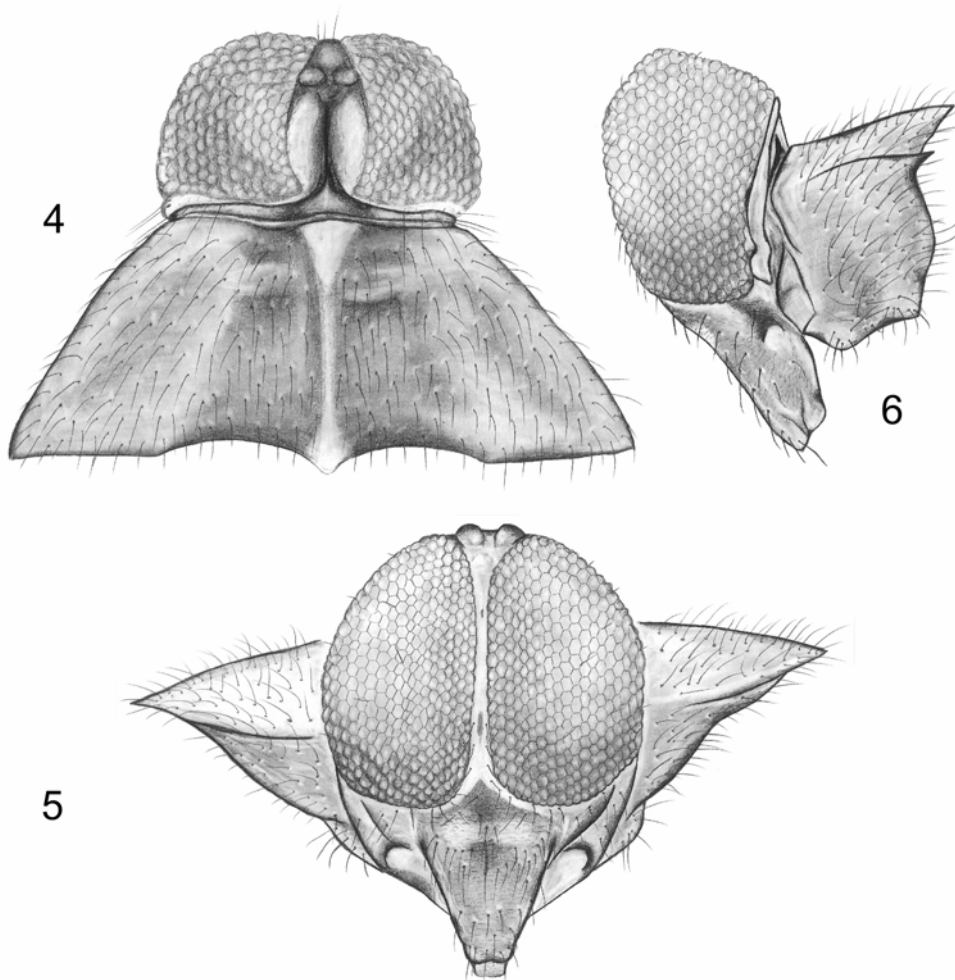
Myiomma amaranion sp. n.

(Figs 4–6, 10)

Body elongate oval, 2.1 times as long as wide; general color brown and dorsal surface covered with relatively long, clinging, golden, adpressed hairs; finely punctate from above (Fig. 10). Base of forehead and clypeus dark brown; genae reddish; the rest of forehead and vertex yellowish brown; below eyes there are two round, yellow spots placed centrally; antennal joint I yellowish brown, joint II ivory, joint III brown (joint IV missing); broad lateral fragments of pronotum, narrow middle stripe on pronotum, apical portion of scutellum, basal 1/5 of fore wings (with part of clavus), scent gland perytrema, apical portions of fore and middle coxae, fore and middle tibiae, propleurum and episternum pale yellow; humeral angles with small brown spots on the margin; tibiae with 4 dark brown spots on outer surface; cuneus with three whitish spots: two placed basally on the outer and inner basal angles, third one placed apically (Fig. 10).

Head semiglobular (Fig. 4), height 1.5 times greater than width, a little wider than half as much as pronotal width (0.42:0.78); in side view, head markedly raised above pronotum (Fig. 6). Face triangular, elongated and bent backwards; impunctate and covered with relatively long, semierect setae (Figs 5, 6). Antennal joint I very short, conical-shaped; joint II evenly thickened along its length, covered with adpressed, pale setae, which are no longer than diameter of joint. Eyes large, occupying the greater part of head, in side view reaching pronotum (Fig. 6). Distance between eyes at the front of head not longer than diameter of ocellus; ocelli shifted to the front, small, contiguous with the inner margins of eyes, almost touching (interocellar distance lesser than half of diameter of ocellus); vertex narrow, convex, behind ocelli and as far as margin of head depressed to form a deep sulcus; posterior margin of head slightly emarginate. Pronotum two and a half times as wide as long in middle; distinctly punctate; its posterior margin bisinuated (Fig. 5); humeral angles rather sharp; callal area elevated just a little. Mesoscutum and scutellum weakly punctate. Membrane mat, smoked, finely rugose along its length, with two distinct cells. Fore and middle coxae thickened; tibiae slender. Segment II of fore tarsus more than twice as long as segment I (other tarsi missing); claws fairly short, narrow, very weakly curved. Hind femur

broken, the remaining fragment with 3 trichobothria visible on the inner surface; other parts of hind legs missing.



Figs 4-6. *M. amaranion* sp. n. 4 - dorsal view, 5 - frontal view, 6 - lateral view.

Measurements (in mm)

Length of body from apex of hemelytra: 2.11, width: 0.99; length of head 0.22, width 0.42, height 0.60; width of vertex: 0.09; length of eye 0.22, width of eye 0.16, height 0.38; antenna joints: I-0.05, II-0.52, III-lost, IV-lost; labial segments: lost; length of pronotum: 0.29 (min.), 0.31 (max.), width: 0.36 (min.), 0.78 (max); length of mesoscutum: 0.06,

width: 0.52; length of scutellum: 0.34, width: 0.42; claval commissure: 0.26; fore legs: length of femur: 0.36, width: 0.10; tibia length: 0.42; tarsus: 0.16: I-0.05, II-0.12; middle legs: length of femur: 0.65, width: 0.09 (?); tibia, tarsus – broken.

Material examined

Holotype male, New Guinea: NE, Wau, Morobe Distr., 1200m, 14.XII, 1976; MV light trap, W.C. Gasgne collector – Bishop Museum. BMNH: 1985-11

Etymology

Named after the shape of vertex, which is depressed to form a deep sulcus; Gr. *amara* – ‘trench’, Gr. *inion* – ‘back of the head’.

Genus *Paratotta* HERCZEK, 1993

Type species: *Paratotta orientalis* HERCZEK, 1993

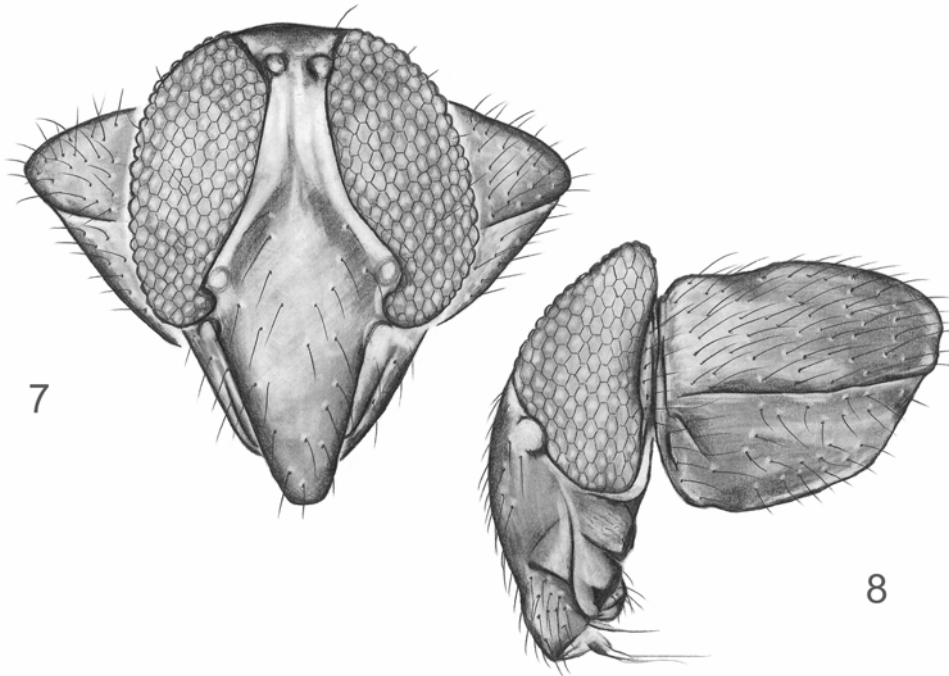
Paratotta sp. prop. *orientalis* HERCZEK, 1993

(Figs 7, 8, 11, 12)

Description

Body elongate, 2.8 times as long as wide, general color brown and dorsal surface covered with semierect, short, yellowish, hairs (Fig. 11). Vertex, apical part of pronotum, and rostrum yellowish brown; eyes and ocelli auburn-red; antennal joint I, base of joint II, and fore coxae (middle and hind legs missing) yellow; underside of body dark brown. Pronotum and hemelytra distinctly punctate, shining; mesoscutum and scutellum also shining but without distinct punctation. Membrane brown, smoked, longitudinally rugose, with two distinct cells; large cell strongly elongate, narrow; small cell weakly marked.

Head almost semiglobular (Fig. 11), height 1.3 times greater than width and 2.4 times as wide as long. Eyes cover almost half the height of head; ocelli placed close to posterior, upturned margin of head, contiguous with eyes; interocellar distance equals diameter of ocellus. Face triangular, elongated (Figs 7, 12), impunctate and covered with relatively long semierect setae (Figs 7, 8). Antennae inserted more centrally at level of 1/3 of eye height measuring from lower margin of eye; antennal joint I slightly longer than wide and 7.5 times shorter than II joint; joint II gradually widened apically, covered with semierect hairs. Rostrum reaching middle coxae. Pronotum trapezoidal, twice as wide as long; lateral sides slightly emarginate, posterior margin weakly convex; humeral angles widely rounded. Legs missing.



Figs 7-8. *Paratotta* sp. prop. *orientalis* HERCZEK, head and pronotum: 7 -frontal view; 8 - lateral view.

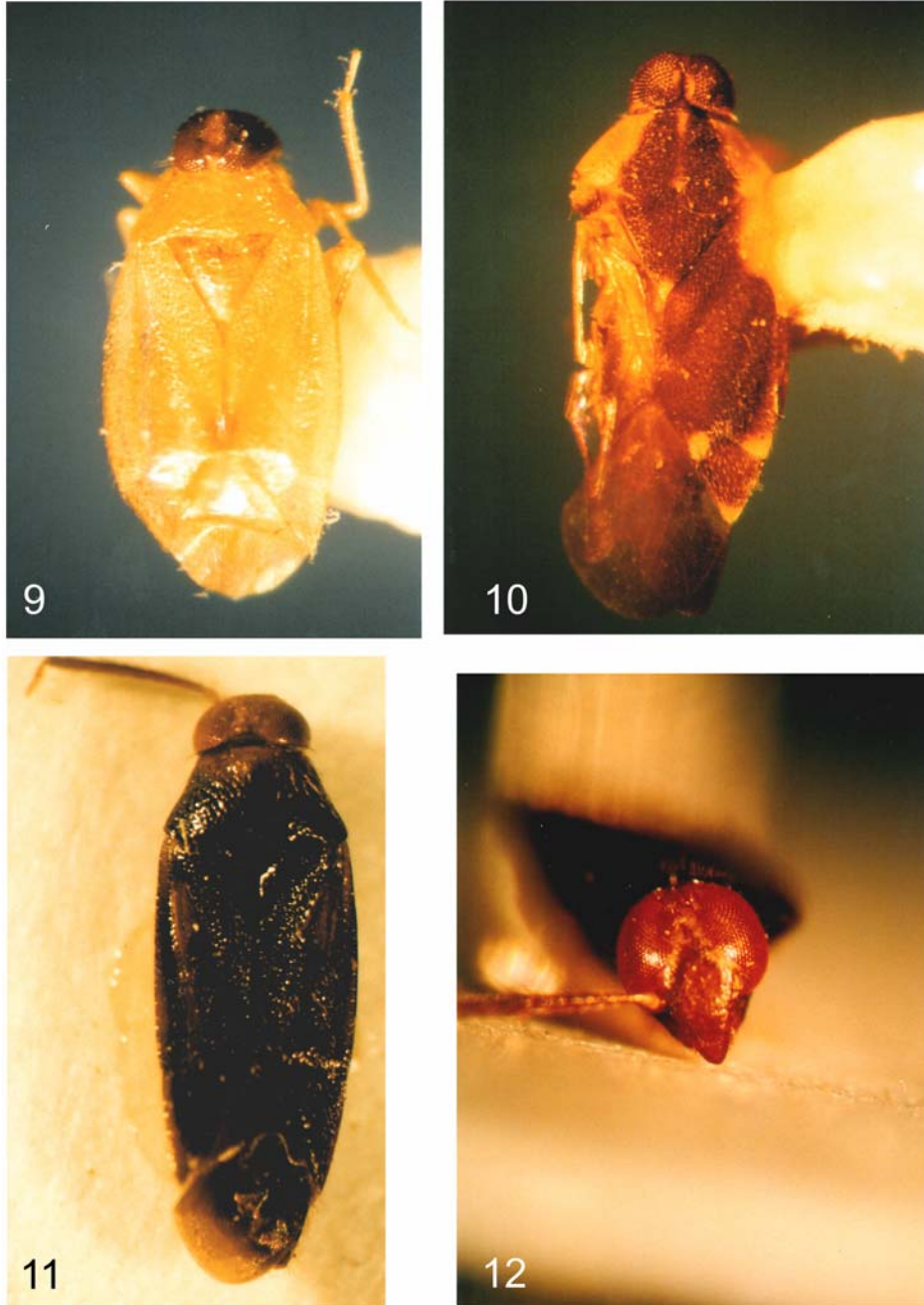
Measurements (in mm)

Length of body from apex of hemelytra: 2.70, width: 0.95; length of head 0.23, width 0.55, height 0.68; width of vertex: 0.13; length of eye 0.21, width of eye 0.16, height 0.39; antenna joints: I-0.10, II-0.75, III-18, IV-lost; labial segments: I -0.26, II-0.26, III-0.21, IV-0.13; length of pronotum: 0.41, width: 0.47 (min.), 0.86 (max); length of mesoscutum: 0.08, width: 0.55; length of scutellum: 0.36, width: 0.44; claval commissure: 0.38; legs: lost.

Material examined

Holotype female, Indonesia, Sulawesi Utara, Dumong-Bone N.P.; Lower montane forest ca. 1400m, March, 1985. BMNH: 1985-12.

Note: This female specimen is very similar to *P. orientalis* HERCZEK (1993) and somewhat differs from the nominal type specimens (males) only in some small characters: dark brown coloration of shining body; the posterior margin of vertex is upturned in the form of a sharp batten; antennae are inserted lower, the second antennal joint only 7.5 shor-



Figs 9-12. 9 -*Myiomma jankotejai* sp. n., holotype MNH Nr. 1085-10, dorsal; view; 10 - *Myiomma amaranion* sp. n., holotype BMNH; 1985-11. 11, 12 - *Paratotta* sp. prop. *orientalis* HERCZEK, BMNH; 1985-11, 11 - dorsal view, 12 - frontal view of head.

ter than the first one and pronotum is broader and shorter (twice as wide as long) with slightly emarginated lateral sides. But all these differences could, most probably, be the result of sexual dimorphism showing variable sex ratios. Therefore authors decided not to describe it as a new species until they do not get more material.

REFERENCES

- AKINGBOHUNGBE A.E. 1996. The Isometopinae (Heteroptera: Miridae) of Africa, Europe and the Middle East. Deler Tertiary Publishers, Ibadan: Nigeria, 170 pp.
- COBBEN R.H. 1978. Evolutionary trends in Heteroptera. Part II. Mouthpart-structures and feeding strategies. Meded. Lab. Entomol. Wageningen, N **289**: 407pp.
- GHAURI M.S.K., GHAURI F.Y.K. 1983. A new genus and new species of Isometopinae from North India, with key to world genera (Heteroptera). Reichenbachia, Mus. Tier. Dresden, **21**(3): 19–25.
- HERCZEK A. 2004. New Isometopinae (Heteroptera: Miridae) from Africa. Russian Entomol. J. **13**(4): 231–236.
- MCATEE W.L., MALLOCH J.R. 1924. Some annectant bugs of the superfamily Cimicoidea (Heteroptera). Bull. Brook. Entomol. Soc. **19**: 69–83.
- SCHUH R.T. 1976. Pretarsal structure in the Miridae (Hemiptera), with cladistic analysis of relationships within the family. Amer. Mus. Novit. 2601: 39pp.
- SMITH A.R. 1967. A new genus and twelve new species of Isometopini (Hemiptera, Isometopinae) from Ghana. Bull. Ent. Soc. Nigeria **1**(1), pp.1–48.
- SCHWARTZ M.D., SCHUH R.T. 1990. The world's largest isometopine, *Gigantometopus rossi*, new genus and new species (Heteroptera: Miridae). J. New York ent. Soc. **98**(1): 9–13.
- WHEELER A.G. Jr., HENRY T.J. 1978. Isometopinae (Hemiptera, Miridae) in Pennsylvania: Biology and description of fifth instars, with observations of predation on obscure scale. Ann. Entomol. Soc. Am. **71**: 607–614.

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