

Triplatyx ribesi sp. nov., a new species of Pentatomidae (Hemiptera: Heteroptera) from Madagascar

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Abstract

Triplatyx ribesi sp. nov. (Pentatomidae: Pentatominae: Triplatygini) is described from western coast of Madagascar. The new species belongs to *Triplatyx quadraticeps* species-group, which is defined here. An up-dated identification key to species of *Triplatyx* Horváth, 1904 is provided.

Key words: Heteroptera, Pentatomidae, Pentatominae, Triplatygini, taxonomy, new species, Madagascar.

Resumen

***Triplatyx ribesi* sp. nov., nueva especie de Pentatomidae (Hemiptera: Heteroptera) de Madagascar**

Se describe *Triplatyx ribesi* sp. nov. (Pentatomidae: Pentatominae: Triplatygini) de la costa occidental de Madagascar. La nueva especie pertenece al grupo de especies de *Triplatyx quadraticeps*, que es definido aquí. Se ofrece una actualización de la clave de especies de *Triplatyx* Horváth, 1904.

Palabras clave: Heteroptera, Pentatomidae, Pentatominae, Triplatygini, taxonomía, especie nueva, Madagascar.

Laburpena

***Triplatyx ribesi* sp. nov., Madagaskarreko Pentatomidae (Hemiptera: Heteroptera) espezie berria**

Triplatyx ribesi sp. nov. (Pentatomidae: Pentatominae: Triplatygini), Madagaskarren mendebaldeko kostaldekoa, deskribatzen da. Espezie berri hau *Triplatyx quadraticeps* espezie-taldekora da, zeinaren definizioa ere ematen baita hemen. *Triplatyx* Horváth, 1904 generoko espezieen identifikazio-klabea eguneratzen da.

Gako-hitzak: Heteroptera, Pentatomidae, Pentatominae, Triplatygini, taxonomia, espezie berria, Madagaskar.

Introduction

The endemic Madagascan tribe Triplatygini (Pentatomidae: Pentatominae) includes three described genera: *Anoano* Cachan, 1952 (two described species), *Tricompastes* Cachan, 1952 (one described species) and *Triplatyx* Horváth, 1904 (five described species) (Cachan, 1952; Schouteden, 1954; Kment, 2008). However, some additional new taxa await description (Kment, unpubl.).

The genus *Triplatyx* Horváth, 1914 was recently revised by Kment (2008) who redescribed three previously recognized species and added two new ones, also pro-

viding the identification key for all the Triplatygini genera and all known *Triplatyx* species: *T. quadraticeps* Horváth, 1904, *T. dubius* Jensen-Haarup, 1931, *T. bilobatus* Cachan, 1952, *T. kerzhneri* Kment, 2008, and *T. styxi* Kment, 2008 (Horváth, 1904; Jensen-Haarup, 1931; Kment, 2008).

However, during the proof-reading of that revision, I received three specimens of an additional undescribed *Triplatyx* species from St. Augustin (= Ianantsony) in western Madagascar, which are habitually identical with *T. dubius* but differ in the structure of pygophore (Kment, 2008: 546), making the correct identification of females of *T. dubius* and *T. quadraticeps*



FIGURE 1. *Triplatyx ribesi* sp. nov., male, holotype in dorsal view.

impossible. I am describing the additional *Triplatyx* species here, giving also an up-dated identification key to this genus.

Material and methods

Quoting the labels of type specimens, a slash (/) is used to divide data on different rows of one label, a double slash (//) is used to divide data on different labels, and author's comments are given in square brackets []; the following abbreviations are used: hw = handwritten; p = printed.

Dry-mounted specimens were studied under binocular stereomicroscopes Leica MZ75, MBS-10 and Olympus SZX9. Measurements were made with an ocular micrometer attached to MBS-10. The dissections and line drawings of structures other than genitalia were made under a Leica MZ75 stereomicroscope with an attached camera lucida. Male and female genitalia were examined under an Olympus SZX9 stereomicroscope. For the study of genitalia, specimens were softened in hot water and the male pygophore was removed under a stereomicroscope using sharp pincers, put

into a 10% solution of KOH and heated until the solution started to boil. After the treatment in KOH the pygophore was dissected and mounted on a piece of cardboard, the phallus was mounted on translucent plastic card in water-soluble dimethyl hydantoin formaldehyde resin (DMHF) and attached to the same pin as the dissected specimen.

The base map of Madagascar was downloaded from the On-line Map Creation website at <http://www.aquarius.geomar.de/omc>.

The material examined is deposited in the following collections:

- BMNH The Natural History Museum, London, United Kingdom.
- MMBC Moravian Museum, Brno, Czech Republic.
- MRAC Royal Museum of Central Africa, Tervuren, Belgium.
- NMPC National Museum, Praha, Czech Republic.

Taxonomy

Triplatyx ribesi sp. nov.

(Figs. 1, 2, 3g-i)

Type locality:

Madagascar (west coast), Toliara [= Tuléar] province, Ianantsony [= St. Augustin], 23°33'10" S 43°45'41" E.

Type material examined:

HOLOTYPE: ♂, «MADAGASCAR / Tulear Pr. / St. Augustin s.l. / 29.III.1968 / K.M.G. & P.D. [p, white label] // Brit. Mus. / 1968-321 [p, white label] // ♂ [p, white label] // HOLOTYPE / TRIPLATYX / RIBESI / sp. nov. / det. P. KMENT 2010 [p, red label]» (BMNH). The holotype (Figs. 1, 2a) is glued on tip of pentagonal white card; there is a pin hole in right side of its scutellum, the left hemelytron is slightly deflected, and right antennomeres 4 and 5 and left apical fore tarsomere are missing. The dissected pygophore is glued to the same piece of card, the phallus and one paramere are mounted in DMHF on a translucent plastic card attached to the same pin; second paramere remains in pygophore.

PARATYPES: 1 ♂ 1 ♀, «MADAGASCAR / Tulear Pr. / St. Augustin s.l. / 29.III.1968 / K.M.G. & P.D. [p, white label] // Brit. Mus. / 1968-321 [p, white label] // ♂ [p, white label] // PARATYPUS / TRIPLATYX /

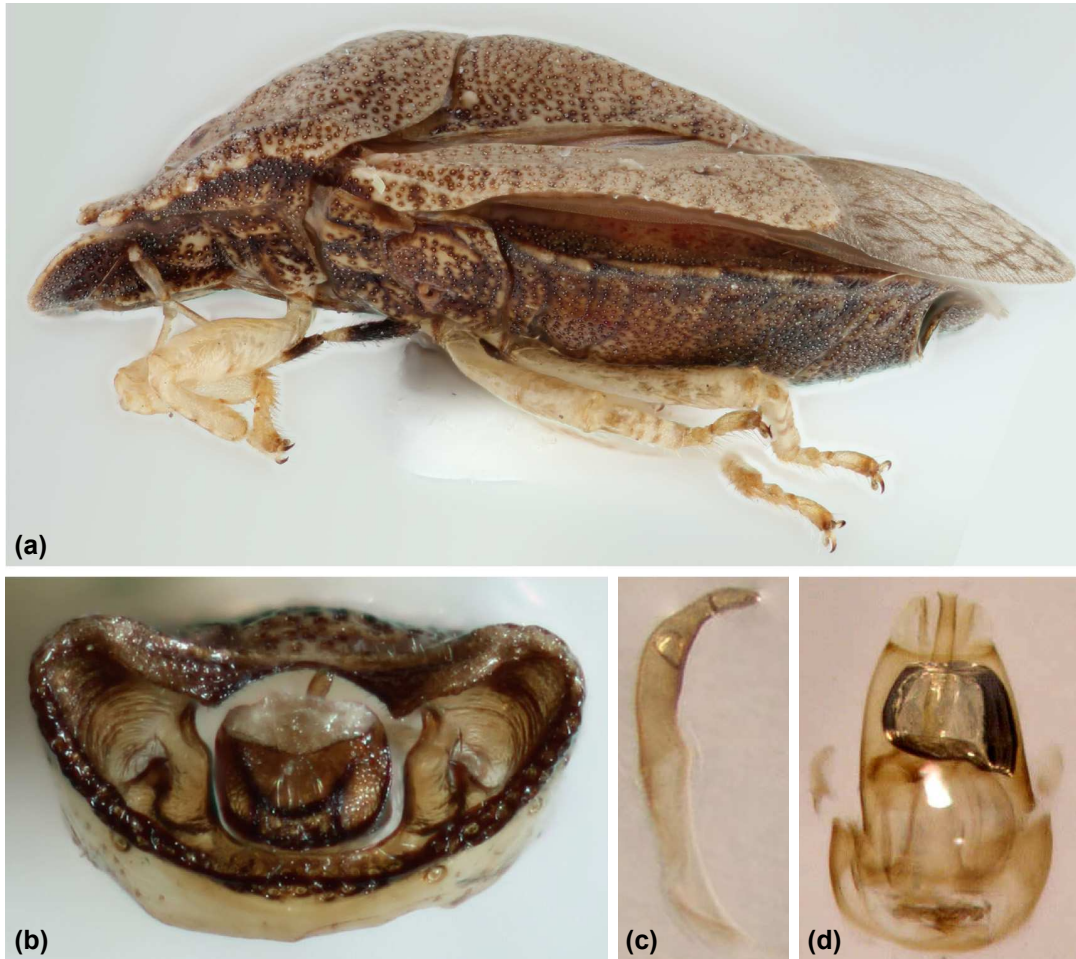


FIGURE 2. *Triplatyx ribesi* sp. nov., male, holotype: (a) Body in lateral view; (b) Dissected pygophore in posterodorsal view; (c) Paramere; (d) Phallus.

RIBESI / sp. nov. / det. P. KMENT 2010 [p, red label]»
(1 ♂ NMPC, 1 ♀ BMNH).

Description:

Colouration. Body dorsally pale brown, pronotum and scutellum without pale, callose longitudinal mid-line. Antennae pale brown, antennomere 1 somewhat darker basally, apical half of antennomere 4 and apical two-thirds to three-quarters of antennomere 5 dark brown to black. Eyes dark brown with reddish tinge. Narrow pale median spot at lateral margin of laterotergites missing or only slightly contrasting. Venter of body dark brown; abdomen medially with large yellowish callosities. Rostrum brownish, apically dark brown. Legs pale brown with irregular brown spots; claws in

apical halves black. Abdominal spiracles dark brown. Membrane colourless, translucent, with brown veins.

Sculpture. Body dorsally densely to very densely punctate. Interspaces among punctures narrower than or as wide as their diameters; if wider, then forming irregular, pale, convex callosities. Punctures brown to dark brown; dark punctures here and there forming short, ca. horizontal chains. Callosities on dorsum only slightly developed, sparse, scattered, small and irregular. Basal angles of scutellum with small, raised, globular, ivory to beige callose grain. Venter of body very densely punctate, punctures on thorax distinctly larger and sparser than those on head and abdomen, abdomen medially with much sparser punctation than on sides; base of head, thorax

and abdomen with many small irregular beige callosities, less prominent on abdomen. Legs without distinct punctures.

Structure. Head strongly declivous (Fig. 2a), nearly trapezoid in outline (Fig. 1). Lateral margins in front of eyes with triangular antecular spine, more anteriorly slightly but distinctly incised; paraclypei foliaceous, flattened, long and wide, widening laterad in front of lateral incision and rounded mesad anteriorly, more or less regularly arcuate; anterior margin of head nearly straight; paraclypei meeting in front of clypeus, forming only small incision; paraclypei flat, with anterior margin both dorsally and ventrally lacking setae. Clypeus and frons slightly convex to nearly flat. Antennomeres ordered from shortest to longest as $3 \leq 1 \leq 2 \leq 4 < 5$. Bucculae low, slightly narrowing both anteriorly and posteriorly, rounded on both apices, with lower margin slightly insinuated to nearly straight medially. Apex of rostrum reaching between meso-coxae or towards anterior margins of metacoxae.

Pronotum (Figs. 1, 2a). Anterolateral angles truncated, wide, weakly protruding anteriorly, laterally with distinct spine. Anterolateral margins nearly merging with humeral angles and very variable in shape: slightly concave, carinate, bearing one minute to large triangular spine medially or one large and one minute spine. Humeral angles very wide, distinctly produced anteriorly, declivous, widely rounded, anteriorly and laterally bearing 4-7 well developed to hardly distinct triangular or lobe-like projections; the most anterior projection usually best developed, the most posterior one slightly protruding of arcuate outline. Margins of pronotum behind humeral angles regularly rounded, narrowing towards scutellum; posterior margin straight to slightly concave. Pronotal disc anteriorly and medially slightly convex, strongly declivous towards head, without distinct median elevation; dorsal surface of humeral angles continuous with rest of pronotum, only slightly concave basally; posterior part of pronotum distinctly convex sublaterally, slightly convex medially, confluent with anterior surface of scutellum.

Scutellum. Basal angles shallowly depressed; disc slightly and regularly elevated, not forming a hump, convex in anterior two-thirds of scutellum and continuous with surface of pronotum; lateral surfaces flattened in midlength of scutellum; posterior surface towards scutellar apex nearly flat.

Hemelytra (Fig. 1). Clavus with 3-4 irregular rows of punctures in widest place; apex of membrane almost reaching to slightly surpassing apex of abdomen; veins of membrane reticulate.

Thorax ventrally flattened; sternum between coxae furrowed. Ostiole situated on small tubercle, round, directed obliquely ventrolaterad and accompanied with small spout less than twice longer than ostiole width; metapleuron around ostiole not depressed. Evaporatorium small, developed both on meso- and metapleuron; on mesopleuron forming only narrow strip along posterior margin and widened in its depressed posterolateral angle; evaporatorium on metapleuron narrowly surrounding tubercle bearing ostiole and projecting as narrow strip mesad between meso- and metacoxae, and laterad on anterior margin of metapleuron along thoracic spiracle and further laterad; depressed evaporatory channel well developed; gyrfication of evaporatorium not apparent.

Legs. Protibiae hardly widening towards apex, their outer surface distinctly flattened, lateral margins carinate.

Abdomen slightly narrower ($\sigma\sigma$) to slightly wider (♀) than pronotum across humeral angles; sternite III not depressed anteromedially. Laterotergites fully exposed dorsally, mediotergites completely covered with hemelytra; laterotergite III laterally distinctly bisinuate, with median projection and posterior angle more or less protruding; laterotergites IV-VI laterally slightly bisinuate to nearly straight, laterotergites VII-VIII laterally nearly straight; dorsal surface of laterotergites nearly flat, sometimes with shallow depressions medially.

Male genitalia. Pygophore (Figs. 2b, 3g-i) relatively small (pygophore width 0.75–0.80 mm, ratio pygophore width to body length 0.15–0.16, $n = 2$); ventral wall slightly gibbose basally, nearly flat posteromedially (Fig. 3i); ventral rim medially not developed, laterally indicated by shallow ridges on posterolateral angles; ventral wall continually merging into ventral rim infolding, only ventral wall depressed subapically at base of posterolateral angles which are protruding ventrally (Figs. 3h-i); ventral rim infolding parallel with ventral wall, slightly concave medially, only its lateral projections slightly bent dorsally, obtusangulate (Figs. 2b, 3g); posterolateral angles of pygophore more widely rounded laterally, lateral rim of posterolateral angles narrow; lateral rim infolding dorsally with sharply pointed tooth-shaped projection on each side (Figs. 2b, 3g); paramere sockets distinct; apices of parameres visible, directed obliquely dorsolaterally. Paramere simple, laterally flattened, apical portion slightly longer than basal portion, medially curved, crescent-shaped, apically narrowly rounded (Fig. 2c); apex of paramere in dorsal view slightly widened and flattened. Phallosome of aedeagus like in *T. dubius*,

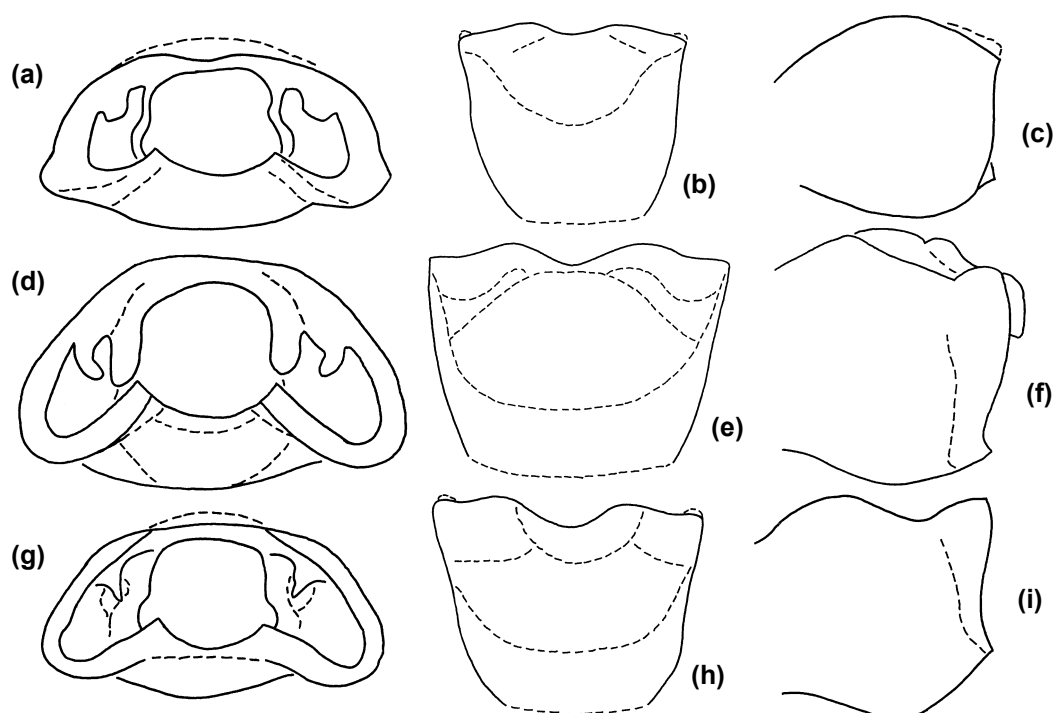


FIGURE 3. Pygophore: (a)-(c) *Triplatyx dubius* Jensen-Haarup, 1931: (a) «Madagascar», coll. National Museum Praha; (b)-(c) Ankarafantsika, coll. E. Heiss; (d)-(f) *T. quadraticeps* Horváth, 1904: (d) Paralectotype; (e)-(f) Lectotype; (g)-(i) *T. ribesi* **sp. nov.**: (g) Holotype; (h)-(i) Paratype. Views: (a), (d), (g) Posterodorsal view; (b), (e), (h) Ventral view; (c), (f), (i) Lateral view.

slightly oval, sclerotized apical processes of median penal plates narrow, well developed (Fig. 2d).

Female genitalia. Gonocoxites 8 with posterior margin slightly concave and sutural margin slightly convex, both gonocoxites 8 almost in contact medially; gonapophyses 9 visible; posterior margin of laterotergites 9 narrowly rounded.

Measurements (σ holotype, σ paratype / φ paratype) (mm). Body length (from apex of paraclypei to apex of membrane): 4.8, 5.4 / 5.5; head length (from apex of paraclypei to the anterior pronotal margin): 1.35, 1.30 / 1.40; head width (maximum width across eyes): 1.65, 1.70 / 1.70; vertex width (between eyes): 1.35, 1.35 / 1.35; length of antennomeres: 1: 0.30–0.33, 0.30 / 0.35; 2: 0.30–0.35, 0.35 / 0.33–0.35; 3: 0.28, 0.30 / 0.35; 4: 0.35, 0.40 / 0.40–0.43; 5: 0.50, 0.50 / 0.55–0.58; pronotum length (medially in most exposed view): 1.30, 1.30 / 1.45; pronotum width (maximum width between apices of humeral angles): 3.8, 4.0 / 4.3; scutellum length (medially from base to apex): 1.95, 2.10 / 2.40; scutellum width (maximum

width at base): 2.25, 2.40 / 2.50; abdomen width (maximum width across laterotergites III or IV): 3.75, 3.80 / 4.55; pygophore width (in posterodorsal view): 0.75, 0.80.

Variation:

The examined males completely lack pale median callose line on pronotum and scutellum, while in the female this is present though very short and limited to ca. posterior quarter of pronotum. All three specimens also differ in number and shape of projections on anterolateral and lateral margins of pronotum.

Differential diagnosis:

Triplatyx ribesi **sp. nov.** belongs to *T. quadraticeps* species-group including also *T. quadraticeps*, *T. dubius* and *T. kerzhneri*, all the species being habitually very similar. The *T. quadraticeps* species-group is defined by the following characters: head trapezoid in outline; humeral angles of pronotum more or less rounded; thorax ventrally flattened; peritreme in form of very small

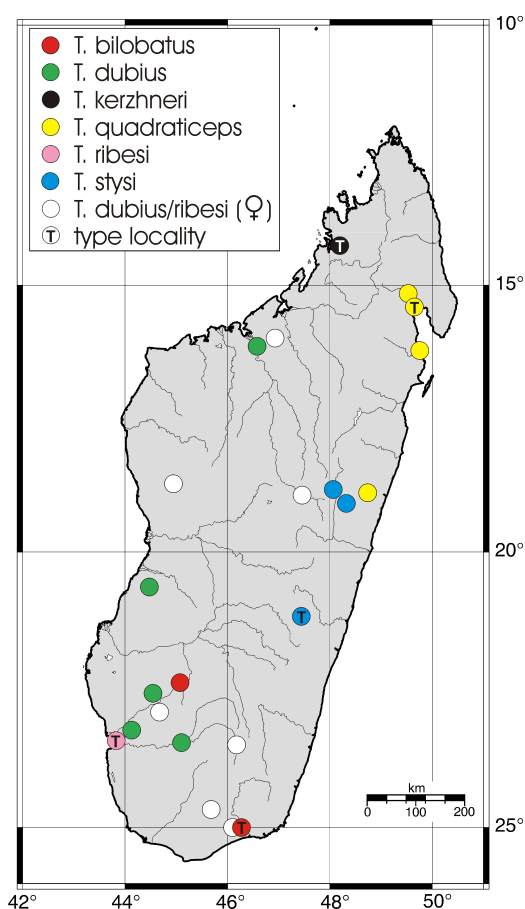


FIGURE 4. Revised distribution of *Triplatyx* species in Madagascar (modified from Kment, 2008).

spout, directed obliquely ventrolaterad; metapleuron around ostiole hardly depressed; evaporatorium small with well developed depressed evaporatory channel; protibiae not widening towards apex; legs without distinct punctures; outer margin of laterotergites only slightly bisinuate to nearly straight. The four included species can be distinguished with certainty only according to genital characters, especially the structure of the pygophore (see the key below).

- (1) Small (body length 4.7–5.1 mm), dark to blackish brown. Head nearly quadrangular, its anterior margin setose. Pronotum uneven dorsally, bearing large pale triangular elevation in anterior part; anterolateral angles not carinate, spinose; in lateral view, pronotum depressed posteriorly, forming sharp angle with anterior sur-

According to present knowledge, *Triplatyx ribesi* sp. nov. differs from *T. kerzhneri*, *T. quadraticeps* and some specimens of *T. dubius* by lack of the scutellar hump. However, this character is also missing in some specimens of the highly variable and sympatric *T. dubius*, from which the new species cannot be reliably separated otherwise than according to male genitalia. In the structure of pygophore, *T. ribesi* sp. nov. is most similar to *T. quadraticeps*, sharing the posterolateral angles of pygophore protruding ventrally and paired tooth-shaped projection dorsally on lateral rim infolding. *T. ribesi* sp. nov. differs from all the *Triplatyx* species by the following combination of characters: Pygophore with ventral wall slightly gibbose basally and flat posteromedially, only ventral wall shallowly depressed subapically at base of posterolateral angles (Figs. 3h-i); ventral rim infolding parallel with ventral wall, only its lateral projections bent dorsally, less prominent and obtusangulate (Fig. 3g).

Etymology:

It is my pleasure to dedicate the new species to my colleague Jordi Ribes, joining in this way the famous heteropterists Izyaslav M. Kerzhner and Pavel Štys who already have their own *Triplatyx*.

Collecting circumstances:

Unknown.

Distribution:

Known only from the type locality situated near western coast of the island. Discovery of *Triplatyx ribesi* sp. nov. much complicate the species identification within *T. quadraticeps* species-group, making the females practically unidentifiable. In this light the female-only based distributional records of *T. dubius* given by Kment (2008) must be considered as tentative, as both *T. dubius* and *T. ribesi* sp. nov. seem to co-occur in Toliara province (see Fig. 4).

Key to the *Triplatyx* species

The presented key is modified from Kment (2008), where additional figures of the characters can be found.

- face of scutellum; scutellar disc with high, conical hump in its anterior half. Lateral margin of connexivum strongly sinuate. Legs off-white, lacking small dark spots, femora extensively dark brown basally *T. bilobatus* Cachan, 1952
- Small to large (body length 4.8–7.5 mm), pale to dark brown. Head quadrangular to trapezoid (widening towards apex), its anterior margin without setae. Pronotum usually flat dorsally, lacking pale triangular elevation in anterior part; anterolateral angles carinate, bearing usually only one short spine; in lateral view, pronotum rather flat posteriorly, forming obtuse angle or confluent with anterior surface of scutellum. Lateral margin of connexivum weakly sinuate. Legs brownish with small dark spots **2**
- (2) Larger (body length 6.1–7.5 mm), pale brown. Head nearly quadrangular, sides of paraclypei regularly rounded. Humeral angles of pronotum very large, almost quadrangular, distinctly turned upwards. Scutellum dorsally with very high, conical hump, posteriorly bearing prominent longitudinal ridge. Ostiole oriented laterad (hardly visible from above), spout large (about twice longer than ostiole wide). Evaporatorium large, especially on mesopleuron *T. stysi* Kment, 2008
- Smaller (body length 4.8–7.1 mm), pale to dark brown. Head trapezoid, sides of paraclypei distinctly produced laterad. Humeral angles of pronotum smaller, usually widely rounded, hardly or not turned upwards. Scutellum dorsally with moderately high, rounded hump, or weakly and regularly convex, posteriorly usually lacking longitudinal ridge. Ostiole oriented ventrolaterad (well visible from above), spout small (less than twice longer than ostiole wide). Evaporatorium small, forming only very narrow strip on mesopleuron along its posterior margin *T. quadraticeps* species-group **3**
- (3) Pygophore with postero-lateral angles sharply pointed; ventral wall postero-medially with deep round depression; ventral rim not developed, ventral rim infolding directed posteriad, not bent, shallowly and widely V-shaped medially, lateral projections low, rectangular, apically sharp, shifted laterad towards posterolateral angles. Paramere robust, with apex *in situ* directed laterad. Hump on scutellum high. Humeral angles of pronotum quadrangular; pronotum and scutellum medially with longitudinal callose line. Spout very small, about as long as ostiole wide. Body length 5.4 mm *T. kerzhneri* Kment, 2008
- Pygophore with posterolateral angles rounded (Figs. 2b, 3a, d, g); ventral wall different; ventral rim infolding bent dorsally (at least its lateral projections), shallowly concave medially, its lateral projections rectangular to obtusangulate, not shifted laterad (Figs. 3a, d, g). Paramere slender (Fig. 2c); apices of parameres *in situ* directed dorsolaterad. Hump on scutellum high to absent. Humeral angles of pronotum widely rounded; pronotum and scutellum usually without median longitudinal callose line **4**
- (4) Pygophore with entire ventral wall regularly convex (in lateral view, Fig. 3c), gradually merging into ventral rim infolding, neither of them distinctly depressed subapically at base of posterolateral angles which are not protruding ventrally (Figs. 3b-c); ventral rim infolding bent dorsally, its lateral projections obtusangulate; lateral rim of posterolateral angles wider (Fig. 3a); lateral rim infolding dorsally with semi-circular projection on each side (Fig. 3a). Scutellum usually without a dorsal hump, more rarely with a high one. Body length ♂♂ 5.0–5.4 mm, ♀♀ 5.4–6.0 mm *T. dubius* Jensen-Haarup, 1931
- Pygophore with ventral wall distinctly depressed subapically at base of posterolateral angles which are protruding ventrally (Figs. 3f, i); lateral rim of posterolateral angles narrow (Figs. 3d, g); lateral rim infolding dorsally with tooth-shaped projection on each side (Fig. 3a). Scutellum either with or without a dorsal hump **5**
- (5) Pygophore with ventral wall strongly gibbose medially, gibbosity reaching between bases of posterolateral angles (Fig. 3f); both ventral wall and ventral rim infolding deeply (groove-like) depressed subapically at base of posterolateral angles (Figs. 3e-f); ventral rim infolding bent dorsally, its lateral projections prominent, rectangular (Fig. 3d). Scutellum in all examined specimens with high dorsal hump. Larger; body length ♂♂ 6.0 mm, ♀♀ 6.3–7.1 mm *T. quadraticeps* Horváth, 1904
- Pygophore with ventral wall slightly gibbose basally and flat posteromedially between bases of posterolateral angles (Fig. 3i); only ventral wall shallowly depressed subapically at base of posterolateral angles (Figs. 3h-i); ventral rim infolding parallel with ventral wall, only its lateral projections bent dorsally, less prominent, obtusangulate (Fig. 3g). Scutellum in all examined specimens without a dorsal hump (Fig. 2a). Smaller; body length ♂♂ 4.8–5.4 mm, ♀ 5.5 mm *T. ribesi* sp. nov.

Faunistics

Triplatyx dubius Jensen-Haarup, 1931

(Figs. 3a-c)

Material examined: MADAGASCAR (occ.): Vohibory, v. 1941, 1 ♂, Abadie lgt., Cachan det. as *T. dubius*, P. Kment revid. (BMNH).

Triplatyx quadriceps Horváth, 1904

(Figs. 3d-f)

Material examined: MADAGASCAR (bor. or.): 1 km NW of Mananara, Aye-Aye Island, 5.-7.ix.2003, 1 ♀, P. Baňář lgt., P. Kment det. (MMBC). Maroantsetra env., Fampanambo, 1962, 1 ♂ 2 ♀♀, J. Vadon lgt., H. Schouteden det., P. Kment revid. (MRAC).

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