

Dolichopodidae (Diptera) from Papua New Guinea VII.
Description of *Thinolestris* gen.nov., a new beach dwelling
genus of Hydrophorinae*

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ABSTRACT: *Thinolestris* gen.nov., closely allied to *Cymatopus* Kertész, 1901, is described with *Th. luteola* sp.nov. from Papua New Guinea as type. A second species, *Th. obscura* sp.nov. was found in Sulawesi. Both species occur on rocky beaches near the waterfront.

RESUME: *Thinolestris* gen.nov. apparenté à *Cymatopus* Kertész, 1901, est décrit avec *Th. luteola* sp.nov., provenant de la Papouasie Nouvelle Guinée, comme espèce type. Une deuxième espèce, *Th. obscura* sp.nov., est rapportée de Sulawesi. Les deux espèces ont été trouvées sur des plages rocheuses près du bord de la mer.

1. INTRODUCTION

In the present paper, the new Hydrophorine Dolichopodid genus *Thinolestris* is described. It is very closely related to the other beach dwelling genus *Cymatopus* Kertész, 1901, but the new species does not fit with the diagnosis of the latter.

2. MATERIAL

The material from Papua New Guinea was collected by the first author during a stay at the biological station on Motupore Island (University of Papua New Guinea, Dir. Dr John Pernetta) from the 9th to 23rd September 1987. The material is preserved in alcohol in the collections of the 'Koninklijk Belgisch Instituut voor Natuurwetenschappen' (I.G. no. 27,285). The material from Sulawesi was collected by Dr Jan Van Stalle on Molosso I during an expedition of the 'project Wallace'.

*Leopold III Biological Station, Laing Island; Contribution no. 161.

3. SYSTEMATIC ACCOUNT

Thinolestris gen.nov.

Hydrophorinae. Species of small stature, less than 2.5 mm long, without metallic green colouring. Head with convex occiput. Face broad in both sexes, with a distinct transverse division; clypeus protruding, not reaching lower eye margin. Palpi moderately large, without apical bristles. Rostrum short. Frons with a pair of fronto-orbital bristles, inserted just above level of antennal sockets. 2 not very large ocellar bristles, 2 rather strong but not very long postvertical bristles, in row with the postocular cilia. No postocellar bristles. Postocular cilia uniseriate, not forming 'favoris'; upper postocular cilia strong, bristlelike. *Antennae* short; first joint short, bare; second joint with a circlet of very short apical bristles; third joint oblong, triangular, with apical arista. Basal joint of arista longer than third antennal joint.

Thorax with a posterior flattened area. No acrostichals, 4 dorsocentrals. Scutellum with 2 large, crossed marginals, without additional hairs. 1 humeral, 1 posthumeral, 2 small notopleurals, 1 sutural, 2 supraalar and 1 postalar bristle. Propleurae with 2 hairs. Legs simple, not raptorial, with last 3 joints of all tarsi gradually feebly dilated. Coxa III with an exterior bristle. Femora and tibiae without large bristles; only on mid-tibiae 1 small ad, or 1 ad and 1 pd, both small. Front femur with a row of very short anteroventral bristles on apical half in male and female. Femur III without preapical bristle. Front tibia of male ventrally with a row of very short bristles. All tibiae shorter than femora (about 3:4).

Wings with yellow veins and with conspicuously spined costa: 2 rows of spines, an outer and an inner row. r1 and r2+3 parallel, slightly converging towards apex. r2+3 and m1+2 parallel, slightly or hardly diverging towards apex. Apical part of m3+4 more than five times as long as tp. No anal vein. Squamulae with very short cilia.

Tergites of abdomen with very short hairs and very short marginal bristles, even on first tergite. Hypopygium moderately large, bent back under abdomen. From venter of fifth abdominal segment a plate-like bent projection, furnished with bristled papillae, is projecting, forming a sort of forceps with the hypandrium. Cerci oblong; closely adjoining hypopygium. Oviscapt of female with on each hemitergite a row of slender dornen.

Derivatio nominis: Greek: θις; beach: λησταις; robber; gender: feminine.

Type species: *Thinolestris luteola* n.sp.

The two species attributed to the new genus are closely allied. They can be separated as follows:

- Thorax and scutellum reddish yellow. Basal joint of arista only a little longer than third antennal joint. Head of hypandrium clearly indented. Basal papillae at base of projection on fifth abdominal segment without a thorn (Papua New Guinea) *Th. luteola* sp.nov.
- Thorax and scutellum largely brownish black. Basal joint of arista much

longer than third antennal segment. Head of hypandrium with only a shallow indentation. Basal papillae at base of projection on fifth abdominal segment with a thick large thorn (Sulawesi) *Th. obscura* sp.nov.

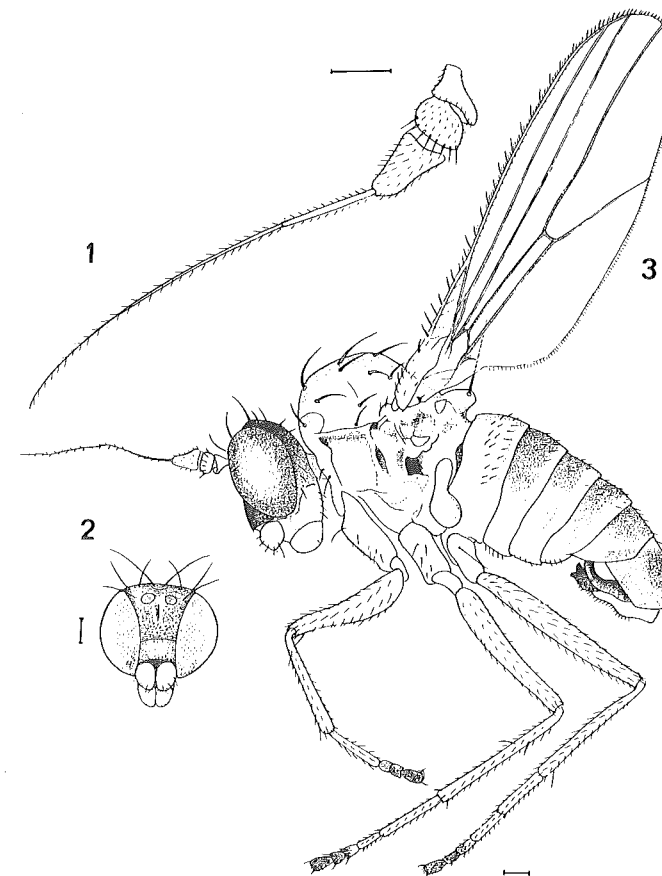
3.1 **Thinolestris luteola** sp.nov. (Figs 1-5)

A largely reddish yellow coloured species.

Male

Body length: 1.6-2.15 mm; *wing length:* 1.8-2 mm.

Head. Frons and face with brownish black ground colour uniformly grey dusted. Face very broad (nearly twice as wide as third antennal joint). Clypeus



Figures 1-3. *Thinolestris luteola* sp.nov. paratype male 1. antenna; 2. head in front; 3. habitus.

protruding. Palpi moderately large, yellow, with very short delicate white and some yet shorter dark hairs, without bristles. Rostrum brownish yellow. Occiput black in ground-colour but covered with a grey dust. 2 not very long ocellar bristles, 2 fronto-orbitals, 2 converging postverticals, in row with postocular cilia. Postocular cilia uniseriate, brownish yellow to brown above, pale yellow laterally and below. Eyes green. *Antennae* (Fig. 1) yellow, third joint somewhat darker coloured, oblong, triangular with blunt tip, slightly longer than wide at base, with very short pubescence. Arista apical, first joint a little longer than third antennal joint. Second aristal joint with very short pubescence, looking bare. Arista nearly 2.5 times as long as antenna.

Thorax and scutellum reddish yellow, rather dull grey dusted. On metapleurae a dull deep black spot. Mesonotum posteriorly with a flattened area. Thoracic bristles black and stout. No acrostichals, 4 dorsocentrals. A humeral, a posthumeral, a sutural, 2 notopleurals, a supraalar, a postalar and a pair of scutellars. 2 hairlike yellow propleurals.

Legs and coxae yellow; coxa II with a dark longitudinal stripe posteriorly. Last three joints of all tarsi gradually darkened. Coxa I anteriorly and at apex with short yellow hairs. Trochanter I bare. Femur I slightly swollen on basal half; anteroventrally on apical half a row of 6-8 short dark bristles; posteriorly and ventrally on basal half somewhat longer hairs. Tibia I about $\frac{3}{4}$ as long as femur I, ventrally with a row of short dark bristles; at anterior apical rim a short fringe of closely set pale hairs. Last three joints of tarsus I gradually, but only slightly broadened; consequently fifth joint rather large. Length ratio of tibia I and tarsus I: 15: 6.5: 2.5: 2: 1.5: 2.5.

Coxa II externally with a vertical row of about 4 short hairs. Trochanter II with some minute hairs. Femur II without bristles and without real preapical bristle. Tibia II about $\frac{3}{4}$ of length of femur II; 1 short and weak ad; at apex only 2 short bristles. Tarsus II with last three joints as on tarsus I, but slightly less broadened. Length ratio of tibia II and tarsus II: 21: 10.5: 4: 2.5: 2: 3.

Coxa III with a short and weak black external bristle. Trochanter III with some short hairs. Femur III without bristles and without a real preapical bristle. Tibia III about $\frac{3}{4}$ of length of femur III, without bristles; hairs of posterodorsal row slightly lengthened; no apical bristles. Last three joints of tarsus III as on tarsus II. Length ratio of tibia III and tarsus III: 22: 10: 6: 3.5: 2.5: 3.

Wings yellowish tinged, with yellow veins, but parts of veins around tip may be somewhat darkened. Costa with 2 conspicuous rows of spines; on basal part (until tip of subcosta) inner and outer row consisting of strong and long spaced bristles; on rest of costa the inner row consists of rather long, spaced spines, the outer row of short, more densely set spines. r_{2+3} and m_{1+2} slightly diverging towards tips. Apical part of m_{1+2} nearly twice as long as basal part. Tip short, straight, much shorter than apical part of m_{3+4} (about 1:6). No anal vein. Halteres pale yellow. Squamulae pale yellow, with very short pale cilia.

Abdomen with 6 entire segments visible. Segment 1 reddish yellow; dorsum

of following segments dark brown. Venter yellow with a vague brownish streak on middle. Hairs on tergites brownish, short marginal bristles black. Venter with very few short hairs. Hypopygium (Figs 4-5) yellow with black hypandrium. Head of hypandrium indented. Hooked structure on venter of fifth abdominal segment black; basal papillae (Fig. 4) with simple bristles. Cerci pale yellow, with short pale hairs.

Female

Body length: 1.6-2.3 mm; wing length: 1.8-2.15 mm.

Head. Face slightly broader than in male.

Legs as in male, but last three joints of tarsi less broadened. Femur I with the same row of short bristles as in male. Tibia I without row of ventral bristles and without apical fringe. Wings with the same row of spines on costa as in male.

Abdomen usually lighter coloured than with the male, dorsum of second and following segments dark brown, but lighter coloured towards sides. *Oviscapt* hidden; each hemitergite with 7 long, narrow dornen.

Material

Holotype male: Papua New Guinea, Motupore Island, National Capital District, 10.IX.1987 (sample no. 160, leg. P. Grootaert); Paratypes: 52 males, 38 females with same data as holotype.

Biology

Th. luteola was found only on Montupore Island, a small island in Bootless Bay close to Port Moresby. The beach around Motupore consists in the North of a sand plate, in the East of a mud plate covered with mangrove while the South and West consist of a rocky beach generally exposed to heavy winds. In the morning, the western part of the island remains in the shade of the high central hill of the island while at noon it is fully exposed to the sun. No herbs or trees are present to give any shade. Despite intensive searches, *Th. luteola* was only found on the southwest beach and there in very large quantities, generally very close to the waterfront. These small flies were seen on the sides of small rocks (5-10 cm height) and were probably foraging on the fine wet gravel between these rocks. *Th. luteola* was never seen on the mud flats nor on the sandy beaches nor in the mangrove.

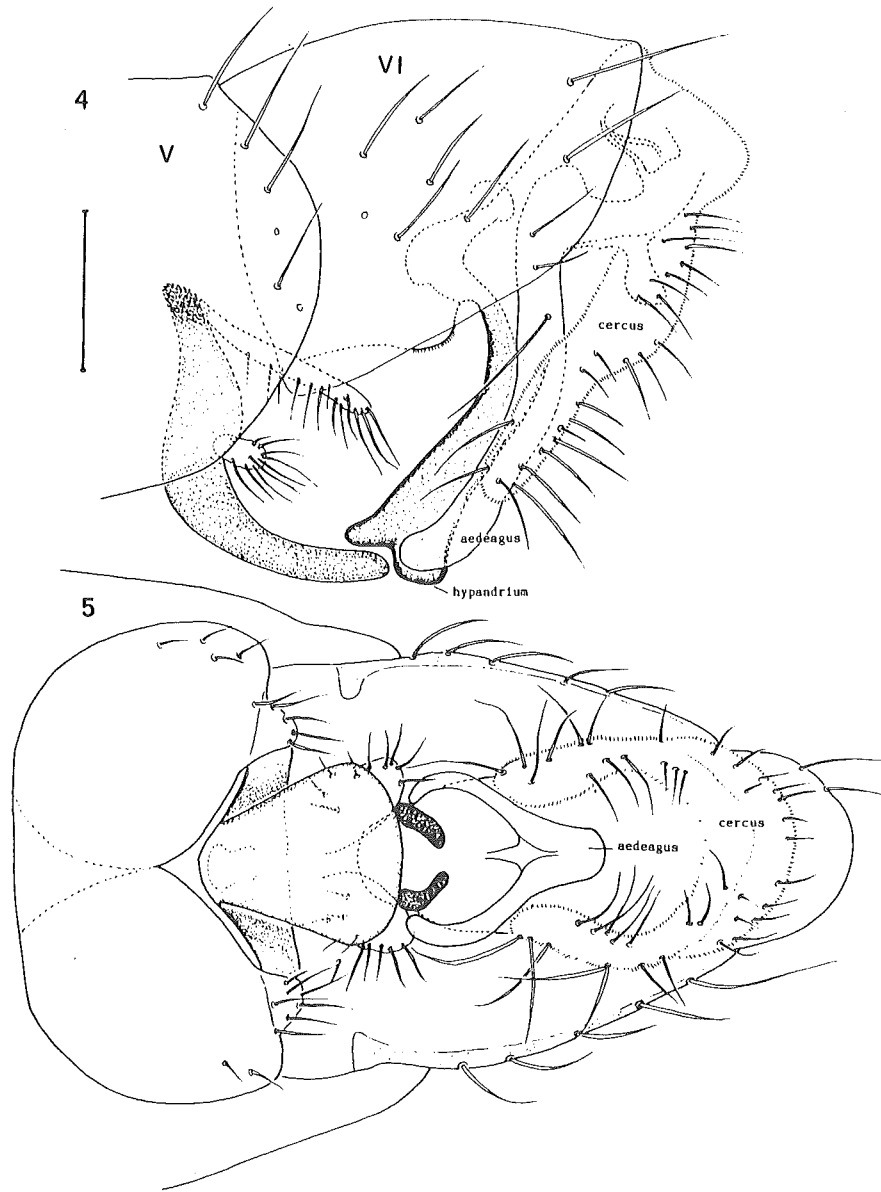
3.2 *Thinolestria obscura* sp.nov. (Fig. 6)

Very near to *Th. luteola*, but thorax brownish black.

Male

Body length: 1.8-2.25 mm; wing length: 1.8-2.1 mm.

Head. Frons and face with blackish ground colour (dusted?). Face very broad, nearly twice as broad as third antennal joint. Clypeus slightly protruding. Palpi yellow, with very short delicate white hairs. Rostrum brownish yellow. Occiput black. 2 ocellar bristles, 2 fronto-orbitals, 2 converging postverticals, in row



Figures 4-5. *Thinolestria luteola* sp. nov. hypopygium paratype male: 4. side view; 5. ventral view.

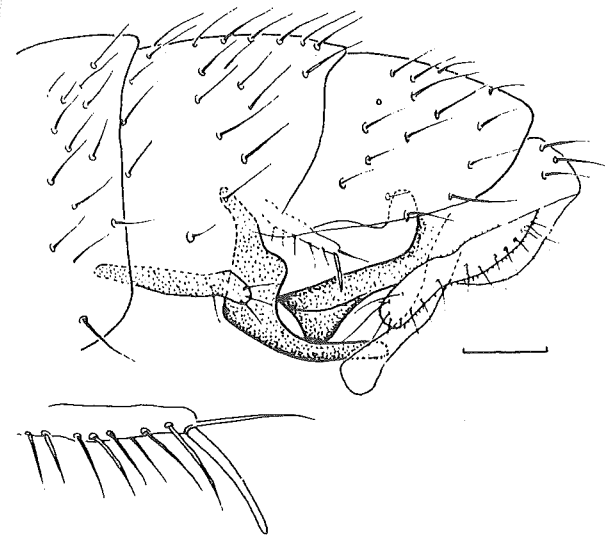


Figure 6. *Thinolestria obscura* sp. nov. paratype male: hypopygium. Scale: 0.1 mm.

with the postocular cilia. Postocular cilia uniseriate, then 2 uppermost long, black, the other pale, growing shorter downwards. *Antennae* reddish yellow, third joint somewhat darker coloured, oblong, triangular, with blunt tip. Arista apical; basal joint much longer than third antennal joint (9:5); second joint very shortly pubescent. Arista more than three times as long as antenna.

Thorax brownish black, slightly reddish brown on humeri, lateral sides of mesonotum and parts of pleurae. Hind margin of mesonotum narrowly reddish. Scutellum black with a reddish median area. Metapleura with a dull deep black spot. Mesonotum posteriorly with a flattened area. No ac, 4 dc. Propleurae with 2 pale hairlike bristles.

Legs. Coxa I yellow, II and III brown; coxa II posteriorly with a darker brown longitudinal stripe. Legs yellow; fifth joint of all tarsi brown; third and fourth joints may be gradually darkened, especially on tarsi I and II.

Coxa I anteriorly and at tip with moderately long pale yellow hairs. Trochanter I bare. Femur I slightly swollen on basal half; anteroventrally on apical half (or even on apical $\frac{3}{5}$) with a row of 6-8 very small black bristles; posteroventrally and posteriorly a delicate pale hairiness. Tibia I about $\frac{3}{4}$ of femur I, dorsally with short pale hairs, ventrally with a row of very short brown bristles; at anterior apical rim a short fringe of closely set pale hairs. Last three joints of tarsus I gradually slightly broadened. Length ratio of tibia I and tarsus I: 15:7.5:2.5:2:1.5:3.

Coxa II exteriorly with a vertical row of pale hairs. Trochanter II with a small dorsal bristle. Femur II without bristles and without a real preapical. Tibia II

about $\frac{3}{4}$ of femur II, with 1 ad and sometimes also with 1 pd at same level, both short; at apex a few short bristles. Last three joints of tarsus II as in tarsus I. Length ratio of tibia II and tarsus II: 21: 10: 4: 2.5: 2: 3.

Coxa III with a white external bristle. Trochanter III with a few very small hairs. Femur III without bristles and without a real preapical; at base femur III is bent. Tibia III about $\frac{3}{4}$ of femur III; hairs of posterodorsal row slightly lengthened; at apex a few short bristles. Tarsus III as tarsus I and II. Length ratio of tibia III and tarsus III: 22: 9: 5: 3.5: 2.5: 3.5.

Wings slightly yellowish tinged; veins yellow, but somewhat darkened around tp. Costa spined in the same way as in *luteola*. r2+3 and m1+2 hardly diverging towards tips. Apical part of m1+2 more than twice as long as basal part. Tp short, straight, much shorter than apical part of m3+4 (about 1:8). No anal vein. Halteres whitish yellow. Squamulae whitish, with very short white cilia.

Abdomen with 6 entire segments visible, dark brown with a narrow yellow band at anterior margin of segment 1. Venter brown. Tergites with short white hairs and short, inconspicuous pale marginals, even on tergite 1. Venter with short pale hairs. Hypopygium (Fig. 6) yellow, with black hypandrium. Head of hypandrium very shallowly indented. Hooklike structure projecting from venter of fifth abdominal segment black; basal papilla with a large, thick thorn at apex, besides the normal bristles. Cerci pale yellow, with pale hairs.

Female

Body length: 1.75-2.1 mm; *wing length:* 1.9-2.15 mm.

Head. Face slightly broader than in male.

Legs as in male, but last three joints of tarsi less broadened. Femur I with the same row of short anteroventral bristles as in male. Tibia I anterodorsally with some longer hairs; ventrally without row of short bristles and without apical fringe. Wings as in the male.

Abdomen with yellow band on anterior margin of tergite 1 very narrow. Oviscapt hidden; each hemitergite with a row of long narrow dornen.

Material

Holotype male: Sulawesi, Molosso Island, 21.IX.1985 (leg. J. Van Stalle); paratypes: 24 males and 16 females with same data as holotype.

4. DISCUSSION

Within the group of Hydrophorinae possessing a pair of fronto-orbital bristles, this genus has to be compared with *Cymatopus* Kertész, 1901, with which it shares the apical arista and the absence of acrostichal bristles. It differs from it by the strongly spined costa, the length of the third antennal joint, the poorly bristled, non-raptorial legs and the shape of the hypopygium.

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