

Dolichopodidae (Diptera) from Papua New Guinea VIII.
Phacaspis, a new genus incertae sedis from the mangrove*

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ABSTRACT. *Phacaspis* gen.nov., a new genus incertae sedis is described with *Ph. petiolata* sp.nov. as type. A second species, *Ph. ornata* sp.nov., with very long and peculiar shaped cerci is also described and illustrated. Both species occur on the mud near the waterfront in the mangrove.

RESUME. *Phacaspis* gen.nov., incertae sedis est décrit avec *Ph. petiolata* sp.nov. comme espèce type. Une deuxième espèce, *Ph. ornata* sp.nov., pourvue des cerques longues et remarquables, est décrite et illustrée. Les deux espèces ont été trouvées sur la vase près du bord de la mer dans des mangroves.

1. INTRODUCTION

The present new genus *Phacaspis* seems to be closely related to the recently described genus *Kowmungia* Bickel, 1987. The latter genus also contains small species with a stalked hypopygium. They were found in forests along the coast of Australia. Bickel (1987) hesitates to place the genus *Kowmungia* in any of the known subfamilies before a thorough delineation of the latter is done. Both genera which have affinities with the Medeterinae are thus considered as incertae sedis.

The two new species of *Phacaspis* have been found running on the mud in a mangrove bordering the sea and on the border of a large creek (Bogoro inlet) running through a mangrove. In both cases they were found close to the waterfront. They were very alert on approach and quickly flew away. This behaviour is probably a reaction to the tide.

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2. MATERIAL

The material was collected by the second author during a stay at the biological station on Motupore Island (University of Papua New Guinea; dir. Dr J. Pernetta) from the 9th to 23rd September 1987. The material is preserved in alcohol in the collections of the 'Koninklijk Belgisch Instituut voor Natuurwetenschappen' (IG 27,285).

3. DESCRIPTION OF NEW GENUS AND SPECIES

Phacaspis n.gen. of Dolichopodidae, incertae sedis. (Derivatio nominis: Gr. phakós = lens; aspís = clypeus). Gender: feminine.

Species of small stature (Fig. 4); less than 2 mm long, with metallic green colouring. Head with convex occiput, which is feebly concave above. Epistoma of face narrow and short; clypeus swollen, lens-shaped (cf. Fig. 3). Palpi and rostrum small; palpi without apical bristles. Eyes haired. Two ocellar bristles, 2 vertical bristles, all rather weak, 2 tiny postocellars, no postvertical bristles differentiated. Postocular cilia short, uniseriate. Antennae short; first joint bare; arista dorsal with very short basal joint. Mesonotum with a flattened area posteriorly. No acrostichals; 3 to 4 dorsocentrals. Scutellum with 2 marginal bristles.

Coxa I and II without bristles; coxa III without external bristle. Legs of male may be ornamented. Femur III without preapical bristle (in *ornata* sp.nov. anteriorly a moderately strong bristle, too far from apex of femur to be termed a preapical) but femur II with a strong anterior preapical. First joint of tarsus III as long as or slightly longer than second joint. Costa of wing spinulose. r2+3 and r4+5 slightly diverging, r4+5 and m1+2 parallel at least apically. Tp shorter than apical part of m3+4. Anal vein represented by a short fold. Squamulae with very short cilia. Abdomen cylindrical. Hypopygium of male stalked by lengthened seventh or sixth + seventh segments of abdomen with well-developed, sometimes curiously shaped cerci. Oviscapt of female with short dornen.

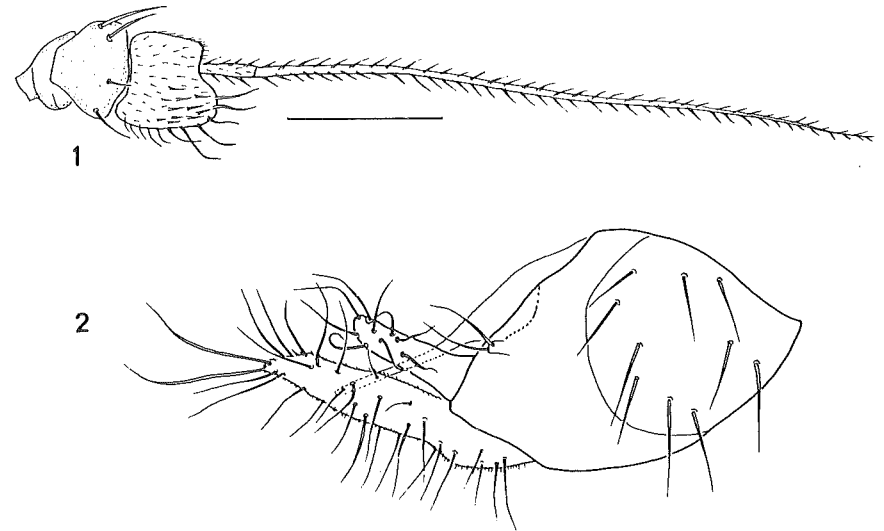
Type species: Phacaspis petiolata n.sp.

Two species known, to be separated as follows:

– Epistoma narrow (in male not much broader than an eye facet, in female as broad as three rows of eye facets). 4 dc. Hypopygium of male stalked by segments VI and VII of abdomen, with simple oblong cerci . . . *petiolata* sp.nov.

– Epistoma broader (in male about as broad as five rows of eye facets, in female nearly as broad as clypeus). 3 dc. Hypopygium of male stalked by only segment VII of abdomen, with curiously shaped cerci *ornata* sp.nov.

Distribution: Papua New Guinea, mangroves.



Figures 1 & 2. *Phacaspis petiolata* sp.nov. male: 1 antenna; 2 hypopygium. Scale 0.1 mm.

Phacaspis petiolata sp.nov. (Figs 1 & 2)

A species with a large lens-shaped clypeus and a narrow epistoma; 4 dc. Legs of male not particularly ornamented. Segments VI and VII of abdomen forming stalk of hypopygium; cerci simple.

Description of male

Body length: 1.2–1.3 mm; wing length: 1.2–1.3 mm.

Head. Frons very broad at vertex, narrowing towards antennae, with slightly shining bluish-black or greenish-black ground colour. Eyes with anterior facets enlarged, distinctly haired, approaching each other beneath the antennae, downwards with a semi-circular incision around clypeus. Face with dark brown ground colour. Epistoma short, at its narrowest point not much broader than an eye facet. Clypeus very large, swollen (especially so above), lens-shaped. Palpi very small, dark brown, with short dark hairs, without apical bristles. Rostrum short, yellowish-brown. Occiput blackish-green. Two diverging ocellars, 2 verticals, all rather short and weak, 2 tiny postocellars; postverticals not differentiated. Postocular cilia very short, uniseriate, black. *Antennae* (Fig. 1) short, yellow, second and third joints apically blackish. Third joint trapezoidal with rounded ventral apex, shortly pubescent. Arista dorsal; basal arista joint slightly shorter than upper margin of third antennal segment; apical arista joint pubescent.

Thorax. Mesonotum and scutellum with a moderately shining dark metallic-green ground colour, with blue reflections. No ac, 4 dc. Propleurae with only 1 to 2 pale hairs. Pleurae slightly shining, with dark metallic-green, partly brownish-tinged ground colour.

Legs. Coxa I yellow with narrowly blackened base. Coxae II and III dark brown with yellow apex. Legs yellow; femur III at apex and tibia III at base slightly browned; all tarsi gradually slightly browned towards tips. *Coxa I* anteriorly towards tip with a few short and weak pale hairs. Trochanter I bare. Femur I posteroventrally with a row of weak black bristles that are slightly shorter than diameter of femur. Tibia I a little shorter than femur, without real bristles, but some of the hairs of the posterodorsal row lengthened and bristle-like; at ventral apex a short yellow fringe and a very short apicoventral bristle. Fifth joint of tarsus I lengthened and slightly broadened. Length ratio of tibia I and tarsus I: 15: 4: 2.5: 2: 1.5: 2.5. *Coxa II* anteriorly with some pale hairs. Trochanter II ventrally with a very short bristle. Femur II with a strong anterior preapical bristle; posteroventrally near tip with a few longer hairs. Tibia II slightly longer than femur; 2 weak ad, 2 yet weaker hairlike pd; no ventrals; a cirlet of short and weak apicals. Length ratio of tibia II and tarsus II: 22: 7.5: 3: 2.5: 2: 3. *Coxa III* without external bristle. Trochanter III ventrally with very short hairlets. Femur III without real preapical; anteroventrally near tip some lengthened hairs. Tibia III with 1 ad near base; a second ad may be present about middle; some of the hairs of the anterodorsal and posterodorsal rows somewhat lengthened and bristle-like; at tip some short bristles. Length ratio of tibia III and tarsus III: 21: 4.5: 4: 3: 2: 3.

Wings slightly brownish tinged, more so anteriorly. Veins blackish-brown. Costa spinulose. r2+3 and r4+5 gradually diverging. r4+5 and m1+2 slightly converging but subparallel just in front of tips. tp straight, shorter than apical part of m3+4 (about 4:9). Anal vein represented by a short fold. Length ratio of basal and apical parts of m1+2: about 1:3. Fringe along hind margin moderately long. Halteres whitish-yellow. Squamulae whitish with very short dark cilia(?).

Abdomen dorsally with metallic-green ground colour; fifth tergite dark brown. Narrow dull black bands at incisures of tergites. Venter brown. Hairs and marginal bristles on tergites very short, even on first tergite, black. Hypopygium (Fig. 2) stalked by lengthening of abdominal segments VI and VII, brown, with pale yellow oblong cerci.

Description of female

Body length: 1.4–1.5 mm; wing length: 1.4–1.5 mm.

Head. Face as in male, but epistoma broader (about as broad as three rows of eye facets).

Legs. Femur I without row of pv. Genitalia with a row of 8 short black dornen.

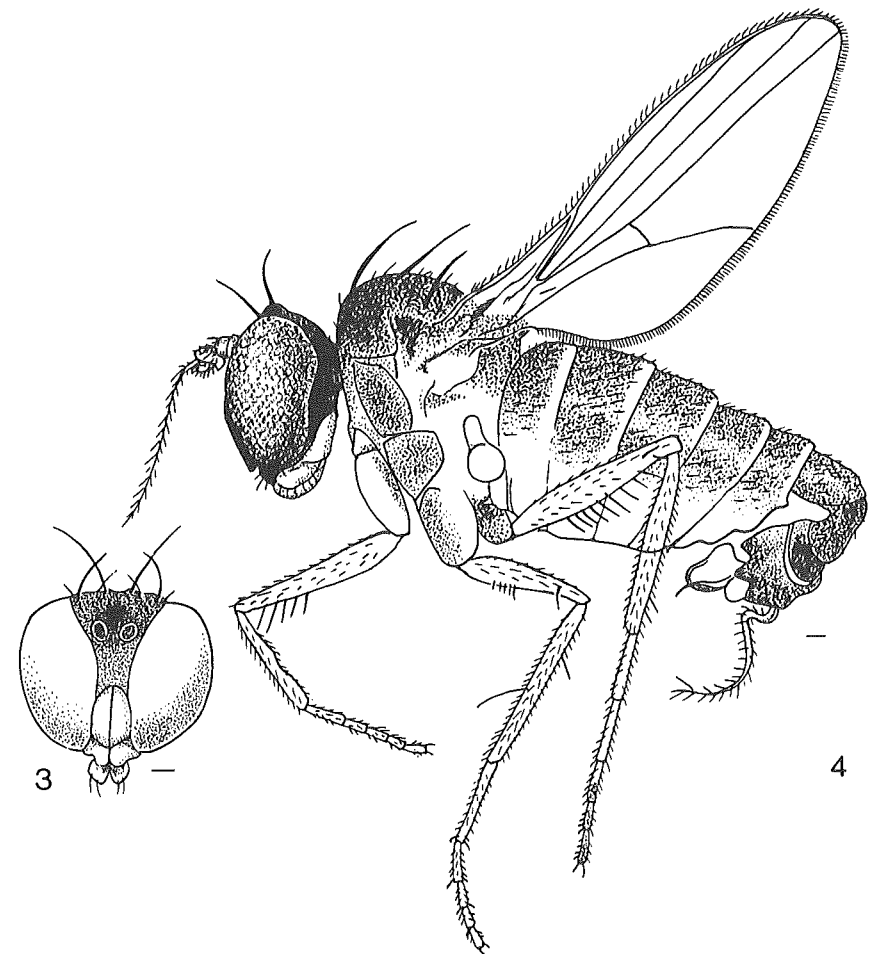
Material. Holotype male: Papua New Guinea, Bogoro inlet (National Capital

district) 13.9.1987 (sample 163, leg. P. Grootaert) in mangrove; paratypes: 24 males, 28 females with same data as holotype.

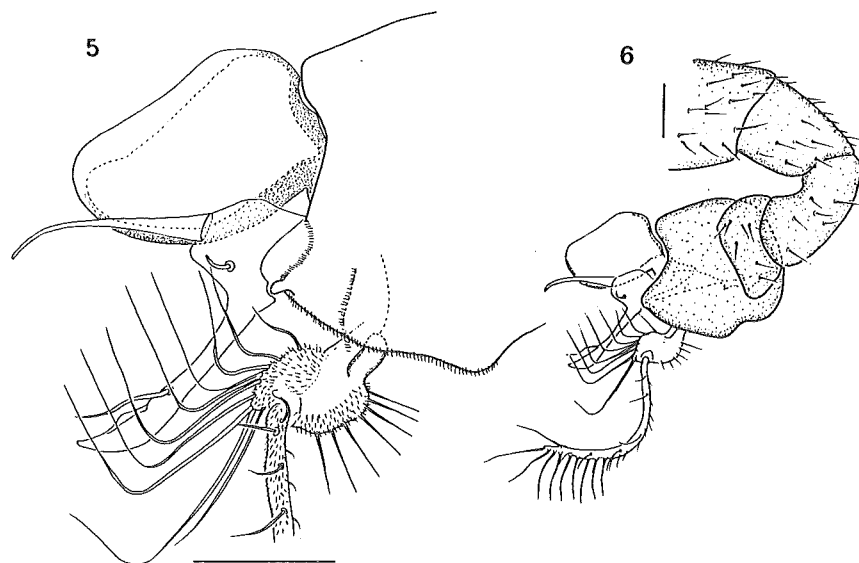
Derivatio nominis. The name *petiolata* (Latin) means 'stalked' and refers to the stalked hypopygium.

Phacaspis ornata sp.nov. (Figs 3–6)

Clypeus lens-shaped, narrower than in *Ph. petiolata* n.sp.; epistoma broader. 3 dc. Legs of male ornamented. Only segment VII of abdomen forms stalk of hypopygium. Cerci of peculiar shape.



Figures 3 & 4. *Phacaspis ornata* sp.nov. male: 3 head; 4 habitus.



Figures 5 & 6. *Phacaspis ornata* sp. nov. male hypopygium. Scale 0.1 mm.

Description of male

Body length: 1.6–1.75 mm; wing length: 1.4–1.5 mm.

Head. Frons with slightly shining greenish-black ground colour. Eyes with anterior facets not enlarged, with only a very shallow incision around clypeus. Epistoma of face short, with dark metallic-green ground colour, rather broad (about as broad as five rows of eye facets). Clypeus (Fig. 3) dull brownish-black, oblong, lens-shaped with a raised median keel, swollen on whole length. Palpi small, dark brown, with short dark hairs, without bristles. Rostrum short, yellowish-brown. Occiput greenish-black. 2 diverging ocellars, 2 verticals, 2 tiny postocellars; postverticals not differentiated. Postocular cilia short, uniseriate, black. Antennae short, yellow; second and third joints apically darkened. Third antennal joint somewhat quadrate, with a blunt ventral apex, pubescent. Arista dorsal; basal joint short (slightly shorter than dorsal margin of third antennal joint); apical joint pubescent.

Thorax. Mesonotum and scutellum with shining dark metallic-green ground colour. Pleurae dark brown, partly with a metallic-green lustre. No ac; 3 dc. Propleurae with only a weak hair.

Legs. Coxa I pale yellow with blackened base; coxae II and III dark brown. Legs pale yellow with last two joints of all tarsi feebly browned; apical third of femur III and most of tibia III feebly browned. *Coxa I* anteriorly near and at apex with a few short pale hairs. Trochanter I bare. Femur I ventrally with a few

scattered pale hairs; on apical two-fifths a row of thin and weak posteroventral bristles. Tibia I shorter than femur, gradually swollen ventrally on basal two-fifths; then abruptly sloping and gradually but less strongly swollen again towards tip. On the ventral bulge near base some rows of very short black spinules. Fifth joint of tarsus I slightly lengthened, but hardly broadened. Length ratio of tibia I and tarsus I: 15: 7: 3: 2.5: 2: 3.5. *Coxa II* anteriorly with a few short pale hairs. Trochanter II with a tiny black bristlet. Femur II ventrally about middle with a row of 4 to 6 thin hairlike bristles, shorter than diameter of femur; anteriorly a rather strong preapical bristle; posteroventrally a very small preapical. Tibia II about as long as femur; 1 strong anterior bristle about middle; 1 weak pd near base; no ventrals; no real bristles at tip. Length ratio of tibia II and tarsus II: 22: 10: 4.5: 3: 2: 3. *Coxa III* without external bristle. Trochanter III ventrally with tiny hairs. Femur III ventrally on median third with a row of about 7 rather strong bristles, nearly as long as diameter of femur; this row is followed by a few hairlike bristles; posteroventrally near apex 3 rather long hairlike bristles; anteriorly at apical fourth a moderately strong bristle, too far from apex of femur to be termed preapical. Tibia III shorter than femur; dorsally a weak bristle near base and 3 stronger bristles on apical third; 1 rather strong ad; ventrally a row of very thin, weak, hairlike bristles, very short near base, growing longer distally; this row is concluded near apex by 2 long, somewhat stronger, erect hairlike bristles and a similar bristle sloping towards apex; at very apex a strong bristle. Tarsus III ventrally rather shaggy. Length ratio of tibia III and tarsus III: 22: 7: 7: 3.5: 3: 4.

Wings (Fig. 4) feebly brownish tinged, more so anteriorly; veins dark brown. Costa spinulose. r2+3 and r4+5 gradually diverging. r4+5 and m1+2 about parallel, slightly divergent at very tip. Tp straight, much shorter than apical part of m3+4 (about 1:4). Anal vein represented by a short fold. Length ratio of basal and apical parts of m1+2: about 1:3. Hindmarginal fringe moderately long. Halteres whitish-yellow. Squamulae pale yellow with very short pale cilia.

Abdomen dorsally with moderately shining dark metallic-green ground colour, with very short black hairs and bristles; venter yellow. Hypopygium (Figs 5 & 6) stalked by lengthened seventh abdominal segment, quadrate, dark brown, with curiously shaped whitish cerci, consisting of a small lobe, bearing a fan of long, at middle bent setae, and a long and narrow appendage, bearing a row of rather long bristles on apical two-fifths. Hypandrium with a white transparent lobe.

Description of female

Body length: 1.7 mm; wing length: 1.5–1.6 mm.

Head. Epistoma broader than in male, nearly as broad as clypeus. Legs and coxae coloured as in male, only less browned on last joints of tarsi and on femur III and tibia III. Femur I without row of hairs. Tibia I normally shaped, without bristles. Femur II anteroventrally with slightly lengthened hairs; a strong ante-

rior apicoventral bristle present. Tibia II as in male. Femur III without remarkable hairs or bristles. Tibia III with only a weak anterior bristle. *Genitalia* with a row of very short black dornen.

Material. Holotype male: Papua New Guinea, Motupore Island, National Capital District, 11.9.1987 (sample 161, leg. P. Grootaert); paratypes: 1 male and 4 females with same data as holotype; Bogoro inlet, National Capital district, 12.9. 1987, 1 male, 1 female (sample 163) in mangrove.

Derivatio nominis. The name *ornata* refers to the peculiar shaped cerci.

4. DISCUSSION

The position of this genus within the family Dolichopodidae is uncertain. At first sight, especially on seeing females of the two included species, one would be inclined to include them into the subfamily Sympycninae. Features supporting this view could be: small stature, shape of the antenna with its bare basal joint and dorsal arista, wing venation, absence of acrostichals, small number of dorsocentrals and crest of dornen on female genitalia. As Ulrich (1980: 395) points out also a posterior flattening of the mesonotum occurs frequently within this subfamily. Lacking of preapicals on posterior femora is found, for example, in *Xanthochlorus* Loew, also included into the Sympycninae by Ulrich.

The main problem is presented by the shape of the clypeus and of the male hypopygium. The former may be considered as an autapomorphy, as it is found nowhere else in Dolichopodidae. A stalked hypopygium is found, for example, within the subfamily Medeterinae (including the genus *Systemus* Loew according to Bickel 1986). The shape of the hypopygium, especially that of *Ph. petiolata* n.sp., resembles very well the general conception of Medeterine hypopygia. However, the shape of the antennae and the lack of an external bristle on the posterior coxae does make us hesitant to include the new genus into the Medeterinae.

The genus *Phacaspis* is probably closely related to the recently described genus *Kowmungia* Bickel, 1987, but it differs in following characteristics:

Kowmungia

distinct frontoclypeal suture
arista apical
eyes with facets enlarged antero-ventrally

acrostichals biserial
6 strong dorsocentrals
coxa III with external bristle
tibiae with strong setae

Phacaspis

distinct but clypeus lens-shaped
arista dorsal
eyes only in one of the two species
enlarged anteroventrally

acrostichals absent
3-4 dorsocentrals
no bristle
tibiae with weak setae

anal lobe undeveloped on wing
stalk hypopygium formed by 7th segment

wing with an anal lobe
stalk formed by 7th or 6th+7th segments

It is not excluded that both genera will fit in the same subfamily.

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