

## ***Bickelia* (Diptera: Dolichopodidae), a new genus from Indian Ocean islands**

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*Bickelia*, a new genus of the dolichopodid subfamily Sciapodinae is described. *B. subparallela* sp. n., *B. parallela* (Macquart) and *B. guerini* (Parent) are included.

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**Key Words.** Diptera, Dolichopodidae, *Bickelia* gen. n., Chagos Archipelago, Seychelles, Mauritius.

### ***Bickelia* gen. n.**

Type-species: *Bickelia subparallela* sp. n., here designated.

**Description.** Male head wider than high; vertex shallow excavated. Occiput and frons not concave, mat bronze-green, grey pollinose. One pair of well developed ocellar, postvertical and proclinate vertical bristles present in both sexes. Upper postocular bristles black, in one row. Ventral postcranium covered with irregular pale hairs. Eyes bare, not joined across face. Face and clypeus narrow, female face wider, with slightly indicated suture, densely silvery pollinose; face does not come down eyes, clypeus slightly bulging. Cheeks undeveloped. Palpi and proboscis short. Antennae mostly black, with short articles, inserted in the upper third of head; scape bare, short, pedicel sphaeroidal, with short dorsal and ventral subapical setae, without appendices. First flagellomere as long as high, subtriangle, with rounded apex, haired. Arista dorsal, simple, with microscopic setulae, shorter than head height.

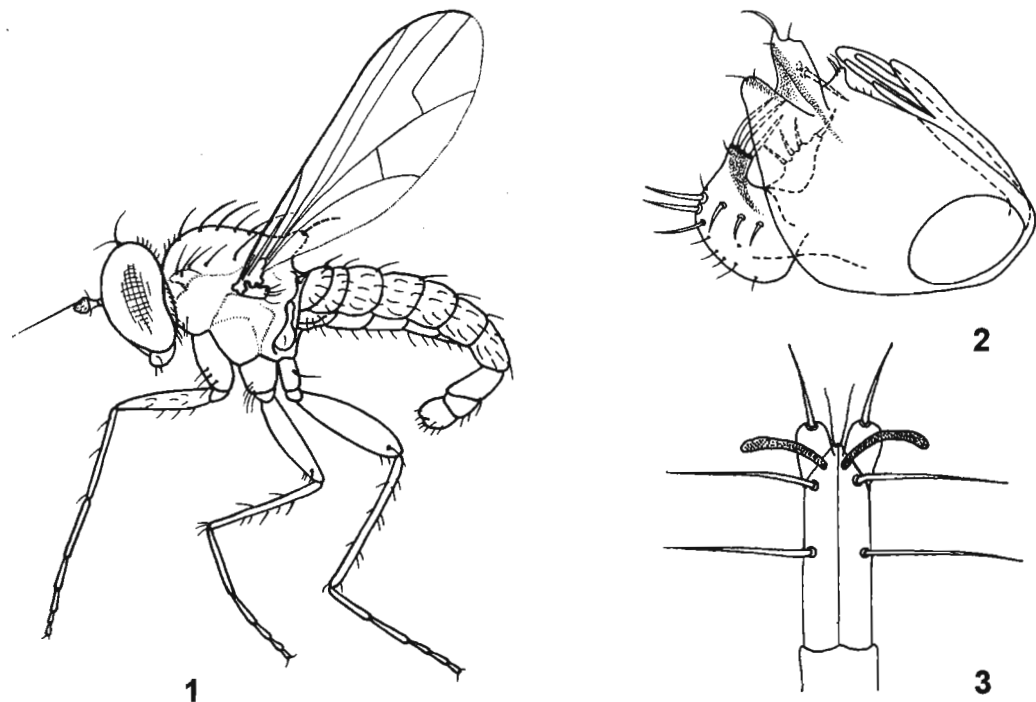
Mesonotum metallic green, pleura dark-green or black, grey pollinose; 1 *h*, 1 *ph*, 2 *ntpl*, 2–3 *ia*, 1 *sa*, 1 *pa*. Five pairs of strong dorsocentral bristles, with a few hairs in front of them, not sexually dimorphic; short biseriate acrostichals. Scutellum with two strong bristles and usually with one pair of marginal hairs. Postnotum developed. Propleuron with 2 fine ventral setae.

Legs mostly yellow, simple. Male fore and middle coxae with sparse hairs and with 2–3 fine apical bristles, hind coxae with strong bristle; female fore coxae usually with additional row of strong lateral spines. Male fore legs without strong bristles or spines; female fore femora usually with group of 3–5 strong ventral bristles in basal third, each bristle arising from a distinct mound-like pedicel. Middle and hind femora with strong anterior preapical bristle. Tibiae with developed bristles in both sexes.

Wings elongate, slightly darkened. Veins simple. Costa reaches  $M_1$  before apex;  $M_1$  and  $R_{4+5}$  almost parallel;  $M_1$  and  $M_2$  slightly diverged;  $M_1$  not recurved basad, with right angle bend;  $M_2$  straight; crossvein *m-cu* straight, placed in the middle of wing. Anal vein usually reduced. Anal lobe small or undeveloped. Anal angle lost in males and reduced in females.

Abdomen dark bronze-green, cylindrical, tergal overlap of segments mat black; unmodified segments together nearly twice as long as mesonotum. 1st–6th abdominal tergites and sternites well developed, simple. Hypopygium pedicellate, epandrium attached to the tip of 7th tergite; 7th segment slightly longer than epandrium. Appendices short, strongly sclerotized. Surstylus bifurcated.

**Diagnosis.** *Bickelia* is similar to *Sciapus* Zeller (sensu Bickel, 1994) and *Mascaromyia* Bickel in thoracic chaetotaxy, and overall habitus. It is clearly distinguished from other genera of Sciapodinae by



Figs 1—3. *Bickelia subparallela* sp. n.  
1, habitus; 2, hypopygium; 3, ovipositor (dry specimen).

distinct anterior preapical seta on middle and hind femora, narrow tomentous face and frons, presence of vertical setae in both sexes, presence of 2 fine ventral propleural setae, branched vein *M*, modified hypopygium. *Bickelia* should be included in the key to world genera of Sciapodinae (Bickel, 1994) as follows:

1. *F*<sub>II</sub> and/or *F*<sub>III</sub> with distinct anterior preapical setae . . . . . 2  
— Femora without strong anterior preapical setae . . . . . 4
2. *F*<sub>III</sub> only with anterior preapical setae; propleuron without strong ventral seta . . . *Sciapus* Zeller  
— Both *F*<sub>II</sub> and *F*<sub>III</sub> with anterior preapical setae; propleuron with more or less strong ventral seta . . . . . 2a
- 2a. Lateral scutellar setae hairlike; *ac* usually present, short and numerous; propleuron with 2 fine black ventral setae; *M* bifurcated . . . . . *Bickelia* gen. n.  
— Lateral scutellar setae strong; *ac* present as 2–4 long pairs; propleuron with strong ventral seta; *M*<sub>2</sub> usually absent (*Negrobovia* Bickel & *Amesorrhaga* Bickel) . . . . . 3

*Etymology.* The genus is named in honour of the Australian dipterologist Dr. Daniel J. Bickel.

#### Included species:

*guerini* Parent, 1935: 86 (*Sciopus*); Bickel, 1994: 101 (*Mascaromyia*); Mauritius, **comb. n.** Parent described damaged female with some male secondary sex characters (setation of fore coxae and femora, wing shape). Indication of strong femoral preapical bristles attributes the species to *Bickelia*.

*parallela* Macquart, 1842: 175 (*Psilopus*); Parent, 1935: 88 (*Sciopus*); Bickel, 1994: 101 (*Mascaromyia*); Mauritius, **comb. n.** Parent redescribed extremely damaged female type-specimen using indistinct characters. Indication of strong femoral preapical bristles attributes it also to *Bickelia*.

*subparallela* sp. n.

#### *Bickelia subparallela* sp. n.

(Figs 1—3)

*Holotype.* Male, **Chagos Archipelago:** Diego Garcia, East Point, 7.V.1971 / A. M. Hutson, B.M. 1971—346.

*Paratypes.* 7 males and 9 females with the same label as holotype but with catching dates 6 & 8.V.1971;

2 males and 1 female, **Chagos Archipelago**: *Diego Garcia*, Eclipse Point, 26.III & 1.IV.1971 / A. M. Hutson, B.M. 1971—346; 2 females, **Chagos Archipelago**: *Diego Garcia*, Eclipse Point, 3 & 10.IV.1971 / A. M. Hutson, B.M. 1971—346 / At light; 2 males and 3 females, **Chagos Archipelago**: *Diego Garcia*, Trois Picquet, 4.IV.1971 / A. M. Hutson, B.M. 1971—346 / coconut woodland; 2 males and 3 females, **Chagos Archipelago**: *Diego Garcia*, Trois Picquet, 5.IV.1971 / A. M. Hutson, B.M. 1971—346 / open coconut grove; 1 male, **Chagos Archipelago**: *Diego Garcia*, Simpson's Point, 2.IV.1971 / A. M. Hutson, B.M. 1971—346; 1 male, **Chagos Archipelago**: *Diego Garcia*, Simpson's Point, 2.IV.1971 / A. M. Hutson, B.M. 1971—346 / freshwater pool; 1 male and 3 females, **Chagos Archipelago**: *Diego Garcia*, Simpson's Point, 20.IV.1971 / A. M. Hutson, B.M. 1971—346 / At light; 1 male, **Chagos Archipelago**: *Diego Garcia*, Pointe Marianne, 13.IV.1971 / A. M. Hutson, B.M. 1971—346 / lagoon coast; 1 female, **Chagos Archipelago**: *Diego Garcia*, Pointe Marianne, 17.IV.1971 / A. M. Hutson, B.M. 1971—346 / At light; 1 male, **Seychelles Is.**, Cascade, 10.III.1965, Tams and Nye, B.M. 1966—72.

Holotype and paratypes are conserved in the Natural History Museum (London).

**Description.** Frons mat bronze-green, grey pollinose. Strong vertical bristle bends forward, smaller postvertical one presents nearly at end of postocular row. Face silvery-white, pollinose, narrow, 4 times as high as wide in the middle. Epistome twice as wide as clypeus. Palpi and proboscis very short, brown, covered with small hairs, palpi also with a small black bristle. Antennae black, scape brown. First flagellomere as long as height at base, subtriangular, with rounded apex, slightly pubescent. Arista dorsal, microscopically haired. Length ratio of scape to pedicel to first flagellomere to arista — 0.3 : 0.4 : 0.6 : 3.5.

Mesonotum metallic green, with two mat black postalar spots and with brownish reflection between dorsocentral bristles, slightly grey pollinose; pleura bronze-olive-green, grey pollinose. Five dorsocentral bristles with 3 *d* bristle somewhat smaller, with a few hairs in front of them; at least 10 pairs of short acrostichals, slightly increasing backwards. Scutellum with two strong bristles and two hairs from the outside.

Legs yellow, simple, middle and hind coxae and apical segments of tarsi mostly brown. Fore coxae from the front with yellow hairs and three black apical bristles. Middle coxae from the front with a few dark hairs and with two or three fine black bristle, from the outside bare. Hind coxae with one long black external bristle, with several dark anteroventral hairs. Hind trochanter with a dark hair. Fore femora usually with short fine basoventral and posterior preapical hairs. Fore tibiae with one anterodorsal, two pos-

terodorsal and one-three apical bristles. Fifth tarsomere slightly flattened. Length ratio of fore coxa to femora to tibia to tarsus (segments from first to fifth) — 3.3 : 5.1 : 5.0 : 3.2 : 1.5 : 1.1 : 0.7 : 0.7. Middle and hind femora with a few black ventral preapical hairs and one strong anterior preapical bristle. Middle tibiae with three strong anterodorsal, three posterodorsal, one or two ventral, four or five apical bristles. Length ratio of middle coxa to femora to tibia to tarsus (segments from first to fifth) — 2.2 : 5.2 : 6.4 : 3.8 : 1.9 : 1.0 : 0.9 : 0.7. Hind tibiae with three anterodorsal, three posterodorsal, two short ventral bristles. Hind basitarsomere usually with short basoventral bristle. Length ratio of hind coxa to femora to tibia to tarsus (segments from first to fifth) — 1.7 : 6.5 : 7.9 : 2.7 : 1.5 : 1.2 : 1.1 : 0.8.

Wings slightly darkened, veins brown. Costa with short simple setulae, posterior border with short hairs. Ratio of parts of costa between  $R_{2+3}$  and  $R_{4+5}$  to those between  $R_{4+5}$  and  $M_1$  — 1.7 : 0.7.  $M_1$  arises perpendicularly from  $M_2$ , with rounded right angle bend, then straight;  $M_1$  and  $M_2$  slightly diverged; crossvein *m-cu* straight, forming obtuse external angle with  $M_{1+2}$ . Ratio of crossvein *m-cu* to apical part of  $M_{1+2}$  (fork-handle) to apical part of  $M_{3+4}$  — 1.5 : 2.6 : 1.5. Anal vein and lobe reduced. Anal angle absent. Halteres yellow. Squamae yellow, with brown edging and dark bristles.

Hypopygium black-brown, with short hairs; pedicellate, attached to the tip of 7th sternit. Epandrial lobe short, with 3 setae. Appendices short, brown, strongly sclerotized. Cercus broad, hooked, with 4 long and some short external setae and with 3 long apicoventral thorns. Surstylus with ventral arm slightly larger than dorsal arm; ventral arm with a few short apical setulae; dorsal arm also with 2 or 3 long setae.

**Female.** Similar to male except lacking male secondary sexual characters, otherwise as follows: face grey pollinose, wide, with parallel edges, 2.5 times as high as wide. Legs usually dark-yellow, sometimes partly brownish; fore coxae with additional 2—4 black basoventral bristles; fore femora with 3—5 ventral spines of various length in basal half. Oviscap: ninth hemitergite with 1 acanthophorite and 2 long setae; cercus short and broad, with 1 apical seta. Anal lobe slightly developed; anal angle obtuse.

Length: body 2.4—3.1 mm; body with antennae 2.9—3.6 mm; wing-length 2.1—2.7 mm; wing-width 0.7—0.8 mm.

**Distribution.** Chagos Archipelago, Seychelles.

**Diagnosis.** Males of *Bickelia subparallela* sp. n. appear closely related to *B. guerini*, and females — to *B. parallela*. Most paratypes of new species were collected from Chagos Archipelago, although a male

was found in Seychelles, while other species were described from Mauritius. Keeping in mind poor differentiation between females of related sciapodine genera, I can propose the next key to the species of *Bickelia*:

1. Fore femora without strong bristles . . . . . 2
- Fore femora with four strong black anteroventral bristles (females) . . . . . 3
2. Distinct acrostichal setae in two rows (male) . . . . . *B. subparallela*
- Acrostichals absent (female) . . . . . *B. guerini*
3. Anal vein present, two scutellar bristles only . . . . . *B. parallela*
- Anal vein reduced, two strong scutellars and two lateral hairs from the outside . . . . . *B. subparallela*

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