

***Mudigere*, a new genus of Telenominae (Hymenoptera: Scelionidae), related to the *Psix*-group of genera**

Norman F. Johnson

Department of Entomology, The Ohio State University, 1735 Neil Avenue,
Columbus, OH 43210, U.S.A.

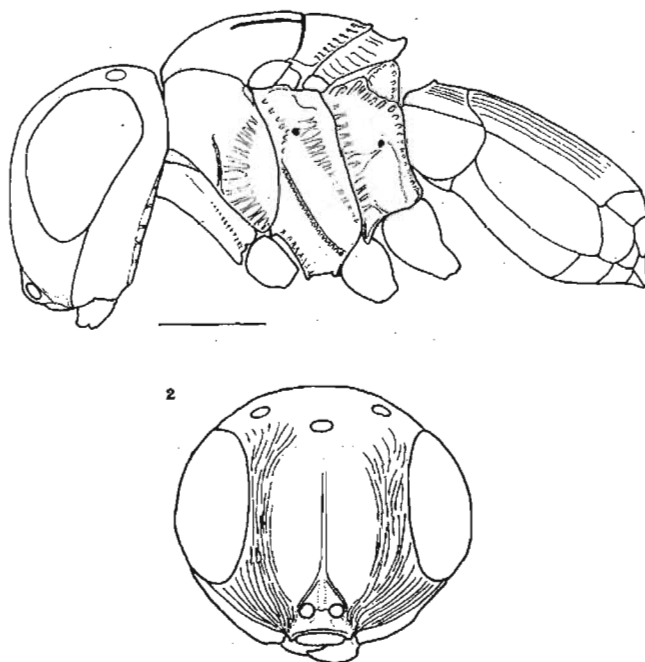
ABSTRACT. The genus *Mudigere* is described as new, with *M. bidentatus* sp. nov. as the type-species. This new genus is known from southern India and Vietnam, and it is postulated that it is the sister-group of the group of genera including *Psix*, *Paratelenomus*, and *Nirupama*.

Introduction

The subfamily Telenominae (Hymenoptera: Scelionidae) consists of over 600 described species of parasitoids of insect eggs. In the strict sense (*e.g.*, Masner, 1976) the taxon contains but a single tribe, whose monophyly is established by the following characters: Metasomatic segments with wide laterotergites and with laterosternites absent, antennae sexually heteromorous: female antennae with 11 or 10 segments, male antennae with 12 (one species with 2 antennomeres partially fused), mesosoma with a distinct linguiform sclerite, the metapostnotum extending posteriorly from propodeal spiracle and separating metanotum from propodeum, second metasomatic sternum with broad submedial setal fields. Within the tribe, however, the pattern of relationships is unclear. The two largest genera are probably not monophyletic: *Telenomus* Haliday is most likely polyphyletic,

being characterized by the loss of character states, primarily surface microsculpture; *Trissolcus* Ashmead is a paraphyletic assemblage, at present defined only on the basis of a number of plesiomorphic characters.

One well-established grouping consists of those genera related to *Psix* Kozlov & Lê (Johnson & Masner, 1985; Johnson, 1985): *Psix*, *Paratelenomus* Dodd (previously known as *Archiphanurus* Szabó; see Johnson, 1988), and *Nirupama* Nixon. These are united primarily by cephalic characters: fusion of clypeus and labrum, presence of a pair of orbital carinae (or sulci) extending from the anterior mandibular articulation along the inner orbits of the eyes to the lateral ocelli, and the bifurcation of the central keel to pass outside of the antennal insertions. These genera are restricted to the Old World including Australia (except for two introductions of one species into Venezuela and the southwestern Nearctic region). My objective



Figs 1-2. *Mudigere bidentatus* Johnson, sp. nov. (1) Lateral habitus; (2) Head, frontal view. Scale line = 0.1 mm.

in this paper is to present a new genus of this complex and to discuss its position within the Telenominae.

Mudigere Johnson, gen. nov.

Type-species: *Mudigere bidentatus* Johnson, sp. nov.

Lateral ocellus distinctly separated from inner orbit, without sulcus between ocellus and inner orbit; hyperoccipital carina absent, vertex rounded onto occiput; frons with well-developed central keel, not reaching median ocellus, bifurcating into weakly raised lateral arms extending outside of antennal insertions; space between these arms and malar sulcus with numerous rugulae arising near anterior mandibular articulation and radiating dorsad; frons mesally smooth; female antennae 11-merous, clava 5-merous; claval formula A8-A11/1-2-2-1; preocellar pit absent; lower clypeal margin produced into strong curved carina; labrum fused with clypeus; genal carina

absent; occipital carina meeting hypostoma behind posterior mandibular articulation; epomia present; netrion fusiform, smooth, defined mesally by deep crenulae; fore and mid coxae distinctly separated, intercoxal space well-defined; anteroventral portion of mesepisternum coriaceous, setose; mesopleural carina present, crenulate anteriorly, mesopleural suture indicated by line of crenulae, these expanded in width dorsally to extend to mesopleural pit; metapleural process elongate, extending ventrad of lower margin of mesopleuron; metapleuron and lateral face of propodeum glabrous; metapostnotum differentiated, exposed, metasoma unicolorous, melanic throughout, laterotergite 1 glabrous; T1 with 1 pair of sublateral setae; anterior margin of T1 excavate sublaterally; apex of T2 smooth, lateral margins sparsely setose; S2 with longitudinal sulci laterally, these mostly covered by laterotergites, setal fields diffuse.

Etymology: The name *Mudigere* is taken from the type-locality and is to be considered masculine in gender.

Distribution: The genus is known thus far from southern India (type-species, described below) and another specimen from Vietnam [B.P. Bishop Museum, Honolulu].

Mudigere bidentatus Johnson, sp. nov.
(Figs 1-2)

Female. Length: 0.75 mm; eyes bare, lateral ocellus separated from inner orbit by approximately one ocellar diameter; radicle black, scape yellow; mandibles bidentate, teeth deeply incised and acute; notauli present, extending over posterior half of mesoscutum; disk of scutellum without surface microsculpture; ventral lip of dorsellum striate, produced laterally into two weak teeth; T2 as long as wide, striate over basal three-fourths of its length, without distinct coriaceous microsculpture.

Host and male unknown.

SPECIMEN EXAMINED: Holotype female, India: KARNATAKA : Mudigere, 26. x. -4.xi.1979 (J.S. Noyes), BM 1979-518 [British Museum (Natural History), London].

DIAGNOSIS: This species is distinguished by the bare compound eyes, bidentate mandibles, and the proximity of the lateral ocelli to the inner orbits. In the Vietnamese specimen at hand the eyes have distinct long setae, the ocelli are more nearly two ocellar diameters from the compound eyes, and the mandibles are tridentate. I have chosen not to describe this species at present because the specimen is mounted upside down and the important characters of the dorsum cannot be seen.

DISCUSSION: *Mudigere* belongs to the *Psix*-group of genera by virtue of the well-developed central keel, the bifurcation of this keel to encircle the antennal insertions, and the fusion of clypeus and labrum. The three genera I have previously discussed share, in addition, the synapomorphic characters of the development of distinct orbital carinae/sulci and

fusion of the metapostnotum with the propodeum. Thus, I view *Mudigere* as the sister-group of [*Psix* + (*Paratelenomus* + *Nirupama*)]. At a higher level, it may be significant that the *Psix*-group of genera and those species related to *Phanuromyia* Dodd (including the *Telenomus sacchii* species-group, *Issidotelenomus* Pélov, *Aradoctonus* Masner, and *Phlebiaporus* Kozlov) have as groundplan characters a 5-merous female antennal clava with the claval formula A8-A11/1-2-2-1. These characters occur in other species classified as *Telenomus*, but these species all seem to be related to forms with 6 clavomeres and a claval formula of A7-A11/1-2-2-2-2 (and a very few have a seventh clavomere).

Key to the *Psix*-group of genera

1. Frons with only central keel and orbital sulci, without rugulae radiating from mandibular bases; elongate, gracile forms; Afrotropical region (Ghana, Kenya).....*Nirupama* Nixon
- Frons with well-developed rugulae radiating from mandibles; short, stocky in build.....2
2. Orbital carinae absent, rugulae radiating from mandible all equally raised; genal carina absent; scutellum without surface microsculpture; radicle black, contrasting in colour with remainder of scape; Oriental region (India, Vietnam).....*Mudigere* Johnson, gen. nov.
- Orbital carinae well-developed, extending from mandibles along inner orbits to lateral ocelli; genal carina present; scutellar surface sculpture present, varying from areolate-rugose to coriaceous; radicle and scape variable.....3
3. Mandibles unidentate, apex acute; radicle and scape always concolorous; usually with at least base of metasoma xanthic; intercoxal space always well-developed, fore and mid coxae distinctly separated; notauli usually long, distinct; Afrotropical, Oriental, southern Palaearctic (north to Mediterranean area of Europe, east to Japan) and Australasian regions (east to New Caledonia).....*Paratelenomus* Dodd
- Mandibles at least bidentate, apex usually broad, more or less truncate; radicle often dark, sharply contrasting with remainder of scape in color; base of metasoma never xanthic; intercoxal space often occluded, fore and mid coxae contiguous; notauli often absent entirely; Afrotropical, southern Palaearctic (Saudi Arabia, Afghanistan), Oriental and

Australasian regions; one species in the Neotropical (Venezuela) and in the southwestern Nearctic regions (introduced).....*Psix* Kozlov & Lê

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Literature Cited

- Johnson N.F. 1985. Phylogenetic relationships of the telenomine genus *Nirupama* (Hymenoptera: Scelionidae). *International Journal of Entomology*, Honolulu, 27: 366-371.
1988. Species of Australian Telenominae (Hymenoptera: Scelionidae) of A.P. Dodd and A.A. Girault. *Proceedings of the Entomological Society of Washington*, 90: 229-243.
- Johnson, N.F. & Masner, L. 1985. Revision of the genus *Psix* Kozlov & Lê. (Hymenoptera: Scelionidae). *Systematic Entomology*, 10: 33-58.
- Masner, L. 1976. Revisionary notes and keys to world genera of Scelionidae (Hymenoptera: Proctotrupoidea). *Memoirs of the Entomological Society of Canada*, 97: 1-87.