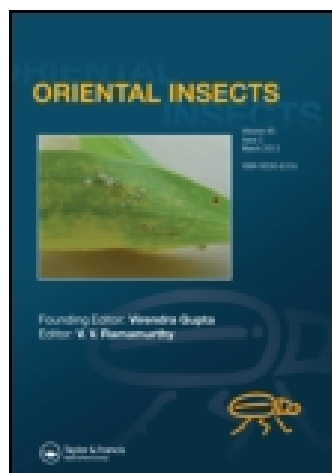


This article was downloaded by: [Ankita Gupta]

On: 16 January 2015, At: 09:21

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



[Click for updates](#)

Oriental Insects

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/toin20>

A new pteromalid species of the genus *Anisopteromalus* Ruschka (Hymenoptera) from India

Ankita Gupta^a & P.M. Sureshan^b

^a National Bureau of Agriculturally Important Insects, Post Bag No. 2491, H.A. Farm Post, Bellary Road, Hebbal, Bangalore 560024, Karnataka, India

^b Zoological Survey of India, Western Ghat Regional Centre, Jaffer Khan Colony, Eranielipalam P.O., Kozhikode 673006, Kerala, India

Published online: 14 Jan 2014.

To cite this article: Ankita Gupta & P.M. Sureshan (2014) A new pteromalid species of the genus *Anisopteromalus* Ruschka (Hymenoptera) from India, *Oriental Insects*, 48:1-2, 67-72, DOI: [10.1080/00305316.2014.959793](https://doi.org/10.1080/00305316.2014.959793)

To link to this article: <http://dx.doi.org/10.1080/00305316.2014.959793>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms &

A new pteromalid species of the genus *Anisopteromalus* Ruschka (Hymenoptera) from India

Ankita Gupta^{a*} and P.M. Sureshan^b

^aNational Bureau of Agriculturally Important Insects, Post Bag No. 2491, H.A. Farm Post, Bellary Road, Hebbal, Bangalore 560024, Karnataka, India; ^bZoological Survey of India, Western Ghat Regional Centre, Jaffer Khan Colony, Eraniel, Kozhikode 673006, Kerala, India

(Received 8 April 2013; final version received 2 July 2014)

A new species of Pteromalidae, *Anisopteromalus indicus* sp. nov. (Hymenoptera: Pteromalidae), observed parasitising a lymantrid on sugarcane is described from India. A key to the species of *Anisopteromalus* from the Indian subcontinent is also provided.

Keywords: *Anisopteromalus*; India; lymantrid; sugarcane

Introduction

The species of the genus *Anisopteromalus* Ruschka (Pteromalidae) are parasitic on pests of stored products belonging to Coleoptera, more specifically, the anobiids, bruchids, curculionids and dryophthorids (Sureshan 2010; Noyes 2013). Also, its records as a hyperparasitoid on *Plutella xylostella* Linnaeus (Lepidoptera) are available (Herting 1975, 1977; Beccaloni et al. 2003). Seven species of this genus are known so far (Noyes 2013): *Anisopteromalus apiovorus* Rasplus (1988) – Afrotropical; *Anisopteromalus calandreae* (Howard in Comstock 1881) – Cosmopolitan; *Anisopteromalus camerunus* (Risbec, 1956) – Cameroon; *Anisopteromalus caryedophagus* Rasplus (1988) – Afrotropical; *Anisopteromalus ceylonensis* Sureshan (2010) – Sri Lanka (Sureshan 2007; 2010); *Anisopteromalus glaber* Szélnyi (1981) – Germany and *Anisopteromalus schwenkei* (Roomi, Khan and Khan, 1973) – Pakistan; however, according to Bouček et al. (1979), the latter is a misidentification of *A. calandreae*, with the synonymy remaining unconfirmed. Herein, a new species parasitic on a lymantriid associated with sugarcane from southern India is described.

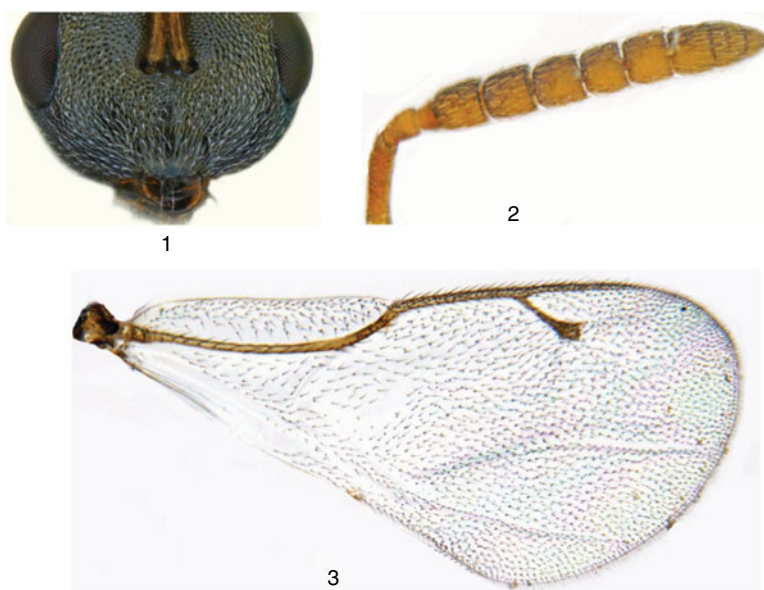
The specimens were bred from the pupa of a lymantriid on *Saccharum officinarum* L. These were studied in a Leica M205FA stereozoom microscope attached with a Leica DC420 camera and syncroscopy automontage (version 3.8). The voucher specimen is deposited at the National Bureau of Agriculturally Important Insects, Bangalore, India (NBAIL); National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi (NPC) and in the Zoological Survey of India, Western Ghat Regional Centre, Kozhikode, Kerala (ZSI-K). The following abbreviations used: F1–F6, funicular segments 1–6; OOL, ocellular distance; POL, postocellar distance; T1–T5, gastral tergites 1–5; MV, marginal vein; PMV, post marginal vein; STV, stigmal vein.

*Corresponding author. Email: drankitagupta7@gmail.com

1. *Anisopteromalus indicus* sp. nov. (Figures 1–9)*Description*

Female (holotype): Head greenish black; eyes and ocelli dark reddish brown; antenna with scape, pedicel and anelli pale yellowish brown, flagellum dark brown dorsally and pale brown laterally and ventrally; mandibles yellow with apical half dark brown; mesosoma greenish black; tegulae pale yellowish brown with brown dorsal infuscation; wings hyaline; veins pale yellowish brown; stigmal knob dark brown; discal pubescence brown; pubescence of body white; coxae concolourous with mesosoma; femora brownish yellow with paler apices; fore tibia off white apically and pale yellow in basal half; fore tarsi pale brown; mid and hind tibiae white and all tarsi white. Metasoma metallic blue with brown shade at hind margins of tergites.

Head distinctly reticulate and moderately setose; clypeus with longitudinal striations extending beyond clypeal margin, slightly convex along the median line, anterior margin slightly produced and almost straight, with malar groove vague. Head $3.7 \times$ as wide as long in dorsal view, and $1.28 \times$ wide in frontal view; temple narrow, $0.4 \times$ the eye length; POL $1.13 \times$ the OOL; posterior margin of occiput sharply margined, occiput not carinate; eye length/width ($1.94/0.69$) – 2.8 in frontal view; frons width 3.6 mm; inter-torular distance 0.36 mm; malar space 1.61 mm in frontal view; mandibles with four teeth, apical two sharper and basal two blunt; scrobe deep, similarly sculptured as on rest of face (Figure 1). Antennae inserted below middle of face, distinctly above lower ocular line; toruli separated $0.54 \times$ their individual diameter; scape not exceeding median ocellus, $0.8 \times$ as long as the eye; pedicel plus flagellum $0.8 \times$ as long as the head width, pedicel shorter than F1, slightly longer than wide; anelli transverse, third anellus little longer than second, anelli together $0.42 \times$ as long as the pedicel; funicle not widening towards tip, with dense and moderately long pubescence; F1–F3 longer than wide, F1 little longer than F2 ($1.1 \times$), F2 as long as F3; F4 and F5 transverse, equal, slightly shorter



Figures 1–3. *A. indicus* sp. nov., female: 1, head part in frontal view; 2, antenna; 3, forewing.

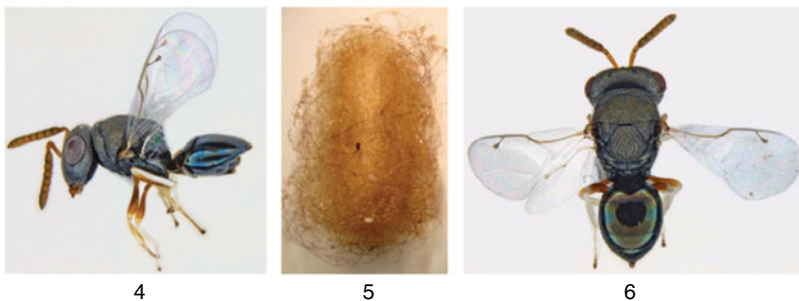
than F3 (0.9 $\times$); funicular segments with three irregular rows of sensillae; clava slightly wider than funicle, 2.5 $\times$ as long as preceding segments combined, and 2.1 $\times$ as long as wide, sutures almost straight, with an area of micropilosity extending up to the base of third segment (Figure 2).

Mesosoma: Length versus width 5.43–4.34, distinctly convex, uniformly reticulate punctate with dense white pubescence, reticulation finer on margins (Figure 6). Pronotal collar anteriorly sharp and not carinate. Mesoscutum 2.4 $\times$ as broad as long (1.77:4.27), notauli incomplete. Scutellum 0.9 $\times$ as long as broad (2.17:2.40) and frenum absent. Dorsellum narrow with fine rugae. Propodeum moderately reticulate with a short nucha, nuchal area finely reticulate, median carina almost complete, costulae indicated; plicae indicated only anteriorly, plical foveae deep; spiracle elongate ovate separated from hind margin of metanotum by distance little less than the diameter; post spiracular sulcus deep; callus with long, white hairs. Prepectus small. Mesopleuron almost completely reticulate except for a narrow triangular smooth area below the wings. Metapleuron reticulate punctate. Forewing 2.1 $\times$ as long as wide, basal part setose, speculum highly reduced to a small area below parastigma; marginal fringe small, basal cell completely hairy; costal cell hairy except at the posterior margin; stigma moderately capitate (Figure 3). Relative lengths of SMV, 11.5; MV, 5.5; STV, 3.2 and PMV, 4. Coxae distinctly reticulate; hind coxae with tuft of white hairs on the posteriolateral margin, 1.14 $\times$ as long as broad; hind femora 4.17 $\times$ as long as broad and hind tibiae with two unequal spurs.

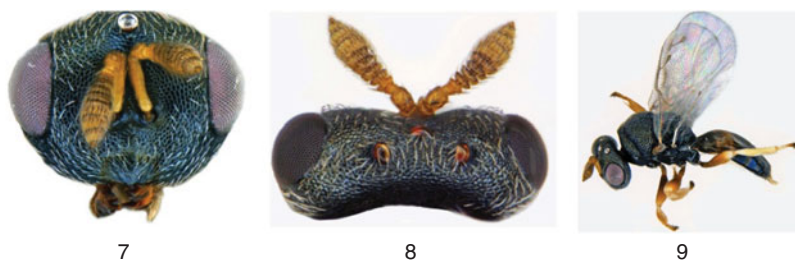
Metasoma: Gaster ovate to almost circular, petiole transverse, less distinct, 0.79 $\times$ as long as the head plus mesosoma combined in profile; 1.42 $\times$ as long as broad in dorsal view, posterior margin of T1 angularly produced, not collapsing; posterior margin of T2 distinctly produced and incised in the middle; T3 largest, slightly produced posteriorly with a small incision in the middle; hind margins of T3–T5 straight; ovipositor sheath slightly protruded; tergites smooth and nitid, with hypopygium reaching the middle of T5 (Figure 6).

Length 1.19 mm, range 1.14–1.19 mm.

Male: Colour metallic greenish blue, differs from female in having unique pale yellow coloured and distinctly clubbed antennae, with two anelli and six transverse funicular segments, and dense pubescence (Figure 8); funicular segments gradually increasing in width towards the clava; clava widest at base and tapering towards tip; gaster compressed and elongate, with distinct and polished petiole; brownish yellow colouration on T2 and anterior half of T3; T2–T4 off white ventrally, ventral side of apex and T1 brown; legs



Figures 4–6. *A. indicus* sp. nov., female: 4, habitus, lateral view; 5, Lymantriidae host – pupa; 6, habitus, dorsal view,



Figures 7–9. *A. indicus* sp. nov., male: **7**, head, frontal view; **8**, head, vertex with antennae; **9**, habitus, lateral view.

with femora in basal 1/3rd brown, middle 1/3rd yellow and apical 1/3rd white; fore tibiae off white; mid and hind tarsi white; with leg segments little swollen especially tibiae (Figures 7–9).

Length 0.90–1.13 mm (1.13 mm described specimen).

Holotype

f, India: Karnataka, Mandya, 12.52°N76.9°E, 678 m msl, 16.III.2013, Coll. NBAII, ex. lymantriid pupa on *S. officinarum* L., reg. no. NBAII/Ptero/Aniso/16313-A; *paratypes*, 7f, 4m, with data same as holotype-4f, 2m, reg. no. NBAII (NBAII/Ptero/Aniso/16313 A–D (4f) and 16313 E, F (2m) (NBAII); reg. no. ZSI/WGRC/IR-INV.2559 (f), 2560 (m) (ZSI-K); 2f, m (NPC).

Etymology

The species name is derived.

Comments

This new species is unique in its short ovate to subcircular gaster with its T1 angularly produced but not collapsing; forewing with highly reduced speculum; and uniquely clubbed and short antenna in male. It resembles *A. ceylonensis* in its colour and sculpture, PMV shorter than MV and some features of the propodeum. However, it differs in POL 1.13 × the OOL, clypeus almost straight; forewing with basal cell completely hairy and gaster with T1 not collapsing to form a basal petiole-like structure (vs. POL little longer than 2 × the OOL, clypeus emarginated; forewing with basal cell not hairy and gaster with T1 collapsing to form a basal petiole-like structure).

It differs from the cosmopolitan *A. calandrae*, mostly associated with storage pests, in short and slender body which is moderately reticulate; antennae uniformly testaceous with F1 longer than pedicel; propodeum moderately reticulate with its median carina complete and costula indicated; forewing with MV 1.7 × as STV, PMV shorter than MV and POL 1.13 × as OOL (vs. body robust and finely reticulate; antennae uniformly brown with F1 as long as pedicel; propodeum finely reticulate with median carina indicated only anteriorly, costula indistinct and forewing with MV 1.3 × as STV and PMV slightly longer than MV and POL 1.3 × as OOL).

2. Key to the species from Indian subcontinent – females

1. Gaster short, ovate to subcircular, 0.79 × as long as the head plus mesosoma combined (Figure 6); propodeum with its median carina distinct and reaching the base of nucha, and median area moderately reticulate; forewing with speculum



Figures 10 and 11. **10**, *A. calandrae*, female, habitus – lateral view; **11**, *A. ceylonensis* Sureshan, female, habitus – lateral view.

highly reduced in the form of a small closed area beneath parastigma (Figure 3); anterior margin of clypeus slightly produced and almost straight (Figure 1); antenna with pedicel distinctly shorter than F1 (Figure 2) *indicus* **sp. nov.** Gaster long, lanceolate, as long as or longer than head plus mesosoma combined; propodeum with its median carina reaching up to middle, and median area finely reticulate; forewing with speculum broad and partly open below; anterior margin of clypeus emarginated; antenna with pedicel as long as or little longer than F1 2

2. Body stout and finely sculptured (Figure 10); forewing with MV short, $1.3 \times$ as STV; PMV little longer than MV; basal cell not hairy; antennae uniformly brown with pedicel as long as F1; POL $1.3 \times$ as OOL *calandrae*
Body slender, moderately reticulate (Figure 11); forewing with MV $2.4 \times$ as STV; PMV $0.83 \times$ as MV; antenna uniformly testaceous, with pedicel slightly longer than F1; POL slightly longer than $2 \times$ as OOL *ceylonensis*

Acknowledgements

The first author thanks the Network Project on Insect Biosystematics for financial assistance, the Director, NBAII, and Dr J. Poorani, NBAII, Bangalore, for facilities and encouragement, and Ms Y. Lalitha, NBAII, for the field assistance. The second author is grateful to Dr K. Venkataraman, Director, Zoological Survey of India, Kolkata.

References

- Beccaloni G, Scoble M, Kitching I, Simonsen T, Robinson G, Pitkin B, Hine A, Lyal C, editors. 2003. The global Lepidoptera names index (LepIndex); [cited 2013 Mar 28]. Available from: <http://www.nhm.ac.uk/entomology/lepindex>
- Bouček Z, Rao BRS, Farooqi SI. 1979. A preliminary review of Pteromalidae (Hymenoptera) of India and adjacent countries. *Oriental Insects*. 12:433–467.
- Comstock P. 1881. Report of the entomologist. Report of the United States Department of Agriculture. 1880:273.
- Herting B. 1975. Part 1 (Microlepidoptera). A catalogue of parasites and predators of terrestrial arthropods. Section A: host or prey/enemy. Commonwealth Agricultural Bureaux, Commonwealth Institute of Biological Control. 6:41–42.
- Herting B. 1977. Hymenoptera. A catalogue of parasites and predators of terrestrial arthropods. Section A: host or prey/enemy. Commonwealth Agricultural Bureaux, Institute of Biological Control. 4:45.

- Noyes JS. 2013. Universal Chalcidoidea database; [cited 2013 Mar 28]. Available from: <http://www.nhm.ac.uk/jdsml/research-curation/projects/chalcidoids>
- Rasplus JY. 1988. Description de deux nouvelles especes du genre *Anisopteromalus* Rutschka Cle des especes afrotropicales (Hym. Pteromalidae). Bulletin de la Societe Entomologique de France. 93:123–125.
- Risbec J. 1956. Les parasites des insectes borers du riz ou Cameroun. Agronomie Tropicale, Nogent-sur-Marne. 11:238.
- Roomi MW, Khan ZI, Khan SA. 1973. *Pteromalus schwenkei* (Hymenoptera: Pteromalidae), a new species as a primary parasite of the bean weevil, *Bruchus chinensis* L., from Pakistan. Zeitschrift für Angewandte Entomologie. 72:395–400.
- Sureshan PM. 2007. Taxonomic studies on Pteromalidae (Hymenoptera: Chalcidoidea) of Southeast Asia based on collections of Bohart Museum of Entomology, University of California, Davis, USA. Records of Zoological Survey of India, Occasional Paper. 268:1–42.
- Sureshan PM. 2010. A new species of *Anisopteromalus* Ruschka (Hymenoptera: Chalcidoidea: Pteromalidae) from Sri Lanka. Journal of Threatened Taxa. 2:1144–1146.
- Szelényi G. 1981. Some new Palaearctic torymid and pteromalid species (Hymenoptera: Chalcidoidea). Acta Zoologica Academiae Scientiarum Hungaricae. 27:215–216.