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Description of a new genus and three species of Encyrtidae (Hymenoptera: Chalcidoidea) from the Western Ghats of Karnataka, India

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Abstract

A new genus of Encyrtidae (Hymenoptera: Chalcidoidea), *Noyesencyrtus* Singh **gen. nov.** (type species *N. brachyoculus* Singh **sp. nov.**), associated with insects inhabiting fruiting bodies of wood-decaying fungi, and two new species, *Psyllaephagus kundapurensis* Singh **sp. nov.** and *Ooencyrtus hayatii* Singh **sp. nov.**, are described from the Western Ghats of Karnataka, India.

Key words: New genus, new species, *Noyesencyrtus brachyoculus*, *Psyllaephagus kundapurensis*, *Psyllaephagus mesohomotomae*, *Ooencyrtus hayatii*, taxonomy, fungal fruiting bodies, *Vateria indica* canopy, mangroves, parasitoids

Introduction

The species described here were collected during survey work for various projects aimed to inventory the entomofauna of various forest ecosystems. The entomofauna of wood-decaying fungi were surveyed in Rajiv Gandhi National Park, Nagarahole, in the Nilgiri Biosphere Reserve, which forms a part of the Western Ghats, one of the mega biodiversity hot spots in India. This yielded specimens of a species that could not be placed in any of the known genera of Encyrtidae (Hymenoptera: Chalcidoidea) and is described as a new genus. Surveys in the mangrove area (backwater of river Haladi) in the Uduppi district of the Kundapura Forest Division of Karnataka also yielded a new species of the genus *Psyllaephagus* Ashmead. In these mangrove forests *Rhizophora mucronata* (Rhizophoraceae) is the most dominant of the flora along with *Kandelia candel* (Rhizophoraceae), *Aegiceras corniculatum* (Myrsinaceae), *Sonneratia alba* (Lythraceae), and *Avicennia officinalis* and *Acanthus ilicifolius* (Acanthaceae). A new species of *Ooencyrtus* Ashmead was also collected from canopy fogging of *Vateria indica* L. (Dipterocarpaceae).

Material and methods

Fungal fruiting bodies of wood decaying fungi were collected after monsoon showers during the months of October–November from 2005 to 2007. All fruiting bodies found on the log surfaces were collected and stored in separate perforated plastic bags. They were kept in plastic emergence boxes mouthed with muslin cloth in the laboratory and observed for any emergence. In the mangroves collection was done with the help of solar powered UV light trap.

Encyrtids from canopy were collected by fogging with the insecticide Kingfog® @ of 0.34% (active ingredient) generated from a thermal fogger (Vanfog®) (Srinivasa *et al*. 2004).

Specimens reared from fungi had dried in the rearing containers at the time of collection and were later stored in 80% ethanol. They were rehydrated, cleaned and dried using HMDS technique (Brown 1993). Dried specimens and slide mounted parts were photographed with a Nikon Digital Sight DS-Fi1 mounted on an Olympus SZX-16 Stereozoom Microscope. Automontaged photographs were taken using EDF module of NIS-Br software (Nikon).

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with marginal vein as long as stigmal vein (58), postmarginal vein 0.6× stigmal vein (36:58). Middle leg with tibial spur 0.72× as long as basitarsus (117: 161).

Metasoma (Fig. 32) slightly wider than long (495: 474), shorter than mesosoma (474: 520), pointed apically, with cercal plates situated at basal third; last tergite U-shaped; hypopygium reaching half length of metasoma (246: 474); ovipositor sheaths not exserted, ovipositor 1.18× as long as middle tibia (539: 455); third valvulae 0.18× length of ovipositor length (102: 539).

MALE. Unknown.

Variation. There is very little variation among females except for size as given in the description.

Material examined. Holotype (NFIC-FRI; Accession No. NFIC-FRI-21911), female (dissected and mounted on a slide under eight covers) labeled "INDIA, Karnataka, Bannadapaare, Makuta near Virajpet (N 12°04' 39.2"; E 75°43'33.6") in the Western Ghats; 26.vi.2003; YB Srinivasa; ex. canopies of *Vateria indica*, located at an altitude of 128 m amsl; collected by canopy fogging". Specimen was dried with HMDS, photographed and then dissected.

Paratype (1♀, slide mounted); other data same as for the holotype, labeled Acc. No. NFIC-FRI-21911.

Host. Unknown.

Distribution. Western Ghats, Karnataka, India.

Etymology. Species named after the Prof. Mohd. Hayat for his remarkable contributions on Indian Encyrtidae.

Comments. This appears to be a unique species, females being completely yellow except for the following being dark brown: head, pronotum and proximal fourth of mesoscutum, and a spot at each side of metasoma adjacent to cercal plates. It does not run exactly to any species in available keys to *Ooencyrtus* by Huang & Noyes (1994), Noyes (1985), Prinsloo (1987), Trjapitzin (1989) or Hayat (2006). The new species is apparently similar to *O. macula* Huang & Noyes (1994) and *O. nanus* Prinsloo (1987) in body color but quite different from both. It differs from *O. macula* mainly by the following characters (characters in bracket are those of *O. macula*): antenna with F6 quadrate to wider than long (longer than wide), fore wing hyaline (with median infuscate band), mesopleuron and propodeum pale yellow (mesopleuron mainly brown anteriorly, propodeum laterally), ocelli in acutely angled triangle, apical angle about 45° (30°), club longer than combined length of F4–6 (slightly shorter). It also resembles *O. nanus* Prinsloo (1987) in body color, but differs on the basis of the following main characters (characters in bracket are those of *O. nanus*): mesopleuron and propodeum pale yellow (mesopleuron mainly brown posteriorly, propodeum brown laterally), head 5× as wide as frontovertex (about 3×), lateral ocellus touching eye margin (lateral ocellus its own diameter away from eye margin), scape 4.9× as long as wide (6.5×) and club longer than combined length of F4–6 (distinctly shorter).

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