



## Description of four new species of brachypterous Encyrtidae (Hymenoptera: Chalcidoidea) from India

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### Abstract

Four new brachypterous species of Encyrtidae (Hymenoptera: Chalcidoidea) are described. These are: *Astymachus eximius* Hayat, **sp. nov.**, *Ixodiphagus aethes* Hayat, **sp. nov.**, *Monstranusia brachyptera* Hayat, **sp. nov.**, *Ooencyrtus notialis* Hayat, **sp. nov.** Brachyptery in the genera *Astymachus* Howard and *Monstranusia* Trjapitzin is reported for the first time.

**Key words:** *Astymachus*, *Ixodiphagus*, *Monstranusia*, *Ooencyrtus*, new brachypterous species

### Introduction

Keys to genera of Encyrtidae (Hymenoptera: Chalcidoidea) dealing with both macropterous and brachypterous forms have been published by Prinsloo & Annecke (1979, Afrotropical genera), Noyes (1980, Neotropical genera), Noyes & Hayat (1984, Indo-Pacific genera), Noyes (1988, New Zealand genera), Trjapitzin (1989, Palearctic genera), Noyes & Hayat (1994, genera of Oriental anagyrine Encyrtidae), Noyes *et al.* (1997, Nearctic genera), Zhang & Huang (2004, Chinese genera), and Hayat (2006, Indian genera). In a more recent paper on brachypterous species of encyrtids from India, Hayat *et al.* (2013) stated that in this family brachypterous species or species with both brachypterous and macropterous forms are known in 94 genera. Hayat & F.R. Khan (2015) added one more brachypterous genus. The present paper is a continuation of our contributions to the brachypterous encyrtids from India. We describe four new species in the genera *Astymachus* Howard, *Ixodiphagus* Howard, *Monstranusia* Trjapitzin, and *Ooencyrtus* Ashmead. The occurrence of brachyptery in *Astymachus* and *Monstranusia* is recorded for the first time. Including the new species described here, the total number of brachypterous species in Encyrtidae known from India is twenty-five.

### Methods

Hayat (2006) is followed for terminology except for the use of the terms mesosoma for the thorax plus propodeum, and metasoma for the petiole plus gaster. Only body lengths are given in millimetres; other measurements are relative, taken from the divisions of a linear scale of a micrometer placed in the eye piece of a stereozoom binocular microscope at 10× Zoom 8 (one micrometer division = 0.01234 mm) for carded specimens, and placed in the eye piece of a compound microscope either at 100× magnification (one micrometer division = 0.00987 mm) or at 400× magnification (one micrometer division = 0.0025 mm), as noted in the text, for slide-mounted parts.

The following abbreviations are used in the text:

AOL = Minimum distance between a posterior ocellus and the anterior ocellus.

F1, F2, etc. = Funicle segments 1, 2, etc.