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, Palaearctic 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.