

Discription on a new species of *Elasmus westwood* (Hymenoptera:Chalcidoidea) with notes on host-parasitic relationship of some Indian species

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Abstract

A new Indian species of *Elasmus* is described in the sub family Elasmidae Eulophidae from Bareilly district (U.P.), with a host parasite list of some species reared from plant hosts such as fig receptacles, fruits and galls. The parasites emerged from galls made by insects mostly belonged to family Encyrtidae, Aphelinidae, Eulophidae and Braconidae. Host parasite list is compiled from the catalogue (Verma and Hayat, 1986).

Keywords: *Elasmus*, host parasite, Bareilly

INTRODUCTION

The species of the genus *Elasmus* are primary parasitoids of the larvae and prepupae of various Lepidoptera, though few species occur as hyperparasitoids of cocooned prepupae of Braconidae and Ichneumonidae (Verma and Hayat, 1986; Coote, 1997). The genus is cosmopolitan in distribution containing about 218 species described from various parts of world. About 35 species have been recorded from India, out of them 12 species have been described as new from India for the first time (Verma *et al.*, 2002).

District Bareilly has not been explored by any taxonomist for these species thoroughly till now, hence the present work will certainly bring some new records and diversity of Indian species. *Elasmus* is a chalcid hyperparasitoid play an important role in the natural biological control of some Braconid and Ichneumonid parasites attaching fruit trees & common vegetation.

During 2009-10 25 specimens were collected by sweeping over grass and bushes and identified as 18 females and 7 males few already recorded species of the genus *Elasmus* have been revised and compared with the type material obtained from Zoological survey of India Jodhpur and BMNH, London and U.S.National Museum Washington, D.C. and Z.D-AMU, Aligarh. This study is in progress since 2009 for the purpose of finding new results. In the present work some earlier described species will be recorded and / or redescribed based on the study of relevant types or already determined material.

RESULT AND DISCUSSION

DISCRIPTION : *Elasmus nigricoxa* sp. nov. :

Female : Length, 1.75-2.25 mm. Body orange yellow, following parts bluish-black to blackish: a spot above foramen which is continued on to the fronto vertex between ocelli and extending a little anterior to

front ocellus; a large spot behind each eye which in some specimen meets the central spot as shown in (Fig. 2); a very faint small spot in the middle on the anterior margin of pronotum; a spot on sides of metanotum axillae; tegulae; propodeum with a large spot surrounding spiracle, a median spot of variable extent with violet shine (in some specimens propodeum more or less completely dark); a spot with violet shine on each side of basal half of first gastral tergum and hind valvulae. Antennal radicle dusky; scape yellow, upper margin brownish and the rest of flagellum blackish brown densely covered with short brownish setae. Fore wings hyaline at base gradually turning to infuscate so that the apical third or so is darkly infuscated; setae dark brown; hind wings hyaline, apical fourth or so faintly infuscate. Legs orange yellow to pale yellow with the following parts dark brown to blackish brown: most of the dorsal margin of fore femur infuscate; dorsal margin of middle femur; dorsal margin of hind coxae in distal half or so; ventral margin of hind femur, brownish; basal third of middle coxae almost blackish brown and with violet tinge. Frontovortex with fine irregularly arranged setigerous punctures, each less than the diameter of hind ocellus; thoracic dorsum so finely reticulate as to appear almost smooth, rest of the parts smooth, the frontovortex, pronotum and mesoscutum densely setose; setae brownish, axillae with almost transparent setae; interscrobial area and genae sparsely setose; eyes and mesopleura, glabrous setation of body parts including wings and legs as given in Figs. 6-10.

Head dorsum about twice wider than long (18.6: 9.5); frontovortex slightly less than one and one fifth wider than median length (11.5:9.5); ocelli arranged in obtuse triangle, POL twice the OOL; OCL shorter than OOL, OAL (distance between posterior ocellus to anterior ocellus) shorter than POL; occipital margin slightly concave, occiput sharply margined; eyes longer than wide (5.5:4); gradually diverging; head, in frontal aspect, wider than long (9.5:9) with the facial impression inverted 'V' shaped, rounded above and on sides; antennal sockets almost oval, removed from facial margin by slightly more than twice the major diameter of a socket and their lower margins in line with lower eye margins; mandibles five dentate; maxillary and labial palps each two segmented. Antennae (Fig. 4) 8-segmented excluding radicle. ring segment and anellus; scape long, slender, about five times longer than wide; pedicel shorter than F-1; anellus triangular; all funicle segments longer than wide, almost subequal, each about two and a half times longer than wide, club

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three segmented, as long as preceding two funcile segments combined.

Pronotum (Fig. 5a) slightly more than two time wider than long (8: 3.5) and almost half the length of mesoscutum, mesoscutum (Fig. 5) one and one-third times wider than long (4.5:3.5); para-psidal sutures incomplete; scutellum slightly wider than long (4.5: 4.0), rounded posteriorly and with two pairs of setae, anterior setae reaching over the middle of metanotum and posterior on to propodeum. Fore wings (Fig. 6) about four and a half times longer than wide: 8m:m:pm (10:40:11) with 16 prominent setae below marginal vein, hind wings (Fig. 7) seven times longer than wide, marginal fringe about one-fourth the width of disc. Hind tibia with rows of hairs arranged in seven prominent rhomboidal areas three on dorsal and four on lateral sides, other details of legs as shown in figs. 8-10.

Gaster slightly longer than head and thorax combined (11: 10.5); first tergum about one third of the gastral length; ovipositor slightly exserted at apex, extending from the middle of first gastral tergum.

Holotype : C India : U.P., Bareilly.

Paratypes : 2CC, U.P. with the following data : India : Uttar Pradesh, Benipur (Bareilly District).

Male : Unknown

Host : Unknown

Comments

In Ferriere's (1947) key to Palaeartic species it runs to E. phthorimeae but differs from that species in detail of colour: Pronotum completely orange yellow, gaster completely orange yellow except two spots on sides of the first tergum; most of the dorsal margin of fore femora, dorsal margin of middle femora dark brown; basal third of middle coxa blackish with some shine; fore wings faintly infuscated and details of antennal dimensions.

Etymology

Named on the basis of one third blackish coxa of hind leg and blackish broad band in the middle of middle leg.

Host parasite list (Verma *et al.* 2002)

Species	Host
<i>Elasmus hutsoni</i> Ferriere	Bagworm (<i>Psyche albipes</i> , Tea Bagworm in Sri Lanka)
<i>Elasmus brevicornis</i> Gahan	<i>Biloba Sabsecivela</i> ; <i>Cnaphalocrosis medinalis</i> ; <i>Diaphania indica</i> ; <i>Hapalia machaeralis</i>
<i>E. anticles</i> Walker	Braconidae: <i>Apanteles malevolus</i> through <i>Hyblaea puera</i> defoliating 'teak'; <i>Bracon</i> sp. and <i>Chelonus</i> (<i>Microhelonus</i>) sp. through <i>Epicephala chalybacma</i> ; <i>Holocera pulvereana</i> ; 'Tinea' sp. (<i>Acrocercops</i> sp. on <i>Caesalpinia pulcherrima</i> (L.), in Philippines).
<i>E. nephantidis</i> Rohwer	<i>Opisina arnosella</i> (= <i>Nephantis serinopa</i>) on palm.
<i>E. nigricorpus</i> Husain & Kudeshia	<i>Apanteles</i> sp. cocoon on <i>Ricinus communis</i> .
<i>E. hyblaeae</i> Ferriere	<i>Hyblaea puera</i> ; <i>Noorda moringa</i> .
<i>E. johnstoni</i> Ferriere	<i>Earias insulana</i> ; <i>E. cupreoviridis</i> ; <i>E. fabia</i> ; <i>Hapalia machaeralis</i> ; <i>Hyblaea puera</i> ; <i>Nephanteryx rhodobasalis</i> ; <i>Pectinophora gossypiella</i> (= <i>Platyedra</i>); <i>Sylepta derogata</i> . Braconidae: <i>Apanteles impartunus</i> ; <i>A. machaeralis</i> ; <i>A. malevolus</i> (<i>Earias insulana</i> , larvae in bolls of <i>Abutilon</i> sp., in Sudan; <i>P. gossypiella</i> , in Pakistan).
<i>E. indicus</i> Rohwer	<i>Anomalococcus</i> sp.; <i>A. indicus</i> ; coccids on <i>Acacia</i> sp. <i>Diaphania</i> (<i>Margaronia</i>) <i>indica</i> ; <i>Lamprosema indicata</i> ; <i>Eublemma</i> sp. pred. on <i>A. indicus</i> ; probably parasitic on larvae of <i>Eublemma</i> sp.; <i>Skylepta derogata</i> .
<i>E. homonae</i> Ferriere	<i>Cydia</i> (= <i>Laspeyrasia</i>) <i>leucostoma</i> ; <i>C. tricentra</i> . (<i>Homona coffearia</i> Nietneron Tea in Sri Lanka).
<i>E. claripennis</i> (Cameron)	<i>Cnaphalocrosis medinalis</i> ; <i>Eublemma amabilis</i> parasitic on <i>Kerria lacca</i> ; <i>Eublemma scitula</i> ; <i>Holocera pulvereana</i> on Lac; bred from Lac; <i>Pelopidas mathias</i> .
<i>E. viridiscutellatus</i> , (Verma and Hayat 2002)	<i>Cnaphalocrosis medinalis</i> , larvae.
<i>E. alami</i> , sp. nov. (Verma and Hayat 2002)	<i>Phidodonta modesta</i> .
<i>E. zehntneri</i> Ferriere	<i>Bissetia steniella</i> ; <i>Chilo infuscatellus</i> ; <i>Pectinophora gossypiella</i> ; <i>Scirpophaga</i> sp. ; <i>S. auriflua</i> ; <i>Tryporyza monostigma</i> ; <i>T. nivella</i> ; <i>T. rhodoproctalis</i> . (<i>Scirpophaga intacta</i> , in Java).
<i>E. albopictus</i> Crawford	<i>Tryporyza incertulas</i> on summer paddy; <i>Eucosma critica</i> ; <i>Cnaphalocrosis medinalis</i>
<i>E. flavocorpus</i> Husain & Kudeshia	Cocoons of <i>Apanteles</i> sp. on <i>Ricinus communis</i> .
<i>E. ceylonicus</i> Ferriere	Unknown from India. (From cases of <i>Psyche albipes</i> Tea bag worm in Sri Lanka).
<i>E. cameroni</i> Verma & Hayat (2002)	Parasite of Lac and Sal of some unknow relationship

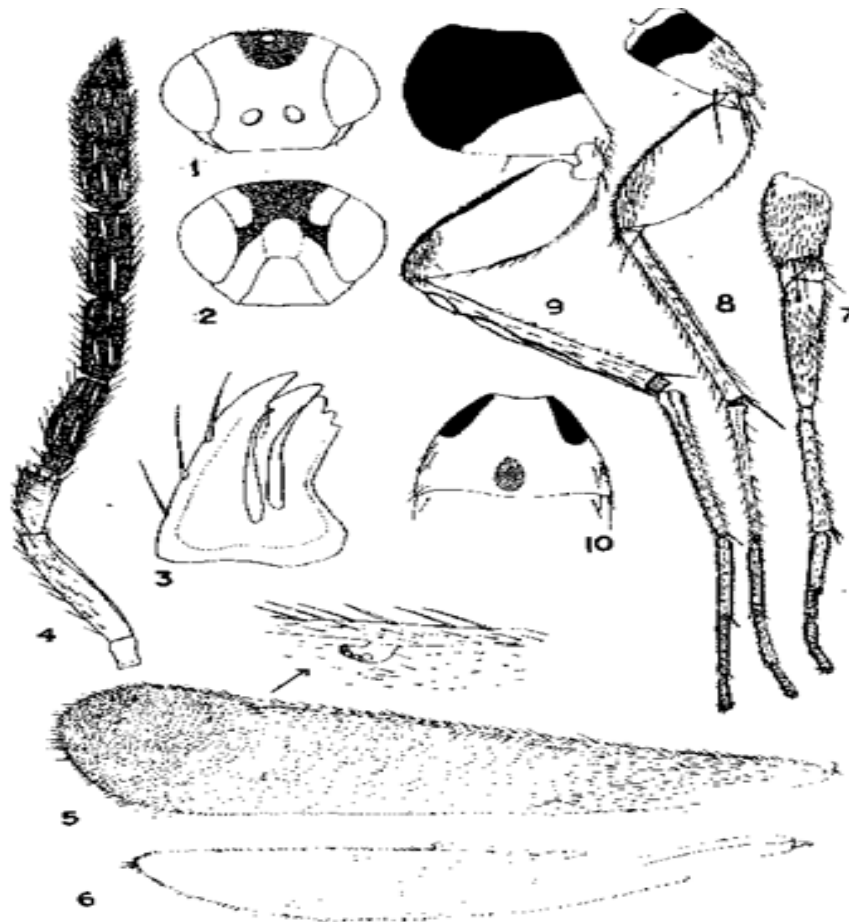


Fig1-10. *Elasmus nigricoxe* sp. nov. C (1) Head frontal (2) Head occipital region (3) Mandible (4) Antenna (5) Fore wing with the enlarged venation shown separately (6) Hind wing (7) Fore leg (8) Middle leg (9) Hind leg (10) First tergum of gaster, dorsal.

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