

## Two new species of Eulophinae from Ethiopia and Mexico (Hymenoptera: Eulophidae)

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Two new species of Eulophidae are described and illustrated, *Euplectromorpha emeljanovi* sp. n. from Ethiopia and *Hoplocrepis mexicana* sp. n. from Mexico.

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This paper includes the descriptions of two new species of the genera *Euplectromorpha* Girault and *Hoplocrepis* Ashmead from the Afrotropical and Nearctic regions. These genera are recorded from Ethiopia and Mexico for the first time. The types of new species are deposited at the Zoological Institute of the Russian Academy of Sciences, St.Petersburg.

The sculpture terminology follows that of Eady (1968) and Harris (1979). Other morphological terminology follows that of Askew & Boucek (1968) and Gibson (1997); the abbreviations used in the text are listed below: F1 – first segment of antennal funicle, F2 – second segment, F3 – third segment, F4 – fourth segment; *SMV* – submarginal vein, *MV* – marginal vein, *PMV* – postmarginal vein, *SV* – stigmal vein. All measurements are given in  $\mu\text{m}$ , except as otherwise noted.

### Genus *Euplectromorpha* Girault, 1913

Type species: *Euplectromorpha unifasciata* Girault, 1913.

*Notes.* A total of 34 species are known in the genus (Noyes, 1998). A key for identification of species of *Euplectromorpha* was published by Wijesekara & Schauf (1994).

Species of the genus are known from the Neotropical (Cuba), Afrotropical (Kenya, Malawi), Oriental (Sri Lanka, Indonesia), Palaearctic (Sweden, Germany, Hungary, Italy) and Australian (Australia) regions.

*Biology.* Larval parasitoids of Lepidoptera: *Epigynopterex strictigramma* (Geometridae) [see Leenwangh, 1965], *Latoia* sp. (Limacodidae), *Mocis* sp. (Noctuidae) [see Harting, 1976], *Artona catoxantha* (Zygaenidae) [see Wijesekara & Schauf, 1994].

### *Euplectromorpha emeljanovi* sp. n. (Figs 1-5)

*Holotype.* ♀, **Ethiopia**, *Shoa Prov.*, Ambo (95 km W of Addis Ababa, h = 2400-2500 m), 13.VI.1990 (Emeljanov).

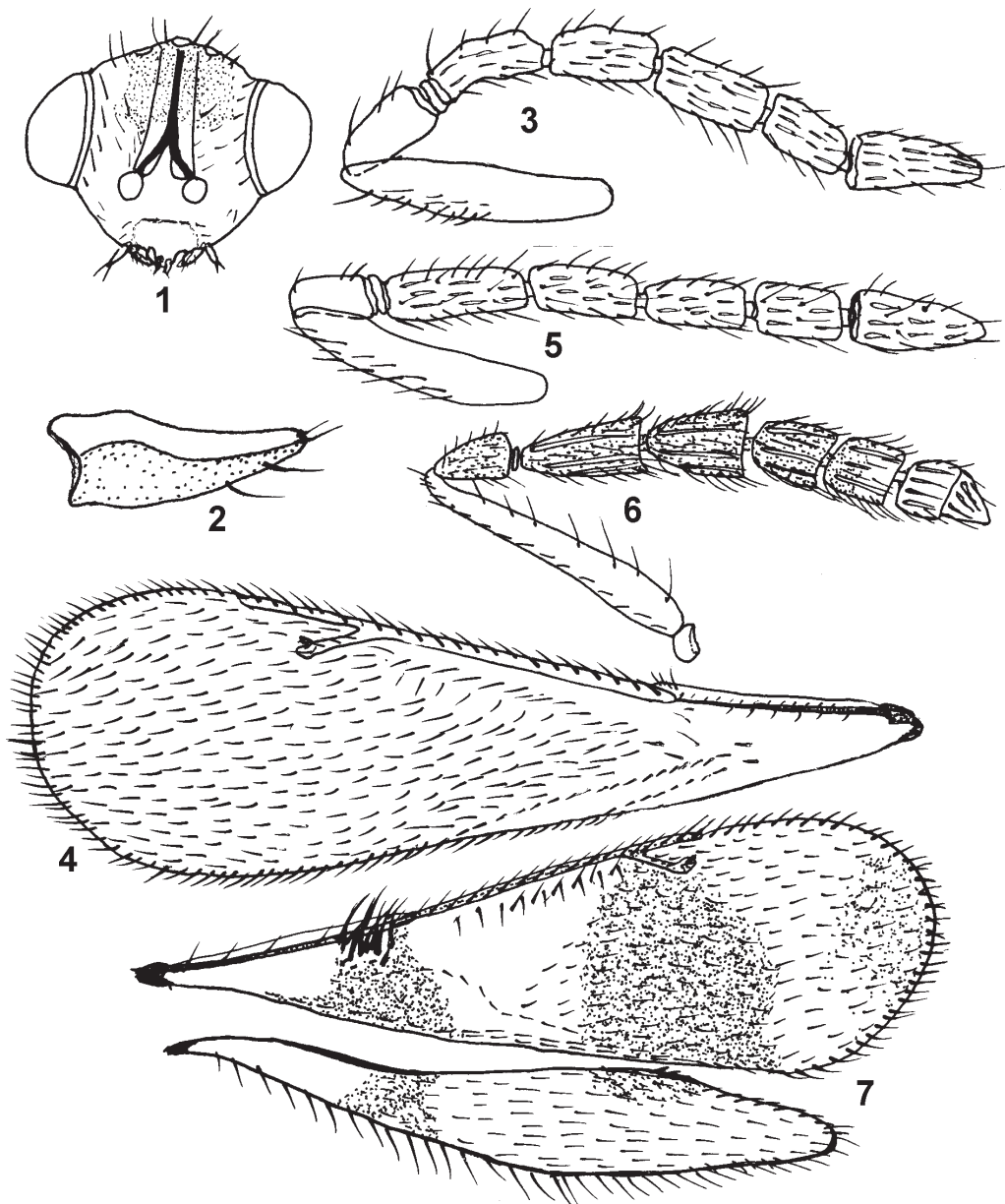
*Paratypes.* **Ethiopia:** 2 ♀, 1 ♂, same locality as for holotype, 13.V, 29.V and 6.VI.1990 (Emeljanov).

*Diagnosis.* Clava pointed at apex, 1.71 times as long as F4. Transverse carina of pronotum black. Female with a single hind tibial spur, which is slightly longer than first segment of tarsus. Propodeum with two submedian carinae enclosing median carina. Mandibles rudimentary, without teeth, with four setae.

*Description. Female.* Body length 1.75 mm; fore wing length 1.68 mm.

Colour. Head and mesosoma yellow; propodeum dark brown; gaster brownish, 3rd-5th tergites dark brown, ovipositor sheaths dark brown. Head yellow with brown spot on vertex and dark brown forked stripe from toruli to postocellar line; clypeus and mandibles yellow; eyes dark brown; ocelli yellow; antennal funicle, pedicel and scape brownish, anellus yellow. Scutellum yellow, axilla with brown line parallel to transscutellar line. Venation brown. Fore wing hyaline. All legs yellow.

Head (Fig. 1) wider than high (head height 34, head width 45). Face smooth. Distance between eyes 24. Eyes bare, with postorbital line. Malar sulcus present. Clypeal suture developed dorsally. Antennae inserted below the middle of head height. Mandibles (Fig. 2) without teeth, with four setae. Maxillary palpi two-segmented, labial palpi one-segmented. Scrobes paired, parallel, depressed. Vertex with long paired setae. Posterior carina present.



**Figs 1-7.** *Euplectromorpha emeljanovi* sp. n. (1-5) and *Hoplocrepis mexicana* sp. n. (6, 7) (1-4, 6, 7, female; 5, male). 1, head, in dorsal view; 2, left mandible; 3, 5, 6, antenna; 4, left fore wing; 7, right fore and hind wings.

Antenna (Fig. 3) with long scape (18), short pedicel (6), and one anellus. Funicle with four segments (their lengths: F1 = 8, F2 = 7, F3 = 7, F4 = 5); clava one-segmented (11). First segment of funicle 1.2 times as long as second segment and 1.33 times as long as pedicel.

Mesosoma. Pronotum bell-shaped, rugulose, with transverse black carina; its posterior margin with four setae. Mesoscutum small, rugulose, with two pairs of long setae and numerous small scattered setae. Notauli complete; scapulas smooth, with setae. Axillae smooth, situated below meso-

scutum. Scutellum rugulose, with two sublateral grooves and two pairs of long setae. Dorsellum triangulate, smooth. Propodeum (44 × 13) smooth, with two submedian carinae; posterior lateral plicae absent. Grooves on propodeum present. Setae of callus arranged densely in three rows; first row with six long setae.

Fore wing (Fig. 4) 3.2 times as long as wide (128 × 40). Speculum very narrow, extending along more than one-third of *MV*. Costal cell with a dorsal row of setae and four marginal setae near *MV*. *SMV* with six setae, joining parastigma with tapering at apex. Basal hairline present. Relative measurements of veins, *SMV* : *MV* : *PMV* : *SV* = 20 : 45 : 27 : 11. *PMV* about 2.5 times as long as *SV*. Cubital vein straight and incomplete; intercubital line of setae present.

Mid and hind tibiae with spurs. Mid leg very short. Trochanter present, trochantellus absent. Hind tibial spur (22) slightly longer than first segment of tarsus (21).

Metasoma. Gaster (56 × 27) shorter than mesosoma (its length 59). Petiole transverse. Five cercal setae present. Sheaths of ovipositor slightly extended.

*Male*. Body length 1.96 mm; fore wing length 1.75 mm. Colour of body almost as in female. Pronotum yellow with wide black transverse carina. Gaster brownish, apical tergite yellow. Head yellow; vertex without dark spot. Antenna (Fig. 5) with following lengths of segments: scape = 17, pedicel = 5, F1 = 11, F2 = 8, F3 = 7, F4 = 6, clava = 12. First segment of funicle 1.27 times as long as second segment and 2.20 times as long as pedicel. Otherwise similar to female.

*Comparison*. Ferrière (1941) described 8 species of *Euplectromorpha* from South and East Africa: *E. ausensis*, *E. brevicornis*, *E. kampalana*, *E. kiambuensis*, *E. nitidiceps*, *E. obscurata*, *E. striolata*, and *E. variegata*. Only one of these, *E. kiambuensis*, was described from Kenya, a country neighbouring with Ethiopia. Later, *E. meruensis* Delucchi was described from Tanzania and *E. pallida* Bouček, from Côte d'Ivoire.

In *E. emeljanovi* sp. n., the clava of antenna is pointed at apex, and the pronotum has a transverse black carina. Most of African species of *Euplectromorpha* have the clava pointed at apex (except *E. kiambuensis* having the clava truncated at apex), but only *E. brevicornis*, *E. nitidiceps* and *E. variegata* have the pronotum with carina. In addition, *E. emeljanovi* has two submedian carinae on propodeum, the character which is absent in all the African species.

The new species is very similar to the Oriental species *E. bicarinata* (Ferrière), the material of which was examined by me in the Natural History Museum, London (1 ♂, paralectotype, "Java, Gasmingsin, VII.1934. R. Awibowo, ex larva

*Brachanlona catoxantha*, det. Ferrière, 1941"; 6 ♂, 3 ♀, paralectotypes, "Java, Gasmingsin, VII.1934. R. Awibowo, ex larva *Brachanlona catoxantha*, det. Bouček, 1974"; 1 ♂, paralectotype, "Java, Gasmingsin, VII.1939. Dr J.V.D. Vecht, ex larva *Artona catoxantha*, det. Ferrière, 1941". Both the female and male of *E. emeljanovi* differ from those of *E. bicarinata* in the brown pedicel and scape (yellow in *E. bicarinata*), presence of dark brown forked stripe on the face, presence of transverse carina on the pronotum (both are lacking in *E. bicarinata*), and the hind tibia with one spur (two spurs in *E. bicarinata*).

The new species is also similar to *E. jamburaliyaensis* Wijesekara & Schauff, 1994 described from Java and Sri Lanka, but differs from the latter in the yellow scutellum (black in *E. jamburaliyaensis*), hind tibial spur slightly longer than (1.05 times as long as) the first segment of tarsus (in *E. jamburaliyaensis*, 3.1 times as long), the propodeum with two strong H-shaped submedian carinae (in *E. jamburaliyaensis*, the propodeum has two strong submedian carinae only behind a distinct basal cap), and *SMV* 2.5 times as long as *SV* (in *E. jamburaliyaensis*, 1.7 times as long).

*Distribution*. East Africa (Ethiopia).

*Biology*. Unknown. The predominated type of vegetation in the type locality may be characterized as mountain shrub savannah (Emeljanov, 1992).

*Etymology*. The species is named in honour of Prof. A.F. Emeljanov, Russian entomologist who collected the type material.

## Genus *Hoplocrepis* Ashmead, 1890

Type species: *Hoplocrepis albiclava* Ashmead, 1890.

*Notes*. Four species are known in the genus (Noyes, 1998). They are distributed in the Nearctic Region (Ashmead, 1890; Schmiedeknecht, 1905; Peck, 1963; De Santis, 1980; Schauff, 1991) and the Neotropical Region (Ashmead, 1890). The above authors mentioned records of this genus in the USA (Florida and Massachusetts) and in Brasil.

*Biology*. Unknown.

## *Hoplocrepis mexicana* sp. n. (Figs 6, 7)

*Holotype*. ♀, **Mexico**, *Tamaulipas*, El Cielo Nature Reserve, Canindo, about 10 km W of Gomez Farias, h = 1400 m, 18.VII.1995 (E. Chouvakhina).

*Diagnosis*. Head with postocellar carina. Tentorial pits present. Funicle four-segmented. Antennal clava yellow or white. Scutellum with two pairs of setae and two longitudinal alveolate grooves. Notauli complete. Submarginal vein with four setae. Petiole long, with two setae.

*Description. Female*. Body length 1.68 mm, fore wing length 1.26 mm.

Colour. Head, mesosoma, propodeum, petiole and gaster dark brown. Scutellum brown, only two sublateral areas near grooves yellow. Face and pronotum dark yellow. Eye dark brown. Ocelli yellow. Antennal funicle and pedicel brownish; scape, anellus, clava and distal half of 4th segment yellow. Clypeus and mandibles yellow. Venation brown. Fore wing with two large infumate areas. Femora and tibiae of all legs brown; tibiae with a yellow spot in proximal part; tarsi yellow.

Head wider than high. Head height 56, head width 40. Face smooth. Eyes bare. Malar sulcus present. Clypeal suture absent. Antennae inserted below the middle of head height. Mandible with six small teeth. Maxillary palpi four-segmented, labial palpi two-segmented. Tentorial pits present. Scrobes paired, parallel, depressed. Vertex with small scattered setae, vaulted dorsally. Posterior carina present, curved.

Antenna (Fig. 6) with long scape (38), short pedicel (9) and one anellus. Funicle with four segments (their lengths: F1 = 12, F2 = 10, F3 = 9, F4 = 8); clava two-segmented (10). First segment of funicle 1.3 times as long as pedicel.

Mesosoma. Pronotum bell-shaped, rugulose, its posterior margin with four long setae. Mesoscutum large, with two pairs of setae, smooth; notauli complete; scapulas areolate. Axillae smooth, situated ventral of mesoscutum. Scutellum with two sublateral grooves and two pairs of setae, smooth. Dorsellum rounded, smooth. Propodeum (28 × 25) smooth, with complete simple median carina; posterior lateral plicae complete, anterior lateral plicae incomplete. Grooves on propodeum present. Setae of callus arranged densely in two rows, first row consisting of five long setae.

Fore wing (Fig. 7) 3.0 times as long as wide (90 Ч 30), with two large infumate areas. Speculum large, extended along marginal vein. Costal cell with a dorsal row of setae. SMV with four setae, joining parastigma with tapering at apex. Anterior area of parastigma with tufts of setae. Costal cell with basal hairline and a ventral row of setae. Relative measurements of veins, SMV : MV : PMV : SV = 45 : 45 : 6 : 7. PMV about as long as SV. Cubital vein curved, intercubital line of setae present. Hind wing narrow, with two infumate areas.

Tibiae of all legs with spurs. Mid leg with a comb of sensillae. Trochanter present, trochantellus absent. First segment of hind tarsus more than 1.66 times as long as second.

Metasoma. Gaster (55 × 40) slightly longer than mesosoma. Petiole 2.1 times as long as wide, smooth, with two setae. Five cercal setae present. Sheaths of ovipositor extended, with many trichoid setae.

Male unknown.

*Comparison.* *Hoplocrepis mexicana* sp. n. is similar to three species of the genus, *H. albiclava* Ashmead and two as yet undescribed species designated by LaSalle as new ones. The material of these three species was examined by me in the Natural History Museum, London (*H. albiclava*: 1 ♀, "St. Vincent. W.I. H.H. Smith. det. Ashmead, 1904"; 1 ♂, "Brazil, Nova Teutonia. 7.V.1938 (Plan), det. Z. Bouček, 1993"; 1 ♀, "Fla: Monroe Co Nonamekevv, 4.III-24.IV.1985, det. Z. Bouček, 1993"; 4 ♀, "Costa Rica, Guanacaste, Np 560 m, East Maritza Vn Orosi, 10.VI.1988 (Gould, Mitchel), det. LaSalle, 1989". *H. sp.1*: 1 ♀, "Dominican Rep., Barahona, 7 km NW Paraiso, 27.XI-4.XII.1991, det. LaSalle, 1989 (sp. n., not published yet)". *H. sp.2*: 1 ♀, 1 ♂, "Costa Rica, Alaj Pk, Sn Gabriel, 600 m, 2 km W Dos Rias, 1.VII.1988 (Gould, Mitchel), det. LaSalle, 1989 (sp. n., not published yet)".

*H. mexicana* differs from *H. albiclava* in the brown body (pale yellow in *H. albiclava*), smooth mesoscutum and scutellum, absence of crenellate furrows on the scutellum, absence of two submedian carinae on the propodeum, presence of tufts of setae on anterior area of the parastigma of fore wing, and shorter petiole.

*H. mexicana* differs from *Hoplocrepis sp.1* (the species from Dominican Rep.) in the brown body, yellow clava, one anellus, the long first funicular segment of antenna, and shorter clava (clava 1.25 times as long as F4 in *H. mexicana* and 2.3 times in *H. sp.1*).

*H. mexicana* differs from *Hoplocrepis sp.2* (the species from Costa Rica) in the smooth mesoscutum and scutellum, absence of crenellate furrows on the scutellum, two-segmented clava (one-segmented in *H. sp.2*), and shorter petiole (in male of *H. sp.2*, it is 4 times as long as wide).

*Distribution.* Mexico.

*Biology.* Unknown.

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#### References

- Ashmead, W.H. 1890. An anomalous chalcid. *Proc. entomol. Soc. Wash.*, 1: 234-236.
- Askew, R.R. & Bouček, Z. 1968. Index of Palaearctic Eulophidae (excl. Tetrastichinae). In: Delucchi, V. & Remaudière, G. (Eds.). *Index of entomophagous insects*. Paris. 223 p.
- De Santis, L. 1980. *Catálogo de los Himenopteros Brasileños de la serie Parasítica incluyendo Bethyloidea*. Curitiba: Univ. Federal do Parana. 395 p.

- Eady, R.D.** 1968. Some illustrations of microsculpture in the Hymenoptera. *Proc. Roy. entomol. Soc. London (A)*, **43**(4-6): 66-72.
- Emeljanov, A.F.** 1992. Planthoppers of the family Cixiidae from vicinity of Ambo, Ethiopia (Homoptera, Cicadina). *Zoosyst. Ross.*, **1**: 20-36.
- Ferrière, C.** 1941. New species of Euplectrini (Hymenoptera: Chalcidoidea) from Europe, Africa and Asia. *Bull. entomol. Res.*, **32**(1): 17-48.
- Gibson, G.A.P.** 1997. Morphology and terminology. In: Gibson, G.A.P., Huber, J.T. & Woolley, J.B. (Eds.). Annotated keys to genera of Nearctic Chalcidoidea (Hymenoptera): 16-44. Ottawa: National Research Council.
- Harris, R.A.** 1979. A glossary of surface sculpturing. *Occas. Pap. Entomol.*, **28**: 1-31.
- Hartig, B.** 1976. Lepidoptera, part 2 (Macrolepidoptera). *A catalogue of parasites and predators of terrestrial arthropods. Section A. Host or prey/enemy*, **7**: 1-221. London: Commonwealth Agricultural Bureaux.
- Leenwangh, J.** 1965. The biology of *Epigynopterix stictigramma* (Hmps.) (Lepidoptera: Geometridae), a pest of coffee in Kenya. *J. entomol. Soc. S. Africa*, **28**(1): 21-31.
- Noyes, J. S.** 1998. *Catalogue of the Chalcidoidea of the World*. Electronic Publication (CD-ROM). Amsterdam: ETI.
- Peck, O.** 1963. A catalogue of the Nearctic Chalcidoidea (Insecta: Hymenoptera). *Can. Entomol.*, Suppl. **30**: 1-1092.
- Schauff, M.E.** 1991. The Holarctic genera of Entedontinae (Hymenoptera: Eulophidae). *Contr. Amer. entomol. Inst.*, **26**(4): 1-109.
- Schmiedeknecht, O.** 1905. Hymenoptera. Family Chalcidoidea. *Genera Insectorum*, **97**. Brussels: P. Wytsman. 550 p.
- Wijsekara, G.A. & Schauff, M.E.** 1994. Revision of the tribe Euplectrini of Sri Lanka (Hymenoptera: Eulophidae). *Oriental Insects*, **28**: 1-48.

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