

Full Length Research Paper

Records of sub family Scelioninae (Hymenoptera: Platygasteridae) from oriental region with description of one new species

K. Managanvi^{1*}, M. A. Khan² and A. K. Karnatak²

¹Department of Entomology, Bihar Agricultural University, Sabour Bhagalpur, Bihar 813 210 India.

²Department of Entomology, G. B. Pant University of Agriculture and Technology, Pantnagar,
Uttarakhand 203 183 India.

Received 25 August, 2014; Accepted 15 October, 2015

A new species from genus *Cardalnamannus* and re-description of species from genus *Encyrtoscelio* Dodd (Hymenoptera: Platygasteridae) is being described, which were collected by sweet net collection from the state of Uttarakhand, India. The species *Cardalnamannus ramamurthyum* sp. nov. is described as new species and re-description of species *Encyrtoscelio apterus* (Szelényi) for the first time from Uttarakhand, India.

Key words: Encyrtoscelio, New species, Uttarakhand India.

INTRODUCTION

The genus, *Cardalnamannus* was enacted by Mineo et al. (2011) with species, *Gryon amleticus* and classified in the new tribe Dyscritobaenini of the Family Platygasteridae. The genus is reported only from Australia with only one species, *Gryon amleticus*. The host and biology is not known (Mineo et al., 2011). The other genus, *Encyrtoscelio* was enacted by Dodd with type species *Encyrtoscelio mirissimus* Dodd. Recently, the genus was keyed by Lê (2000), Rajmohana (2006) and Kononova and Kozlov (2008). The present study described *Cardalnamannus ramamurthyum* sp. nov. with re-description of *Encyrtoscelio apterus* (Szelényi) from Oriental region for the first time.

MATERIALS AND METHODS

Specimens were collected during the course of the survey programme, during the months of October 2011 and March 2012 in and around Pantnagar (Uttarakhand) area. Morphological terminology follows Masner (1979; 1980), Johnson and Masner (1985) and István et al. (2007). Antenna, wings and legs were mounted in Canada balsam after overnight immersion in 10% KOH and exposure to 70, 80 and 99% ethyl alcohol and clove oil. Photographs of wings were taken with the help of Leica Live Image Analyzer set up developed by Olympus. Scanning electron microscopy (SEM) was done on Jeol JSM6610LV/A/LA (Japan optical electrical limited) after 24 nm thick palladium coating in a JFC1600 Sputter Coater (Japan optical electrical limited) at 6×10^{-2} mbar; and images were taken at 23-24 Pa, between 150 and 370x.

*Corresponding author. E-mail: kalmesh.managanvi@gmail.com.

All images were processed in Adobe Photoshop 7.0. The types, *C. ramamurthyum* and *E. apterus* are temporarily retained in the Entomological Museum, G. B. Pant University of Agriculture & Technology, Pantnagar and will be deposited in the National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi (NPC) shortly.

RESULTS

Description of species

Cardalnaumannus ramamurthyum sp.nov.

Holotype: One female specimen was examined; body length: 0.83 mm; forewing: length 0.68 mm; width 0.42 mm; hind wing: length 0.10 mm; width: 0.028 mm; body: yellowish to deep brown/black; eyes: brown; radicle: light yellow; antennae: yellow except clava dark brown; mandibles: dark brown; mesosoma and metasoma: black; fore wings: infusate; hind wings: hyaline with veins dark brown; coxae: dark brown, femur: brownish, last tarsomere: dark brown. Head: transverse with imbricate/areolate sculpture length slightly wider than long in frontal aspect (Plate 1: 1 and 2); frontovertex width: 3.0x; the total head length (34.0:11.1); preoccipital carinae distinct and praeoccipital area pass sharply over the occiput; ocelli are arranged in acute triangle; lateral ocelli 4 to 5 mm away from inner eye orbits, they either border the vertex or are some millimeters distant from it; scrobe is present or indicated by a smooth area, usually not margined by keel; POL 1.69x longer as OOL; OOL : POL : LOL = 6.8:11.5:7.4. Compound eyes are medium in size and densely pubescent; antennal toruli is situated well below the lower eye margin; occipital carina is complete; genal carinae is absent; frons without a depression; frons width > eye height > malar space (21.9:15.6:11.4).

Antenna (Plate 1: 3): 12 segmented, with 5 segmented clava; scape is 5.3x as long as wide; antennal segments in relative proportions (length: width) from scape: 17.0:3.2, 4.5:2.6, 2.3:2.5, 2.8:1.6, 2.2:2.9, 1.7:3.6, 1.6:4.2, 2.9:4.8, 1.9:5.3, 2.9:5.4, 2.5:4.1, 4.1:3.3. Mesosoma (Plate 1: 4): is 1.32x longer than wide (28.5:21.3); skaphion is absent; epomial carina is absent; mesoscutum and scutellum with rich sculpture may be areolate rugose, without notauli; metanotum bulges medially to give rise to the dorsellum, with pubescence; prepectus not prominent. Legs are smooth; fore tibial spur is long, curved and bifurcated. Fore wings (Plate 1: 6) are lanceolate, with complete venation; distal sections of both subcostal and marginal veins strongly downcurved before reaching the linkage point; 2.76x as long as wide (11.6:4.2); 1.1x longer than hind wing length; marginal fringe long; SMV 8x longer than MV; proportions of (length) SMV: MV: PMV: STG; 4.8:0.6:1.3: 1.1. Hind wings: 3.75x as long as wide (10.5:2.8) with blunt apex; SMV is complete. Metasoma: 1.63x longer than its greatest width (40.3:24.0); elongate; T1 with

striations on one side; T2 striate but not reaching posterior half; specillum is prominent.

Male: Not known.

Holotype: Female dissected and mounted on slide. India, Uttarakhand, Pantnagar, sweepnet collection forests areas, 23-x-11, Hym. platy. Nr. KA15, coll. Kalmesh.

Paratype: Nil

Etymology: Named after Dr. V. V. Ramamurthy for his outstanding contribution to insect taxonomy in India.

Encyrtoscelio apterus (Szelényi)

Pachyscelidris aptera (Szelényi, 1941: 163) by monotypy and Original description: Synonymized by *Encyrtoscelio apterus* (Masner, 1957: 306).

Female: Body length is about 0.69 mm; body: black; eyes: brown; radicle: yellow; antennae: dark brown, except scape and pedicel light brown; mandibles: dark brown; mesosoma and metasoma: black; wings: absent; coxae: black, femur and tibia: brownish; last tarsomere: dark brown.

Head (Plate 2: 1 and 2) length: 1.12x wider than long in frontal aspect (30.3:34.2), reticulate: sculptured; frontovertex length is 2x the total head width (16.4:32.1); ocelli: arranged in acute triangle; compound eyes are large and lightly pubescent; antennal toruli: situated well below the lower eye margin; occipital carina complete; 3-4 distinct genal carinae present; frons width > eye height > malar space (25.3:13.3:11.8); mandibles: very long, 1.13x long as malar space (13.4), wide, blunt at apex and sharpened on inner side and forming a 'U' shape by both mandibles. Antenna (Plate 2: 3): 12 segmented; scape is 5.3x as long as wide, 8x as long as radicle; antennal segments in relative proportions (length: width) from scape: 16.1:3.4, 5.0:3.3, 5.1:3.5, 4.1:3.8, 4.0:3.7, 3.6:3.4, 3.6:3.9, 4.4:4.0, 4.5:4.2, 4.4:4.3, 4.1:4.3, 7.6:3.6. Mesosoma (Plate 2: 4): 2.1x wider than long (33.2:27.6); skaphion is absent; mesoscutum and scutellum with reticulate sculpture, without notauli; metanotum posteriorly unarmed. Legs are smooth, fore tibial spur is long, curved and bifurcated. Fore wings and hind wings: absent (individuals are apterous). Legs are smooth, tibial spur is short (Plate 2: 5 and 6). Metasoma (Plate 2: 1 and 5): 1.63x wider than its greatest length (31.6:19.3); metasoma plump, with same sculpture as that of mesosoma.

Male: Not known

Holotype: Female dissected and mounted on slide. India, Uttarakhand, Kiccha, sweepnet collection forests areas, 03-iii-12, Hym. platy. Nr. KA33, coll. Kalmesh.

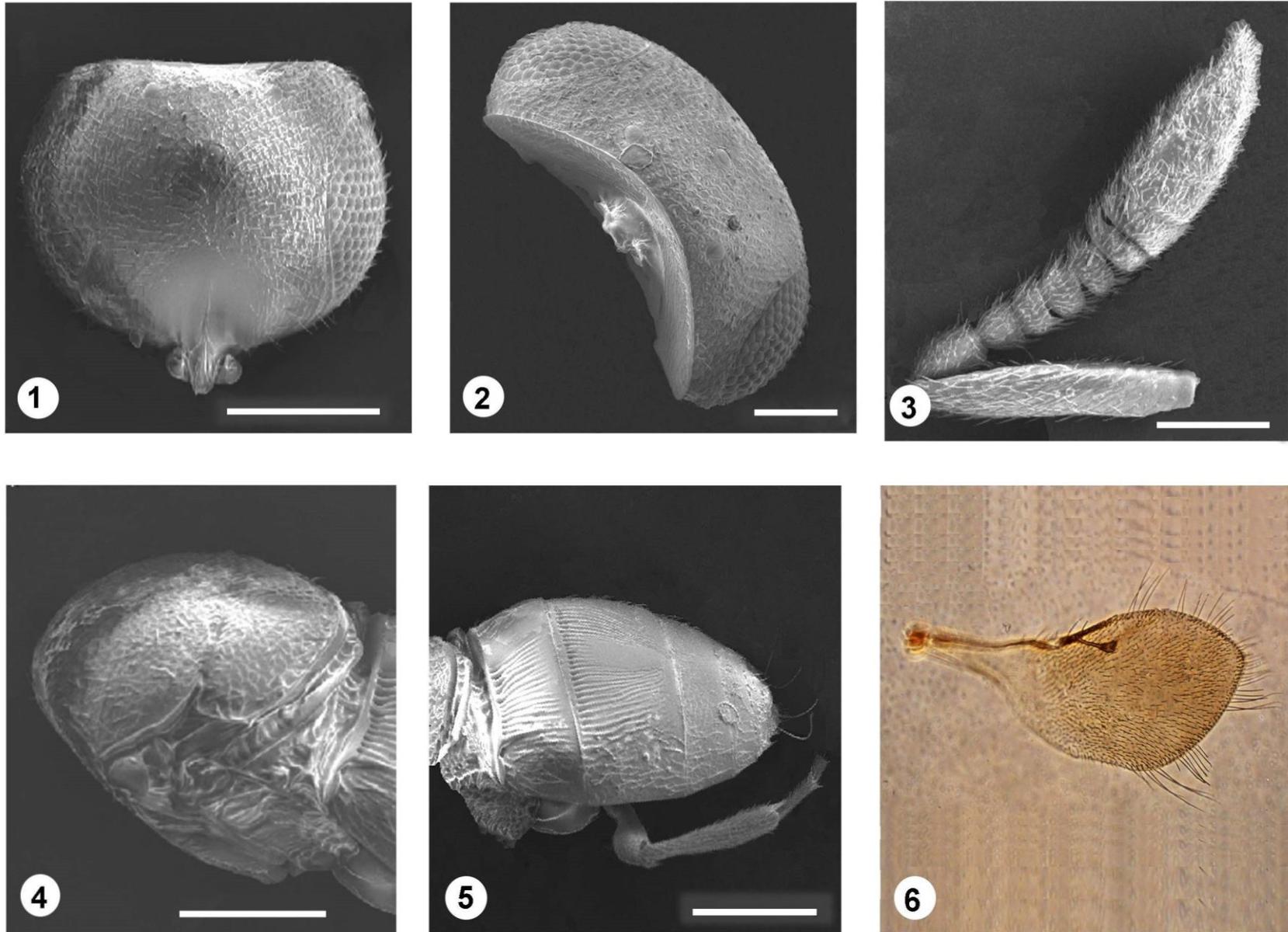


Plate 1. *Cardalnaumannus ramamurthyum* sp. nov. 1: Head in frontal view; 2: Head in dorsal view; 3: Antenna; 4: Mesosoma; 5: Metasoma; 6: Fore wing.

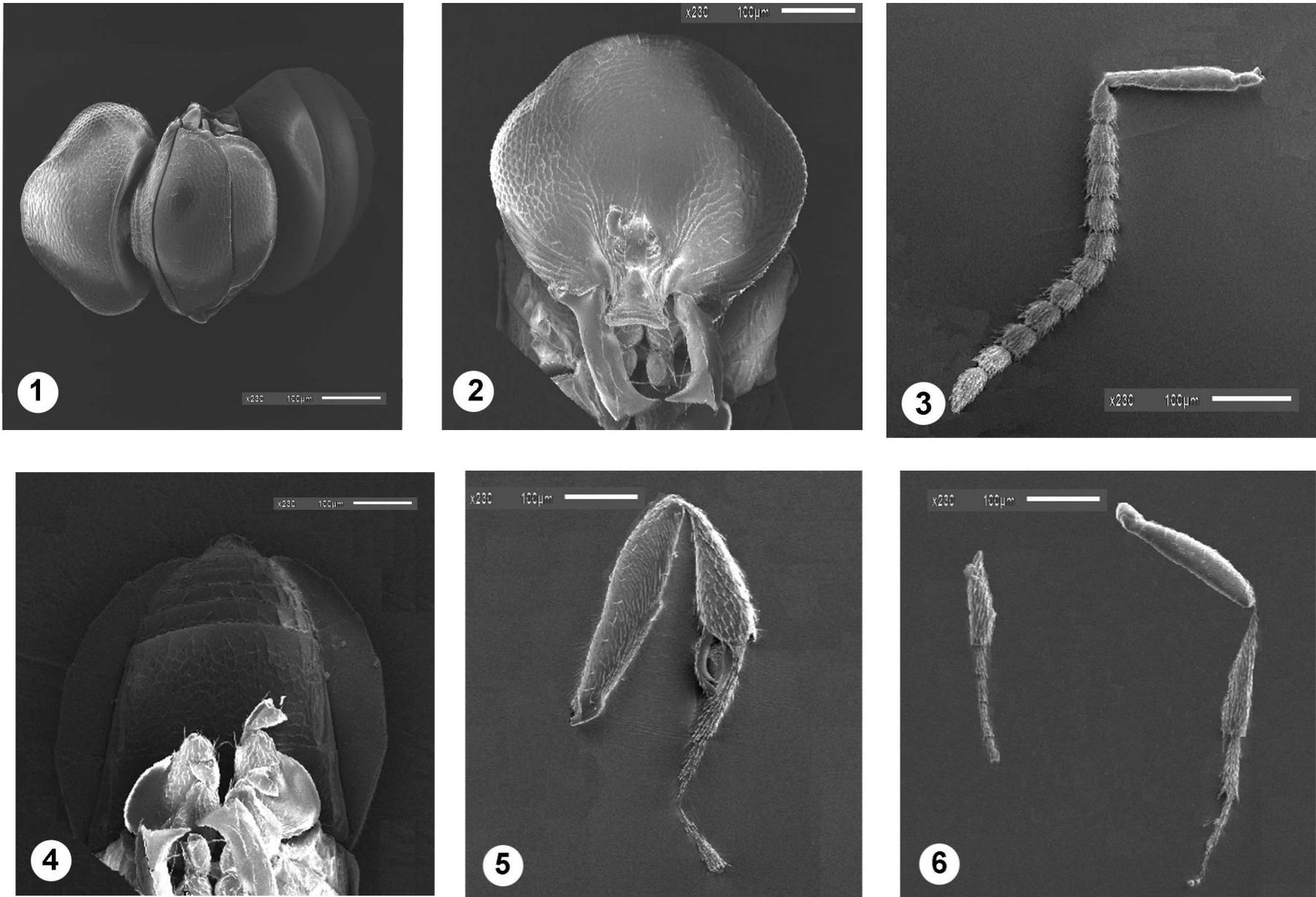


Plate 2. *Encyrtoscelio apterus* (Szelenyi). 1. Body rofile; 2. Head in frontal view; 3. Antenna; 4. Metasoma in dorsal view; 5. Fore leg; 6. Mid and hind leg.

Paratype: 1 female dry mounted.

DISCUSSION

The *Cardalnaumannus* may be distinguished from other genera in the *Dyscritobaeini* except for *Okapa* because of the absence of the fanlike striation on the cheeks; the lateral ocelli are closer to the median ocellus than to the eyes and there is specillum (Mineo et al., 2011). The only genus with some degree of similarity with *Encyrtoscelio* is the frons distinctly projecting forward between eyes which is *Breviscelio* Sundholm but frontal ledges are deeply notched or sinuate medially (Rajmohana et al., 2011). Both genus described have been barely studied in India, this study shows existence of the diversity in the Oriental region.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

ACKNOWLEDGEMENTS

Thanks are due to the Department of Science and Technology, Government of India, New Delhi, for providing financial assistance through the Inspire Fellowship (Fellowship grant No.-IF10554). The author is also grateful to Network Project on Insect Biosystematics (ICAR), New Delhi and G. B. Pant University of Agriculture and Technology, Pantnagar for providing research facilities.

Abbreviations

POL, Posterior ocellar line; **LOL**, lateral ocellar line; **OOL**, ocular ocellar line; **F1, F2, ... F10**, antennal flagellomeres 1, 2, ... 10; **T1, T2, ... T5**, metasomal tergites 1, 2, ... 5; **S1, S2**, metasomal sternites 1 and 2; **SMV**, sub marginal vein; **MV**, marginal vein; **PMV**, postmarginal vein; **STG**, stigmal vein.

REFERENCES

- István M, Lars V, Johnson NF, Lubomir M, Zsolt P (2007). Skeletomusculature of Scelionidae (Hymenoptera: Platygastroidea): head and mesosoma. *Zootaxa* 1571:1-78.
- Johnson NF, Masner L (1985). Revision of the genus *Psix* Kozlov & Lê (Hymenoptera: Scelionidae). *Syst. Entomol.* 10:33-58.
- Kononova SV, Kozlov MA (2008). Scelionids of the Palearctic (Hymenoptera, Scelionidae). Subfamily Scelioninae. *Tovarishchestvo Nauchnykh Izdaniy KMK, Saint Petersburg* 489p.
- Lê XH (2000). Egg-parasites of family Scelionidae (Hymenoptera). *Fauna of Vietnam, Science and Technics Publishing House* 3:386.
- Masner L (1979). Pleural morphology in scelionid wasps (Hymenoptera, Scelionidae) - an aid to higher classification. *Can. Entomol.* 111:1079-1087.

- Masner L (1980). Key to genera of Scelionidae of the Holarctic region, with descriptions of new genera and species (Hymenoptera: Proctotrupeoidea). *Memoirs Entomol. Soc. Can.* 113:1-54.
- Masner L (1957). Proctotrupeoidea. In: "Hymenoptera. Klic zvireny CSR: 2:289-312.
- Mineo G, O'Connor JP, Ashe P (2011). Dyscritobaeini: A new tribe of Scelionidae (Hymenoptera: Platygastroidea) with two new genera and a new species. *Frustula Entomol.* 32:111-129.
- Rajmohana K (2006). Studies on Proctotrupeoidea and Platygastroidea (Hymenoptera: Insecta) of Kerala. *Memoirs Zool. Surv. India* 21(1):1-153.
- Rajmohana K, Bijoy C, Radhakrishnan C (2011). Interactive identification system for the common genera for the Platygastriid egg parasitoids of rice ecosystem of Kerala (India) [online]. http://zsi.gov.in/right_menu/ILS/index.html (Accessed on 14 May 14).
- Szelényi G (1941). Neue Gattungen und Arten der palaearktischen Scelioniden (Hym., Proctotrupeoidea). *Zool. Anz.* 134:158-168.