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First report of the praying mantis genus *Euchomenella* GIGLIO-TOS  
from India and description of *Euchomenella indica* n. sp. from  
South India  
(Insecta: Mantodea: Mantidae: Angelinae)

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**ABSTRACT.** A new species of the praying mantis of the genus *Euchomenella* is described based on male as well as female specimens collected in South India. This genus is a new record for India, even though all the other species of *Euchomenella* are all Oriental in distribution. The genus is characterized by very long, slender pronotum, transverse head due to large bulging eyes, transverse frontal sclerite, fore coxae with convergent internal apical lobes, typical arrangement of external and internal femoral spines, distal claw groove and brachypterous condition in female. Since no member of the subfamily Angelinae has ever been recorded from India, this also forms the first record of this subfamily from India.

**Key words:** entomology, taxonomy, Dictyoptera, Mantodea, Mantidae, Angelinae, *Euchomenella indica* n. sp., India.

A very slender mantis, with a remarkably long pronotum, was collected from an unnamed locality in Anamalais near Kerala-Tamil Nadu border area. It was soon recognized to be a different genus from all the mantids known from India till then. It was subsequently diagnosed as a species of *Euchomenella* GIGLIO-TOS on the basis of literature (GIGLIO-TOS 1927) and by comparison with the identified collection at the ZSI Museum, Kolkata.

GIGLIO-TOS (1927) had included this genus in the subfamily Schizocephalinae and group Euchomenellae. This subfamily included mantids with the following important characters: "...body very thin, pronotum much longer than the anterior

coxae; elytra long in male but very short in female; legs very long and thin; anterior femur with 4-5 external (with the intermediate 2 being longer than the rest) spines, with claw groove distally placed; tibia short....etc.” Now the genus *Euchomenella* is included in the subfamily Angelinae (of the family Mantidae) which is based on the Neotropical genus *Angela* AUDINET-SERVILLE (ROY 2001 a; EHRMANN 2002). Schizocephalinae is now considered as a monotypic subfamily which includes the only genus *Schizocephala* (see EHRMANN 2002).

GIGLIO-TOS (1927) and EHRMANN (2002) have already given detailed diagnostic features of the genus *Euchomenella*. ROY (2001) presented the latest assessment of the subfamily Angelinae with special reference to the three Oriental genera, namely *Euchomenella*, *Mythomantis* GIGLIO-TOS and *Tagalomantis* HEBARD and also described 3 new species of *Euchomenella*. EHRMANN (2002), in his recent catalogue of the world Mantodea, included 8 species in the genus *Euchomenella*, however, *E. finoti* ROY has been subsequently synonymized with *Rhodomantis queenslandica* (SJOSTEDT) (ROY 2002), leaving only 7 species. The present species will take the tally to 8 again. All the species in this genus have been so far known only from the Oriental Region, mostly from Java, Sumatra, Borneo, Vietnam, Sulawesi, Molukkas and Philippines. The present species is thus the first record of the genus from the Indian region. No species of this genus was recorded in the recent compilation of Mantodea of India (MUKHERJEE et al. 1995)

### *Euchomenella indica* n. sp.

#### DIAGNOSIS

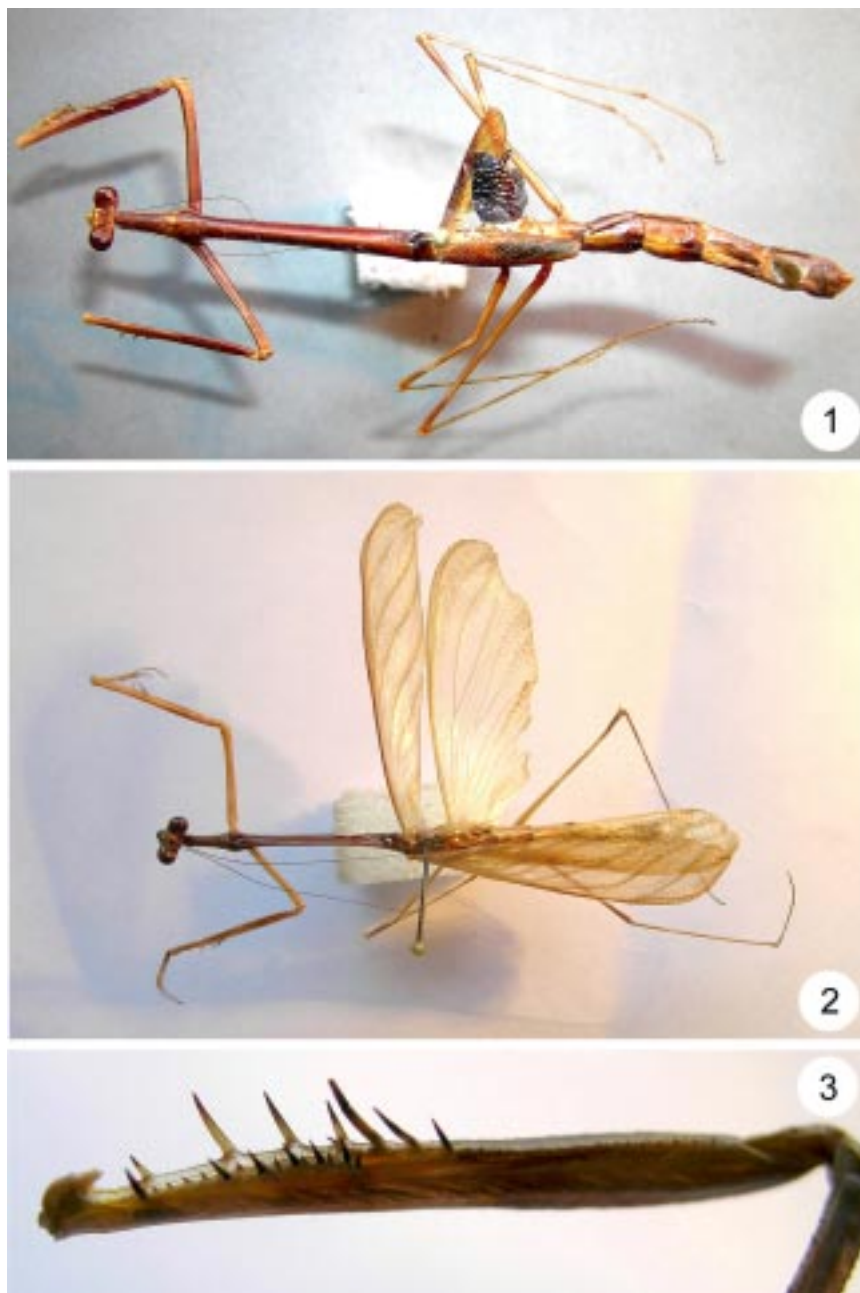
*Euchomenella indica* n. sp. differs from all other species in possessing the following features: a) male genitalia include a well developed, sclerotized hypophallus that is absent in all other *Euchomenella* in which male genitalia have been studied; in addition the phalloid apophysis is also distinctly different b) pronotum is much shorter than the rest of the body in other species of comparable size, such as *E. heteroptera* (DE HAAN) and c) as a consequence of b) noted above, elytra are much longer than pronotum in male while in other species they are less longer.

#### DESCRIPTION

##### **FEMALE (holotype):**

Measurements of female holotype (in mm): Total length, from vertex to the tip of abdomen 75.0; Antenna 23.0; Pronotum 31.0 (Prozona 7 and Metazona 24 mm); rest of the body 44.0;

<b>Legs:</b>	<b>coxa</b>	<b>femur</b>	<b>tibia</b>	<b>tarsus</b>
Fore leg	14.0	18.0	6.0	7.2
Mid leg	4.0	17.0	15.0	7.0
Hind leg	4.0	22.0	22.0	10.2



1-3. *Euchomenella indica* n. sp.: 1 - female holotype, dorsal view, note long pronotum, short wings, very slender legs; 2 - male paratype, dorsal view, note fully developed fore and hind wings; 3 - lateral view of the left femur of the female

**Head** transverse, vertex nearly straight, eyes large, bulging and rounded (Figs 4 and 9), ocelli comparatively small (see for male below). Antennae with few bristles. Frontal sclerite wider than tall (transverse) but sufficiently tall, pale brown.

**Pronotum** much longer than fore coxa *but shorter than the rest of the body*, lateral margin distinctly denticulate in prozona and finely denticulate in metazona, proximally a little spatulate but metazona almost triangular (in transverse section) in the distal half; entire anterior prosternum deep reddish brown but the area beneath metazona with a median, broad, dark brown band. Most part of prosternum finely tuberculate. In fore legs, the coxae possess convergent internal apical lobes (this area not blackish), with 7-8 minute spines at the anterior edge and with spinules among them, inner surface reddish brown and grooved along the length, the groove more prominent towards base.

**Femora** with three indistinct brownish bands; claw groove a little distal from midpoint; 4 external spines of which the two intermediate (i.e. 2<sup>nd</sup> and 3<sup>rd</sup>) spines distinctly longer than laterals; proximal two external spines are entirely blackish (viewed externally) but look partly black when viewed internally, distal two are black at tips only; internal femoral spines 15 (6 long and 9 short); distal most internal spine longest and entirely black; four small spines between the distal two long spines; all longer internal spines, proximal three smaller internal spines and all 4 discoidal spines are entirely black (only when viewed internally); viewed externally, the 3<sup>rd</sup> discoidal spine is entirely black, proximal two almost so, 4<sup>th</sup> one smallest in the row and also dark brown (Figs 3 and 8). Tibia short, with 8/7 (left/right) external spines and 14 internal spines, all tibial spines brown or blackish at the tip; metatarsus longer than the remaining segments combined, tarsi blackish at distal end (arrangement and number of femoral and tibial spines is identical in other female, treated as paratype, Fig. 7 shows tibia of male).

**Mid and hind legs** long and very slender, with 3 paler brownish bands, without ventral spines but with hard, dark brown bristles all over the legs. Femora with genicular spine. Metatarsus longer than the rest of the segments put together. Fore wings (elytra) with costal area deep brown lengthwise up to some distance, traversed by parallel veinlets; short, do not reach the hind end of 1<sup>st</sup> abdominal segment; discoidal vein two-branched each of which branches again. Hind wings entirely blackish brown, transverse veinlets white. Supra-anal plate transverse widely rounded at apex; cerci long, cylindrical and densely covered with bristles, reaching almost to the tip of genitalia.

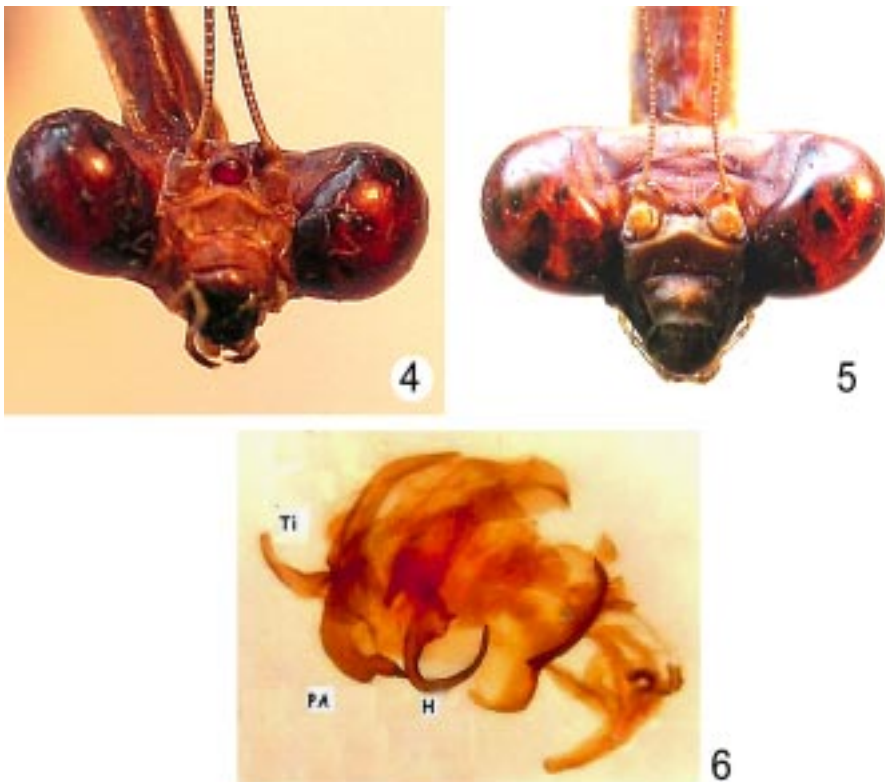
**Abdomen:** Median portion of first three tergites with a brown patch in the posterior margin with a clear longitudinal midline.

#### MALE:

Measurements of male (mm): Total length 64.0; Antenna 35.0; Pronotum 23.0, Prozona 5.5 Metazona 17.5; Fore wing 36.0; Hind wing 32.0 (*fore wing longer than pronotum*).

<b>Legs:</b>	<b>coxa</b>	<b>femur</b>	<b>tibia</b>	<b>tarsus</b>
Fore leg	11.0	15.0	4.5	7.5
Mid leg	4.5	16.0	14.0	6.0
Hind leg	3.5	18.0	19.0	9.5

Eyes rounded and bulging, ocelli much larger compared to those of the female (Figs 5 and 10). Pronotum dorsally brownish black, more so ventrally (as opposed to that of the female where only median longitudinal strip is dark brown), shorter than rest of the body (also comparatively shorter than the pronotum of the female). Fore legs with the same number of spines on femur and tibia as in female. Inner face of fore coxae pale brown. Brownish bands on all legs are paler. Internal spines on fore tibia 14 in number. Tarsal segments are black underneath. In fore wing, the costal area with median longitudinal brown patch; long veins brown (overall the fore wing is more dark brown in female). In hind wing, entire width of the costal area light brown; long veins brown; cross veins white. Wings extending

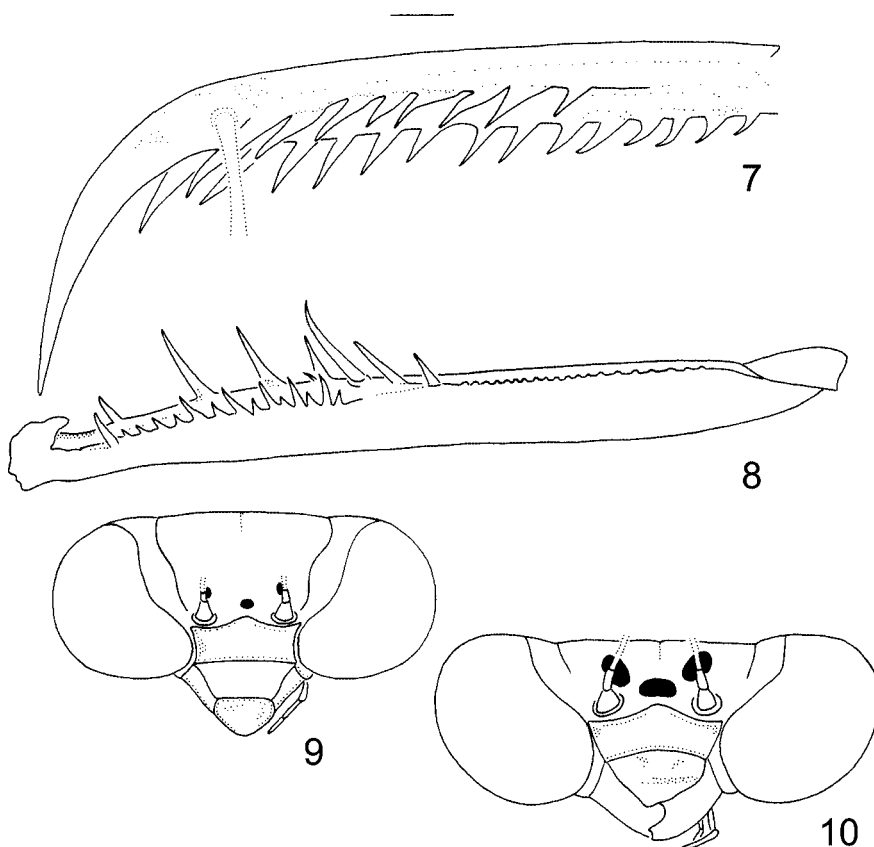


4-6. *Euchomenella indica* n. sp.: 4 - frontal view of the head in male, note large ocelli as compared to that of the female; 5 - frontal view of the head in female, note shape of the frontal sclerite, bulging eyes and small ocelli; 6 - dorsal view of the male genitalia. Note Phalloid apophysis (PA) , titillator (Ti) and hypophallus (H)

beyond the tip of the abdomen, contrary to that of the female. There are black bristles on supra anal plate, cerci and the sub-genital plate. Abdominal sternites with golden bristles all over (in female the abdominal sternites are smooth). Table

Table 1: male/female comparison: measurements are in mm.

Material	Total length	Pronotum	Pronotum/total length	Meta-zona	Fore coxa	Fore Femur	Fore Tibia	Fore wing	Hind wing
♀ Holotype	75.0	31.0	0.4133	24.0	14.0	18.0	6.0	13.5	X
♂ Paratype	64.0	23.0	0.3594	17.5	11.0	15.0	4.5	36.0	32.0



7-10. *Euchomenella indica* n. sp.: 7 - lateral view of the left tibia of the male; 8 -lateral view of the left femur of the female, note typical arrangement of the internal spines; 9 - frontal view of the head in female; 10 - frontal view of the head in male

1 gives comparison of male and female of this species and Table 2 gives ratios of some important lengths in the new and previously described species.

#### MATERIAL EXAMINED

Holotype female: Anamalai, near Kerala-Tamil Nadu Border, July 1999 (coll. Mr. K. KUNTE); paratype female: same data as holotype; paratype male: data as for female (all preserved at the Zoology Department, Modern College, Pune 411 005, India)

#### ETYMOLOGY

The specific name *indica* is used because this is the first Indian species under this genus.

#### REMARKS

This genus is a new record from India. A comparison of *E. indica* n. sp. with the male specimen labelled as *Euchomenella thoracica* (DE HAAN) preserved at Zoological Survey of India, Kolkata (locality Borneo, total length 105mm) reveals that the spines of the present species are smaller. Distal end of fore coxa

Table 2: Comparison of the new species with other congeneric species. Dimensions for the species listed in the table were obtained either from GIGLIO-TOS (1927) or ROY (2001); full names of the species: *E. apicalis* WERNER; *E. heteroptera* (DE HAAN); *E. macrops* (SAUSSURE); *E. matilei* ROY; *E. molucarum* (SAUSSURE); *E. pallida* ROY.

Genus <i>Euchomenella</i>		Ratio: Pronotal length / Elytral Length	Ratio: Pronotal Length / Total Length
<i>indica</i> n. sp.	♂	23 / 36 = 0.64	23 / 64 = 0.36
	♀	31 / 13.5 = 2.30	31 / 75 = 0.41
<i>apicalis</i>	♂	27.5 / 36 = 0.76	27.5 / 59 = 0.47
<i>heteroptera</i>	♂	28-33 / 35-45 = 0.8 --0.73	28-33 / 62-75 = 0.45 – 0.44
	♀	55-58 / 12-13 = 4.58 – 4.46	55-58 / 106-114 = 0.52 –0.50
<i>macrops</i>	♂	26 / 36 = 0.72	-----
second	♂	24 / 31 = 0.77	
<i>matilei</i>	♂	40.5 / 49 = 0.83	40.5 / 87 = 0.46
<i>molucarum</i>	♂	24-30 / 34-36 = 0.70 –0.83	24-30 / 57-66 = 0.42 –0.45
	♀	43.5 / 12.5 = 3.48	43.5 / 93 = 0.47
<i>pallida</i>	♂	21.5 / 26 = 0.83	21.5 / 49 = 0.44

black; trochanter and adjoining femoral area are also black in *E. thoracica*. The two male specimens at ZSI Kolkata (collected in Borneo), labelled as *E. heteroptera* (DE HAAN) are very much similar, normally winged and of comparable size (78.0 mm total length). GIGLIO-TOS (1927) mentions the size range in male *heteroptera* to be 62-75 mm and 106-114 mm in female but from the measurements given it is apparent that the pronotum is longer than the rest of the body in female and almost equal in male. Pronotum is also mentioned to be equal in length to elytron (fore wing) in male *E. heteroptera*. In *E. indica* the fore wing is longer than the pronotum. In *E. thoracica* (DE HAAN) the length of the pronotum is given as 54 mm (*much longer than in our case*) and is again longer than the rest of the body. In *E. molucarum* (SAUSSURE), a smaller species with total length between 57-66 mm in male and 93 mm in female, the pronotum appears to be almost equal in length with the rest of the body and is shorter than the fore wing as in our species. The newly described species from Malaysia, *E. matilei* ROY, also has pronotum shorter than the rest of the body and the fore wing, in the male. The female of the species is not known. The other species, namely *E. pallida* ROY, from Vietnam, is very small (total length 49 mm, pronotum 21.5 mm hence shorter than rest of the body, fore wing 26 mm, hence longer than pronotum). In general the *E. indica* n. sp. has distinctly shorter pronotum as compared with the other species of the genus and thus elytra appear much longer than pronotum than those of the other species. This fact is clear from the comparison given in Table 2.

Male genitalia prepared from the single dried specimen from S. India, described above as male paratype, further show (Fig. 6) that *E. indica* n. sp. is distinct from all the known species under *Euchomenella* (in which genitalia have been described). The genitalia of the male *E. indica* n. sp. distinctly differ from those of the other *Euchomenella* by the development of a very much curved hook like hypophallus (H) which is not seen in any other *Euchomenella* (Roger ROY, personal communication). Phalloid apophysis (PA) or pseudophallus is also distinct in shape.

The genitalia of the Borneo male (ZSI specimen labeled as *E. heteroptera*) are similar to those recently described by ROY (2001, p. 85, fig. 2, *heteroptera*) and this confirms the identity of this ZSI specimen.

It may also be added that similar *Euchomenella* adults and nymphs were collected in Kerala, some 25 km away from Ponmudi, on trees at the height of over 4 meters. Thus the habitat of the species appears to be evergreen forests, and nymphs as well as adults seem to prefer trees, though additional observations are necessary. Data on adults and nymphs from Kerala will be published separately.

ROY (2001) has pointed out that our knowledge of the Oriental genera under Angelinae is incomplete. Many species are known from just a few examples. In some cases only one sex is known; male genitalia of all the species have also not been studied. Perhaps some of the species are not even valid. Life cycle and habitat are also unknown. He has further stated that under such conditions it would be premature to prepare keys for identification of genera/species.



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