

**DESCRIPTION OF *GYNACANTHA ANDAMANAE* SPEC. NOV. FROM SOUTH ANDAMAN ISLAND, INDIAN OCEAN (ANISOPTERA: AESHNIDAE)**

**Wen-Chi Yeh<sup>1</sup> & K. Veenakumari<sup>2</sup>**

<sup>1</sup> Division of Forest Protection, Taiwan Forestry Research Institute (TFRI)  
53 Nan-hai Rd, Taipei, Taiwan  
<wcyeh@serv.tfri.gov.tw>

<sup>2</sup> Central Agricultural Research Institute, P. B. No. 181,  
Port Blair 744 101, Andaman and Nicobar Islands, India

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**Abstract**

*Gynacantha andamanae* [Yeh & Veenakumari] sp. nov., collected from Mt Harriet in South Andaman Island of Indian Ocean, is described and figured. The relationship of the new species with its oriental congeners is discussed.

**Introduction**

Until now, in literature four species of the genus *Gynacantha* have been reported from the Andaman and Nicobar Islands [Bay Islands] of Indian Ocean, viz. *G. hyalina* Sélys by Lahiri & Mitra (1993), *G. dravida* Lieftinck and *G. subinterrupta* Rambur by Mitra (1995) and *G. bayadera* Sélys by Hämäläinen et al. (1999).

The recent material, collected by the second author and his husband Prashanth-Mohanraj from South Andaman Islands, includes two species of *Gynacantha*. One of them comes quite close to *G. subinterrupta*, but there are some differences. More material is needed to reveal its real identity and to find out whether it is the same species as recorded from South Andaman by Lahiri & Mitra (1993) as *G. hyalina*, the identity of which was doubted by Hämäläinen et al. (1999). The other South Andaman species is clearly distinct. Judged from the shape of male anal appendages, it does not belong to the same group as *G. subinterrupta* and *G. hyalina*, but it is considered to represent a new species, allied to *G. limbalis* Karsch.

Terminology of venation and abdominal maculation, used in the present description, generally follows Riek & Kukalová-Peck (1984) and Walker (1912), respectively.

*Gynacantha andamanae* sp. nov**Description***Material*

Holotype: a male, 18-VIII-1998; Mt Harriet, South Andaman; Prashanth-Mohanraj & K. Veenakumari leg. The holotype is deposited in Taiwan Forestry Research Institute, Taipei, Taiwan.

*Etymology*

The specific name is derived from the locality name of “Andaman”, a group of islands of Indian Ocean situated in the east of Bay of Bengal and between the southern coast of Burma and the Nicobar Islands.

*Diagnosis*

A small and deeply coloured species, differing from all its oriental congeners by the shape of male anal appendages, somewhat resembling those of *G. limbalis*. Further characterized by having the arrow-mark on postfrons and the less developed Rspl and Mspl.

*Male (holotype)*

**Head:** Labium and labrum rusty brown, a dark central spot presenting at base of labrum. Face greenish-brown, moderately scattered with long black hairs. Postfrons pale brown, darker at base; anterior margin roundly arched in dorsal view and spotted with ill-defined and dark brown arrow-mark (Fig. 2); areas lateral to the mark pale yellow. Vertex black; occiput rusty brown, tiny, and slightly notched posteriorly. Compound eyes pale green (in dead condition), 2.6 times as wide as frons.

**Pterothorax:** Uniformly coloured with dark greenish-brown. [Probably more vividly coloured with green in living condition].

**Legs:** Femora dark brown, ventral sides of fore femora pale coloured; tibiae rusty-brown, armed with double rows of 9-10 long spines at ventral margin.

**Wings:** Hyaline, without any tinges at base. Pterostigma deep brown, braced in all wings and underlaid by 3.5-4 cells. Ax 26 in forewings and 21-22 in hindwings, Px 18- 20 in forewings and 20-24 in hindwings. Rspl separated from IR2 at most by four rows of cells, and Mspl from MA by three rows in forewings and four rows in hindwings. Discoidal triangle elongate and about equal length in fore- and hindwings, with 5 and 7 cells in forewing and 5 and 6 cells in hindwings. Anal loop with 11 cells, anal triangle three-celled; membranula pale brown, obsolete, only traced as vestige at basal extreme of hind margin of hindwings. Tornus right-angled.

**Abdomen:** Shape very narrow and slender, strongly expanded on S1 and S2 which together forming a basal inflation; S3 smoothly constricted at basal 1/3 (Fig. 3), ratio

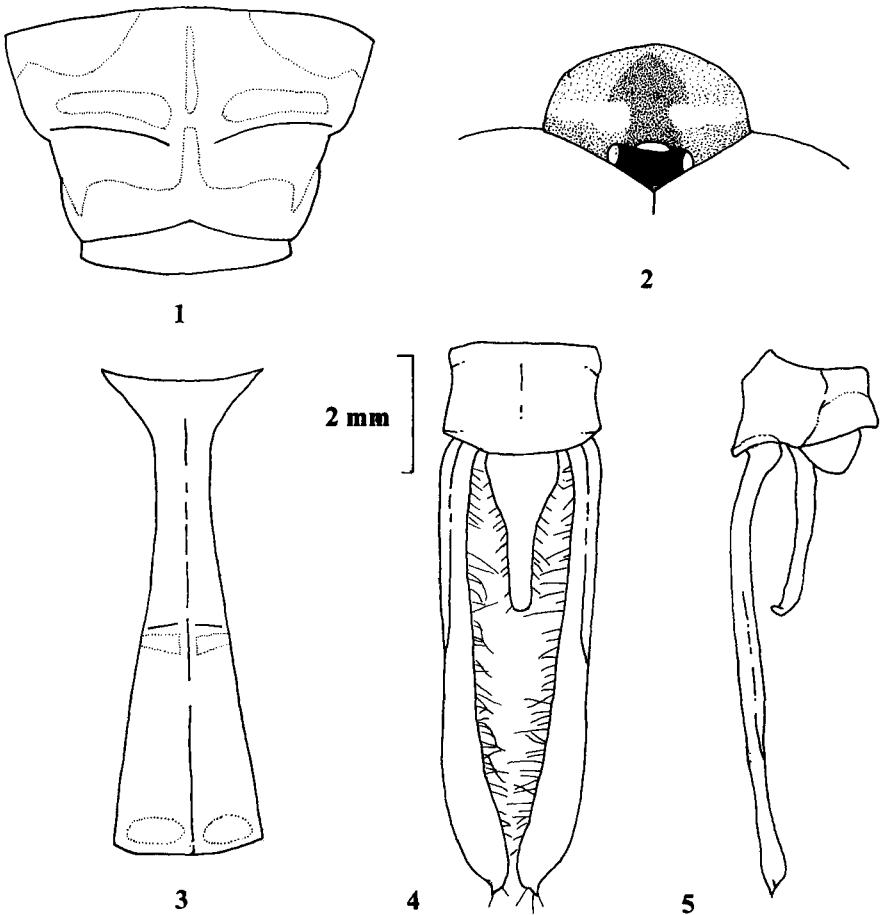
of its length: max.width: min.width being about 9: 3: 1 (7.0: 2.4: 0.8 in mm); S4-S10 parallel-sided, S4-S6 of equal length, gradually becoming shorter from S7 to S10. Ground colour dark brown or black, marked with pale blue, green and yellowish-brown spots. S1 reddish-brown dorsally and green laterally. S2 dorsally with mask-like pattern (Fig. 1), AD (antero-dorsal) and MD (medio-dorsal) spots green, the former extended to lateral sides; PD (postero-dorsal) spots pale blue and confluent each other to form a transverse apical band; apical band extending laterally and touching PL (postero-lateral) spots at apical margin of S2, and centrally sending out from its anterior margin a slender longitudinal streak being broken at middle and reaching almost anterior margin of S2. Auricles a little broken, well-developed and round in shape, coloured with pale blue dorsally and greenish-brown ventrally. S3-S7 with narrowly triangular MD spots being close to each other to form an annulus on each segment, and connecting laterally with ML (medio-lateral) spots, much reduced on S7; S3-S5 with additional transverse PD spots, inconspicuous on S5; S8-S10 unmarked. Male cercus (Fig. 4 & 5) black, in lateral view a little arched at base and directing slightly downward toward apex; in dorsal view, straight, slender and blade-shaped, somewhat outcurved at base, slightly and smoothly expanding at apical 1/3 and ridged at basal 1/2; outer margin incurved near apex and ending in a pointed and outwardly directed spine; inner margin sparsely fringed with black long hairs. Epiproct pale yellow, dark brown at base and apex; narrowly triangular in shape, with basal 1/3 broad and becoming gradually narrower toward apex, and apical 1/2 finger-shaped; apex of epiproct roundly blunt. Length ratio of S10: epiproct: cerci being 1.0: 1.4: 4.2 (1.8: 2.5: 7.4 in mm).

*Female:* Unknown.

**Measurements (mm).** holotype male: abd. + app. 45 (a little inaccurate, since abdomen measured in broken situation), hindwing 42, pterostigma 2.2 in forewing, 2.5 in hindwing.

## Discussion

The new species differs from all known oriental *Gynacantha* mainly by the peculiar shape of male anal appendages, which somewhat resemble those of *G. limbalis*, a species known from Malaya, Sumatra, Java and Borneo (Lieftinck, 1954). According to Karsch (1892) and Martin (1909), *G. limbalis* is a larger species with the length of abdomen 61mm (excluding anal appendages) and hindwing 61mm. *G. andamanae* sp.n. can be, however, easily separated from this species by its relatively shorter male anal appendages, with more conspicuous apical expansion on cerci and abruptly narrowed shape of epiproct. Further, these two species differ in several aspect of wing characters; in *G. limbalis*, the pterostigmata of both wing pairs are much longer (5-5.3 mm) and covering more cells (7-9), and reticulation is denser, with Ax 37-38 in forwings and 22-28 in hindwings, and Px 28-29 in forewings and 32 in hindwings. *G. limbalis* also has much more cells in both hypertriangles (10-13) and discoidal triangles (8-11) than in *G. andamanae* (5-7 and 5-7, respectively)



Figures 1-5. *G. andamanae* sp. n., holotype: (1) dorsal markings of S2 (auricles omitted); — (2) arrow-mark of postfrons; - (3) shape and markings of S3, dorsal; — (4 & 5) male cerci, dorsal and lateral.

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## References

- Hämäläinen, M., Prashanth-Mohanraj & K. Veenakumari, 1999. Additions to the odonate fauna of the Andaman and Nicobar Islands, Indian Ocean. *Notulae Odonatologicae* 5: 27-29.
- Lahiri, A.R. & B. Mitra, 1993. New records of dragonflies (Insecta: Odonata) from Bay Islands. *Journal of Andaman Science Association* 9: 96-99.
- Karsch, F., 1892. Ueber eine Collection durch Herm Hans Fruhstorfer auf Java gefangener Aeschniden. *Entomologische Nachrichten* 18: 249-255.
- Lieftinck, M.A., 1954. Handlist of Malaysian Odonata. A catalogue of the dragonflies of the Malay peninsula, Sumatra, Java and Borneo, including the adjacent small islands. *Treubia (Supplement)* 22, xiii + 202 pp.
- Martin, R., 1909. Aeschnines. *Collections Zoologiques du Baron Edm. de Sélys Longchamps, Catalogue systématique et descriptif* 20: 157- 223, ex. pl. 5-6.
- Mitra, T.R., 1995. Additions to the odonate fauna of the Great Nicobar Island, Indian Ocean. *Opuscula zoologica fluminensia* 129: 1-6.
- Riek E.F. & J. Kukulová- Peck, 1984. A new interpretation of dragonfly wing venation based upon Early Upper Carboniferous fossils from Argentina (Insecta: Odonatoidea) and basic character states in pterygote wings. *Canadian Journal of Zoology* 62: 1150- 1166.
- Walker, E.M., 1912. The North American dragonflies of the genus *Aeshna*. University of Toronto Studies, Biological Series, no 11, viii + 202 pp.