

Rec. zool. Surv. India : 107(Part-4) : 7-12, 2007

ON A NEW SPECIES OF *DUTA* NIXON (HYMENOPTERA : SCELIONIDAE) FROM INDIA

K. RAJMOHANA*

*Zoological Survey of India, Western Ghats Field Research Station,
Calicut, Kerala-673 002, India*

INTRODUCTION

Duta is rather a small scelionid genus, with just 12 species reported globally (Johnson, 2006). It was erected by Nixon (1933), with type species as *Holoteleia tenuicornis* Dodd. No significant host data is available, other than a report by Masner (1991) as Gryllids being the hosts of *Duta*. This genus is known from Australian, Nearctic, Palearctic, Afrotropical and Oriental Regions (Johnson, 1992). The four species hitherto known from the Oriental Region are *D. tenuicornis* (Dodd 1920), *D. indica* Mukerjee (1994), *D. xyphona* Kozlov & Le and *D. typhona* Kozlov & Le (Le, 2000). A new species, namely, *D. tuberculata* is described here. With the description of this new species we now have two species of *Duta* known from India. The paratype of *Duta indica* Mukerjee, deposited at the Northern Regional Station, Zoological Survey Of India, Dehradun, was examined for a comparative study.

An identification key to all the five species of *Duta* Nixon of the Oriental Region is provided.

KEY WORDS : *Duta*, Scelionidae, Hymenoptera, India, New species, Key.

ABBREVIATIONS

OOL – Ocellocular length

pm – Post marginal vein

sm – Submarginal vein

OD – Ocellar Diameter

m – Marginal Vein

T1 to T9 – Metasomal tergites 1 to 9

POL – Post Ocellar Diameter

stg – Stigmal Vein

*E-mail : raj_mohana@hotmail.com

NEW DESCRIPTION

Duta tuberculata sp. nov.

(Fig I. a, b, c, d)

Holotype : Female : Length = 1.5 mm.

Head blackish brown; eyes and ocelli silvery; mandibles yellowish brown; antennal scape, pedicel, mesosoma and pleura brownish yellow; funicular segments and clava black; legs including coxae, concolorous with mesosoma; scutellum, except at its rim, tegulae and metasoma from posterior three-fourth of T2 onwards brownish black; dorsal prominence of T2 blackish brown; last tarsal segments and claws brownish black. Wings sub hyaline; veins brownish black.

Head : Frons, gena and cheeks evenly reticulate. Eyes sparsely hairy. Minimum distance between inner orbits on frons, lesser than maximum length of orbits (12 : 15). Malar sulcus distinct. Mandibles tridentate. Interantennal process well developed. Head dorsally transverse, with width a little less than twice its length. Lateral ocelli wide apart, separated from lateral orbits by nearly half its diameter. Frons with coriaceous reticulations; OD : OOL : POL = 3 : 13 : 8. Occipital carina distinct. Occiput emarginate; vertex, occiput and ocellar triangle with same reticulate sculpture as frons, but more hairy. Antennal formula : 1.1.4.6. Antenna clothed with fine pilosity; funicular segments and clava contrasting in colour with scape, pedicellus and radicle; scape as long as combined length of next 3.2 segments; pedicellus subequal in length to F2; F1 longest among funicular segments; F4 transverse (F1 : F2 : F3 : F4 = 10 : 8 : 6 : 3); funicular segments nearly subequal in width; clava abrupt, 6 segmented and transverse; medially twice as wide as funicular segments.

Mesosoma : Width including tegulae almost subequal to dorsal width of head. Mesoscutum, scutellum and propodeum, with sparse, long hairs as on vertex. Metanotum bare. Skaphion distinct, smooth and shiny, wide medially. Notauli distinct as two narrow grooves, impressed and diverging in front; distance between notauli at its apical margin, nearly 2x distance between its lower margins. Trans-scutellar sulcus as wide as notauli. Scutellum, with reticulations distinct than that on vertex. Scutellum finely reticulate; anterior and posterior margins bordered by foveae. Metanotum simple, smooth medially, with a convexity medially at lower border, with a row of small foveae bordering anterolateral margins and traces of a pair of lateral carinae; propodeum excavated medially, lateral subtriangular area foveolate-striate. Netrion distinct; mesopleural depression present. Forewings at rest, extending beyond tip of metasoma; forewing with *sm* extending nearly half of wing length; *pm* well developed, more than twice *m*; *pm* : *m* : *stg* = 13 : 5 : 4. Basal and median veins distinct in forewings; *stg* oblique and knobbed.

Metasoma : Excluding extended ovipositor system, metasoma, longer than combined length of dorsal head and mesosoma (50 : 45). T1 to T3 smooth and shiny; T1 1.5x as long as basal width, with a slight but distinct anterior mid dorsal tubercle-like prominence, with 3 long setae on lateral

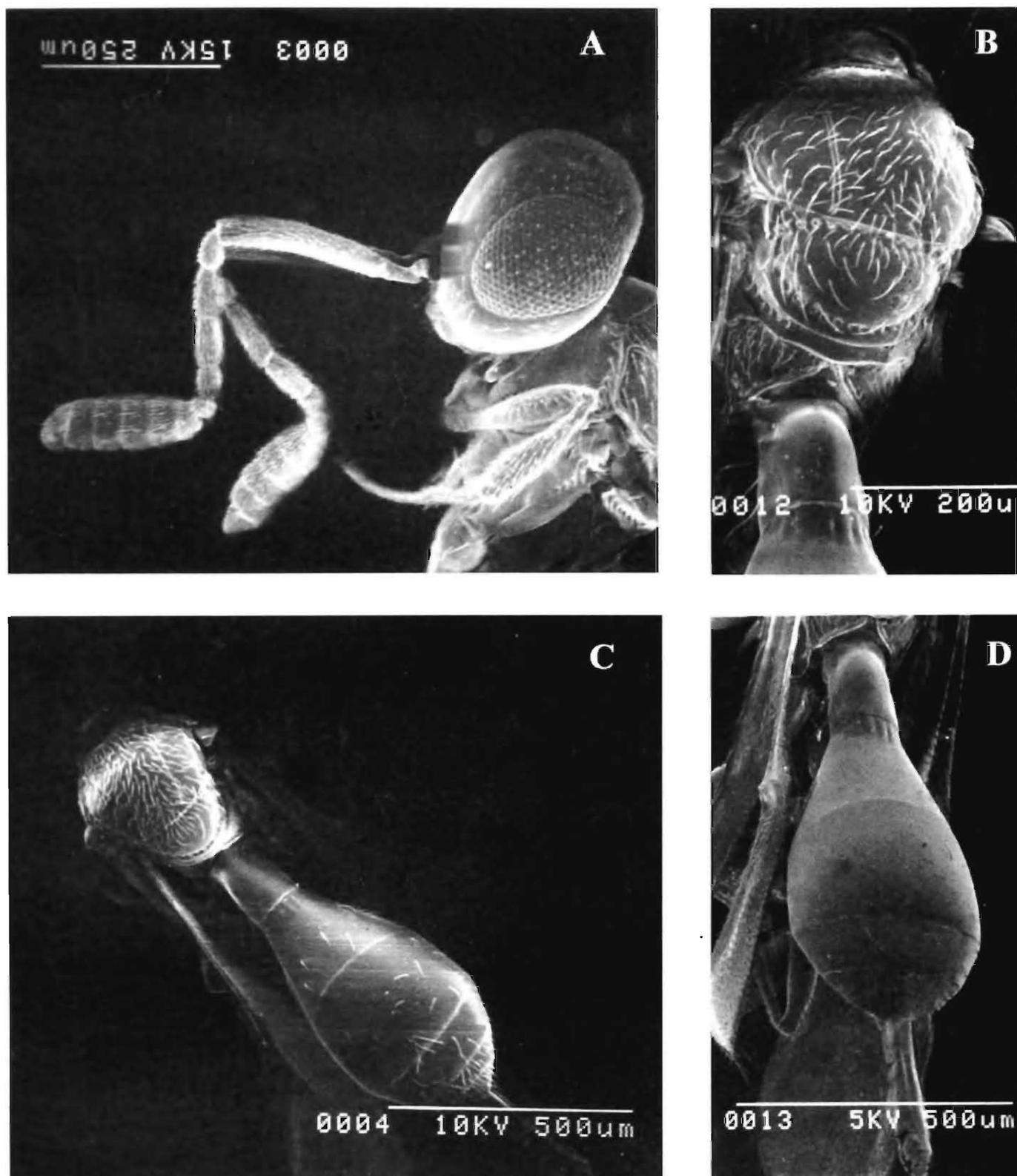


Fig. 1. : SEM of *Duta tuberculata* sp. Nov.

A. Head (profile) with antenna;

B. Mesosoma and T1 with tubercle;

C. Body (dorsal view);

D. Metasoma showing tubercle on T1 and striae on T2.

margin; with one or two short longitudinal striae laterally. T2 to T6 transverse; T2 apically with fine short striae, T3 only 1.2x longer than T2 (22 : 18); T4 and T5 with scattered, where as T5 and T6 with dense setigerous pin punctures.

MATERIAL EXAMINED

Holotype : Female, INDIA : Kerala : Calicut : Tiruvannur (11°13.6' N and 75°47.9' E) 7.x.2005, Mohana, Yellow pan trap (placed among homestead vegetation). *Paratypes* : 15 (4 females and 1 male with same data as that of the holotype; 3 males collected on 27.ix.05, 2 males on 15.xi.05 and 5 males on 4.xii.2005).

(The types are deposited at Zoological Survey of India, Western Ghats Field Research Station, Calicut, Kerala, India)

Etymology :

The species name '*tuberculata*' is derived from the anterior mid dorsal prominence on T1.

Variation :

Hardly any noteworthy variations were observed among females.

Males resemble females in characters, but for those stated here. In general, males are smaller in size (1.2 mm), deeper in colour, almost blackish brown to black, except T1 being yellowish brown. Antennal segments twelve, all of uniform colour, brownish black, except for the lighter distal half of scape; F1, F2 and F3 subequal; F4 to F9 subequal, 0.8x F1, F10 longest, 1.18x F1; ocelli separated by almost their own diameter from the orbits; only two lateral setae present on T1 T1 without a median prominence; T1 and T2 apically with incomplete traces of longitudinal striae.

DISCUSSION

Only one species viz. *D. indica* Mukerjee was hitherto known from India. The most striking distinction between *D. indica* and *D. tuberculata* sp.nov. can be made by a comparison of their metasomal characters. While T1 of *D. tuberculata* is with an anterior mid dorsal prominence and T2 with a very short stretch of a few dorsal apical striae, T1 of *D. indica* is simple, without any dorsal prominence, but with longitudinal striae extending almost fully on both T1 and T2.

While eyes of *D. indica* are densely pubescent, eyes of *D. tuberculata* are only very sparsely pubescent. While in the latter, funicular segments and clava contrast in colour with scape and pedicel, in the former, antennal segments are almost of uniform blackish brown, but for the distal half of scape. The apical divergence of notauli in *D. indica* is much less, compared to that in *D. tuberculata*.

From *D. tenuicornis* (Dodd) too, *D. tuberculata* sp.nov. can be differentiated by the anterior mid dorsal prominence on mid T1 and extent of striae on T1 and T2.

The two Vietnamese species namely *D. xyphona* Kozlov & Le and *D. typhona* Kozlov and Le are distinct from all other Oriental species by the possession of a median keel on frons (Le, 2000).

The following key to species differentiates *D. tuberculata* from all other species known from Oriental Region.

Key to Oriental species of *Duta Nixon*

1. T1 as long as T2; frons with a central keel 2
 - T1 distinctly shorter than T2; frons without a central keel 3
2. Eyes not hairy; *m* as long as *pm* *D. typhona* Kozlov & Le
 - Eyes hairy; *m* shorter than *pm* *D. xyphona* Kozlov & Le
3. In females, T1 without any dorsal prominence, but only with longitudinal striae medially ..
..... 4
 - In females, T1 with a distinct anterior mid dorsal prominence and also with very feeble impressions of 1 or 2 striae laterally *D. tuberculata* sp. nov.
4. Eyes densely pubescent; T3 twice as long as T2 *D. indica* Mukerjee
 - Eyes sparsely pubescent; T3 only a little longer than T2 *D. tenuicornis* (Dodd)

SUMMARY

The paper describes a new species of *Duta Nixon*, viz., *D. tuberculata* from India, along with a discussion on its affinities with other species from the Oriental Region. A key to Oriental species of *Duta Nixon* is also provided.

ACKNOWLEDGEMENTS

The author is grateful to Dr. J.R.B. Alfred, Director, Zoological Survey Of India, Kolkata and Mr. C. Radhakrishnan, Officer-in-Charge Zoological Survey of India, Western Ghats Field Research Station, Calicut, for providing facilities and encouragement. Thanks are due to Dr. Chakraborty, University Science and Instrumentation Center, University of Burdwan, West Bengal, for the SEM pictures. The author extends thanks to Dr. Arunkumar, Officer-in-Charge, Zoological Survey of India, Northern Regional Station, Dehradun for lending a paratype of *D. indica* Mukerjee for this study. Thanks are due to Dr. T.C. Narendran, Emeritus Professor, Department of Zoology, University of Calicut, Kerala, for kindly reviewing the manuscript. Literature support and constructive suggestions from Prof. Norman F. Johnson, Department of Entomology, The Ohio State University, Columbus are gratefully acknowledged.

REFERENCES

- Dodd, A.P. 1920. Notes on the exotic Proctotrupeoidea in the British and Oxford University Museums, with descriptions of new genera and species. *Trans. Entomol. Soc. Lond.*, 1919 : 321-382.
- Johnson, N.F. 1992. Catalog of world species of Proctotrupeoidea, exclusive of Platygasteridae (Hymenoptera) *Mem. Amer. Entomol. Inst.*, number 51.
- Johnson, N.F. 2006. <http://atbi.biosci.ohiostate.edu> : 210/hymenoptera/eol_scelionidae.home
- Le Xuan Hue. 2000. Egg-parasites of family Scelionidae (Hymenoptera). Fauna of Vietnam. Vol. 3. Science and Technics Publishing House, Hanoi.
- Masner, L. 1991. The Nearctic species of *Duta* Nixon (Hymenoptera : Scelionidae), egg parasitoids of ground crickets (Orthoptera : Gryllidae). *Can. Entomol.*, **123** : 777-793.
- Mukerjee, M.K. 1994. Descriptions of some new and records of some known Proctotrupeoidea (Hymenoptera) from Garhwal Himalayas Distribution-. *Rec. zool. Surv. India*, Occasional Paper No., **163** : 1-73.
- Nixon, G.E.J. 1933. A further contribution to the study of South African Scelionidae (Insecta, Hymenoptera, Proctotrupeoidea). *Ann. Mag. Nat. Hist.*, (10)**12** : 288-324, 465-479, 549-563.