

NOTES ON THE OCCURRENCE AND HERMAPHRODITIC NATURE OF  
THE PARASITIC ISOPOD *NEROCILA MADRASENSIS* RAMAKRISHNA  
AND VENKATARAMANIAH FROM THE HOOGHLY—  
MATLA ESTUARY, SUNDARBANS, INDIA.

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ABSTRACT

The cymothoid isopod, *Nerocila madrasensis* Ramakrishna and Venkata Ramaniah, is reported for the first time from Hooghly—Matla estuarine system in ectoparasitic association with the fish host, *Trichiura* sp. and described adequately. Necessary comments have been made on the hermaphroditic characters of the species.

INTRODUCTION

The material for this study was collected by the authors during their field surveys to different areas in the Hooghly-Matla estuarine system, Sundarbans, in ectoparasitic association with the fish host *Trichiura* sp. as well as in the free living condition. After thorough examination, the material has been identified as *Nerocila madrasensis* described a couple of years ago as a new species by Ramakrishna and Venkata Ramaniah (1978) from the material collected as a parasite on the gills of the fish *Hemiramphus* sp. at Madras. The original description of the species was based on 3 females, one being the holotype, the rest as paratypes, and since it did not provide adequate information, an attempt has been made to study the same.

MATERIAL

4 exs. (2 ovigerous forms and 2 young males), Z. S. I. Reg. No. C 2583/2 Sagar

Island, A. Misra, 8. 3. 1979, attached to the skin of the fish host *Trichiura* sp., 16.5 mm.-20.8 mm, 6 exs. (Young and adult without broad pouch), Z. S. I. Reg. No. C 2584/2, Bakkhali, S. S. Ghatak, 21. 2. 78, free living (net collection), 14.5 mm-23.9 mm.

SYSTEMATIC ACCOUNT

Class CRUSTACEA

Order ISOPODA

Family CYNOTHOIDAE

Genus *Nerocila* Leach

*Nerocila madrasensis* Ramakrishna and Venkata Ramaniah.

DESCRIPTION

For the purpose of additional description and ovigerous form and a young male without marsupium were selected.

*Ovigerous form* (♂): Body size (Fig. 1), 20.8 mm : 8.6 mm ; head more or less longer than broad : 2.5 mm : 2.8 mm. Eyes

moderately large and indistinctly seen in postero-lateral angles of head. Postero-lateral angles of the 6th and 7th segments bluntly produced and not extending beyond the epimera. Epimera of the last three thoracic segments broad and wide but acutely produced extending beyond the posterior margin of the respective segments. Well developed marsupium with eggs on the ventral side of the thorax. Abdomen (Fig. 2) narrow, with five visible segments first one being immersed in the thorax. Epimera of the first two abdominal segments elongated and well developed. Pleotelson (Fig. 2) almost round posteriorly, broader than long 4.2 mm : 5.0 mm. Uropod (Fig. 2),

long and slender, endopod less than half the length of exopod, 3.5 mm : 7.7 mm.

First antennae (Fig. 3) composed of eight articles with prominent hairs at the apex and interarticulate joints. Second antennae (Fig. 3) somewhat longer and without hairs. Mandibles, maxillae and maxillipeds (Fig. 5, 6, 7, 8), show the characteristic structure of the genus.

All the paraeopods prehensile (Fig. 9) as a rule with long and curved dactyli excepting the 6th and 7th that with short and curved ones. Only the tip of the dactyli brown. In 7th leg (Fig. 10), the inner margin of carpus with few and propodus with more

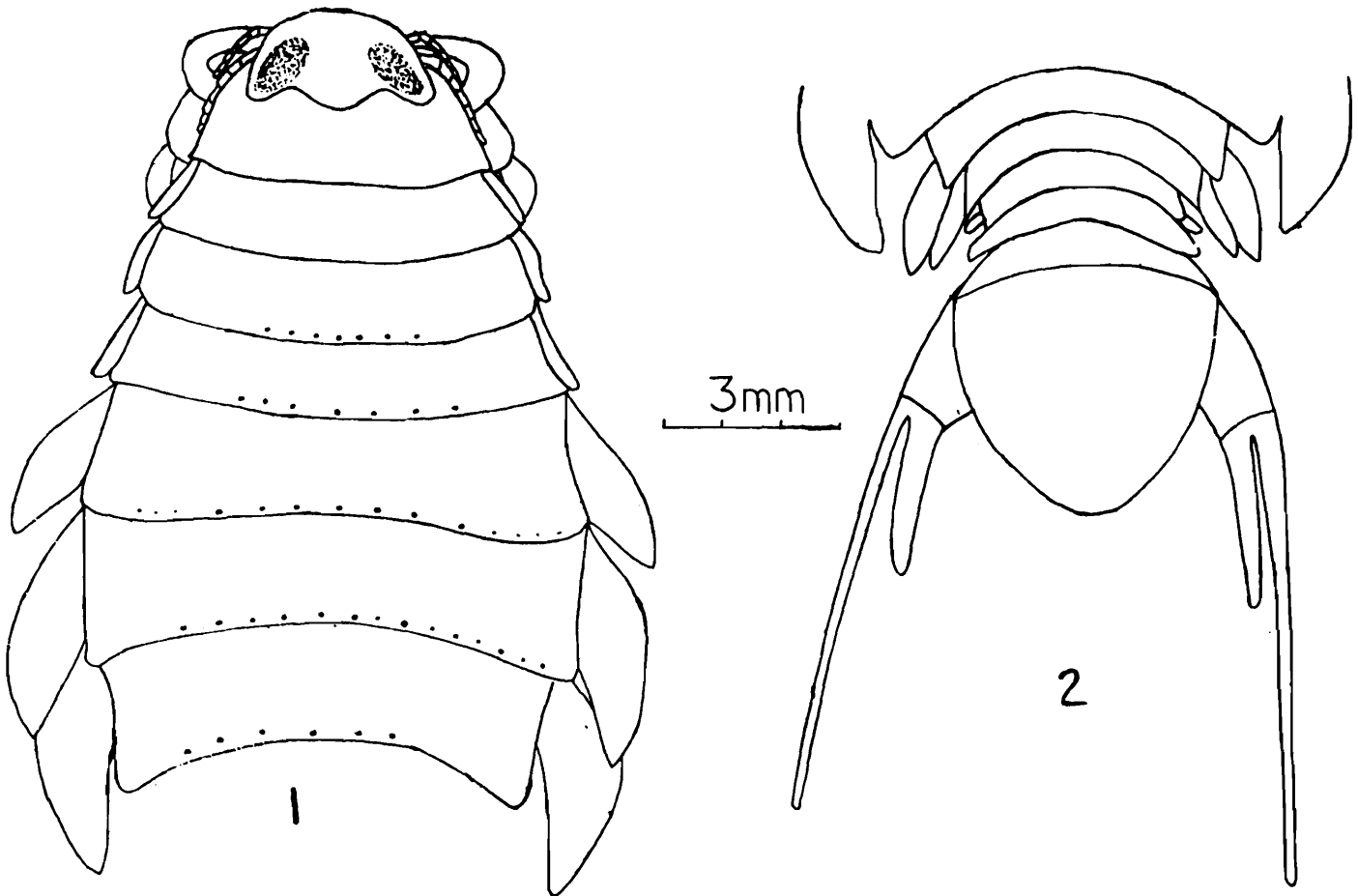


Fig. 1. Cephalothorax of the ovigerous form

Fig. 2. Abdomen, pleotelson and uropod of the ovigerous form

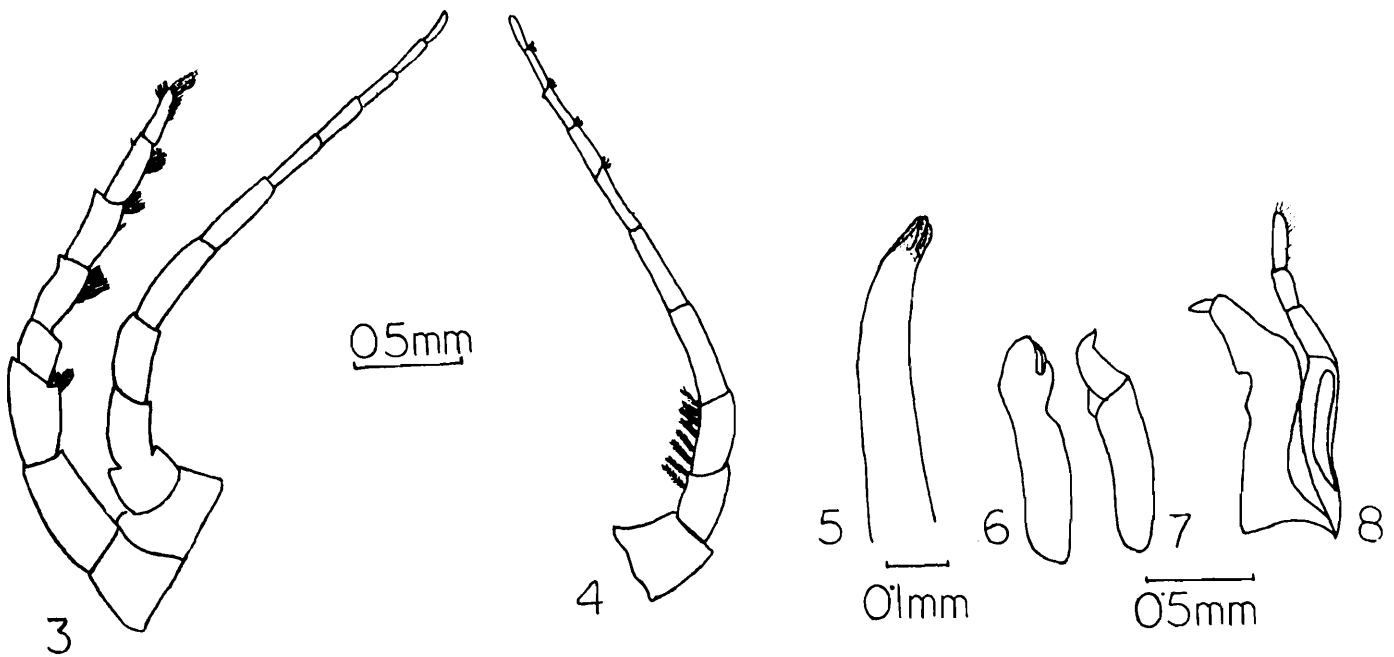
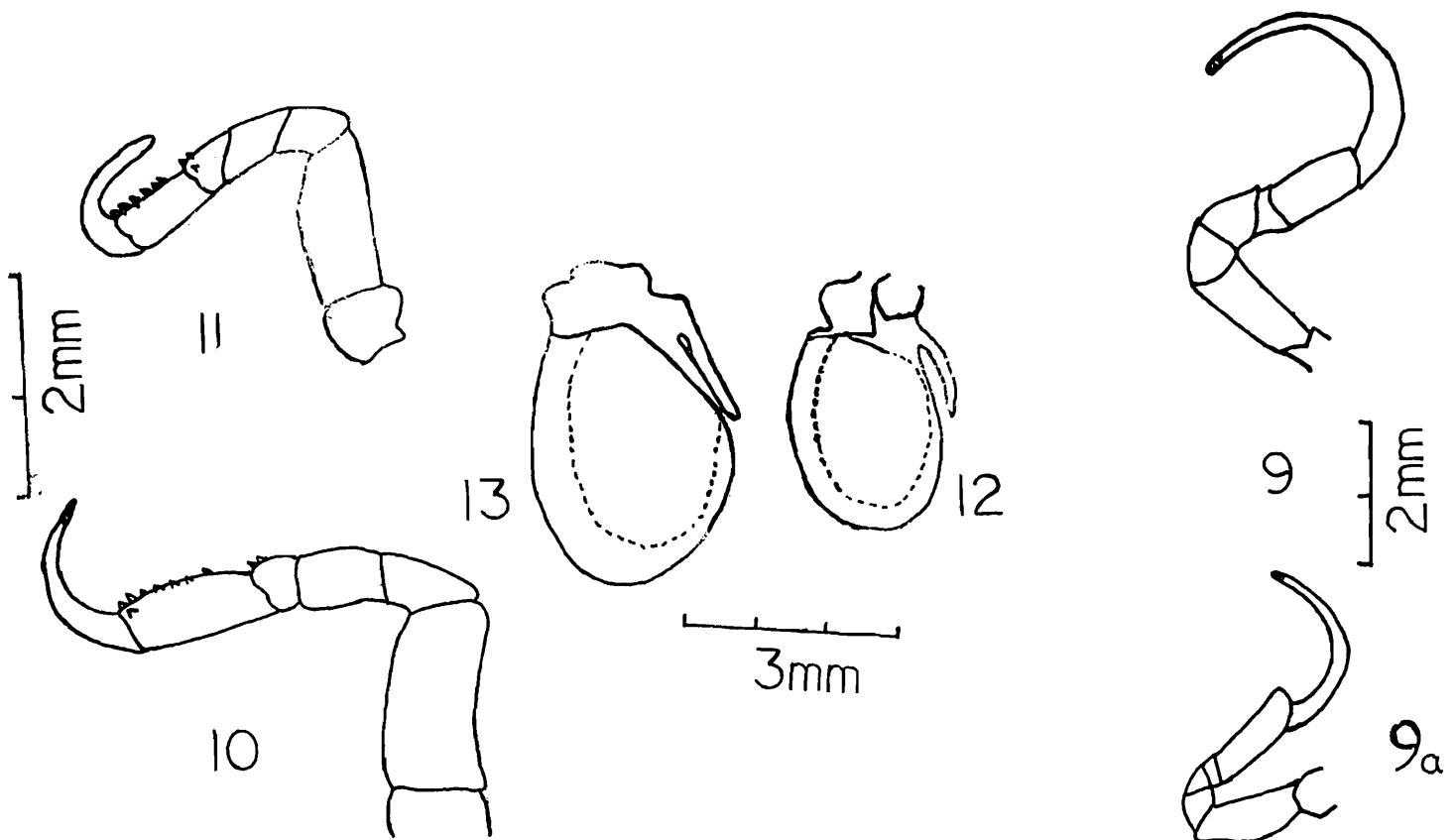


Fig. 3. 1st and 2nd antennae of the ovigerous form      Fig. 4. 2nd antennae of young form  
 Figs. 5, 6, 7, 8. Maxilla—I, Maxilla—II, Maxilliped and Mandible with palp of ovigerous form.



Figs. 9 & 9a. 3rd leg of ovigerous and young form,      Figs. 10, 11. 7th leg of ovigerous and young form  
 Figs. 12, 13. 2nd peopod of ovigerous and young form

than seven spines. The second pleopod (Fig. 12) with 'appendix masculina' extending up to the middle of the same.

*Young form* ( $\delta$ ): Body size (Fig. 14), 16.5 mm : 5.6 mm ; head wider than antero-posterior length 3.2 mm : 2.7 mm. Epimera (Fig. 14) of the last three thoracic segments narrow and slender. Other characteristic of thorax and abdomen resembling ovigerous

## REMARKS

The specimens at our disposal agree with most of the characters already indicated in the description of *Nerocila madrasensis*. However, certain features such as blunt postero-lateral angled of the 6th and 7th thoracic segment, shape, length ratio of inner and outer rami of Uropod and shape

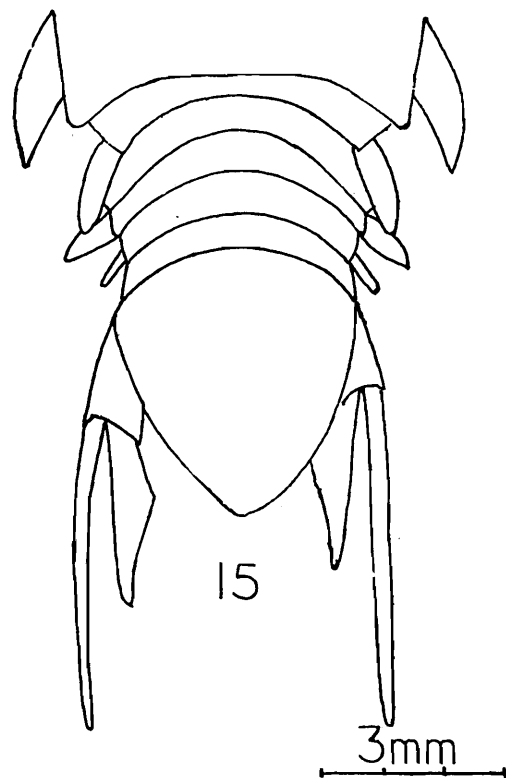
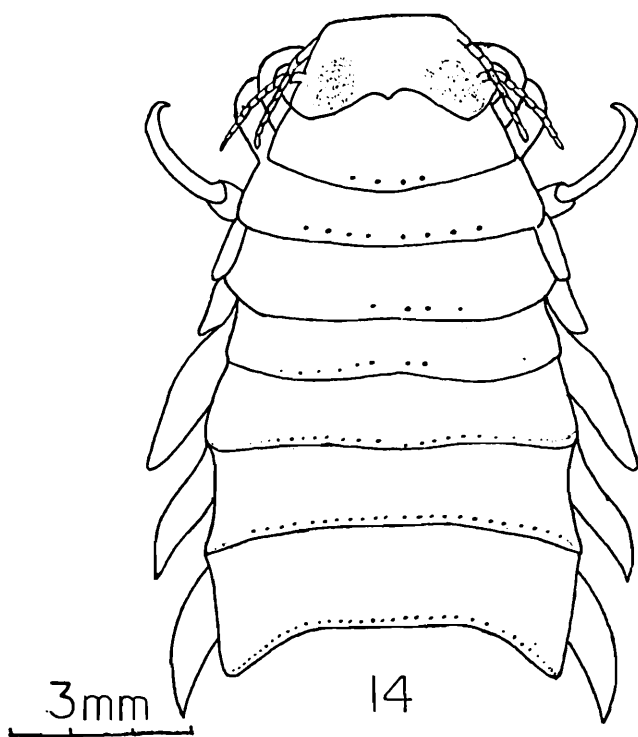


Fig. 14. Cephalothorax of young form

Fig. 15. Abdomen, pleotelson and uropod of the young form

form. Pleotelson (Fig. 15), broadly pointed, more or less as long as broad, 4.1 mm : 4.0 mm. Uropod (Fig. 15) lanceolate, endopod with broad base, more than half as long as exopod, 5.7 mm : 3.2 mm. Presence of spines on the carpus and propodus of the 7th leg. (Fig. 11). Second antennae (Fig. 4) with pinnate hairs on its second and third articles. Second pleopod (Fig. 13) with distinct 'appendix masculina',

and size of the maxilla mandible and antennae differentiate them to some extent.

From the literature (Males, 1976 Schultz, 1969) it is obvious that some Cymothoids are hermaphroditic in nature, the male stage appearing first. In the material at our disposal, the ovigerous forms are interesting in having a combination of male and female characters. The retention of 'appendix

masculina' on the second pleopod and spines on the 7th leg are male features, while much enlarged and strongly arcuate dactylus, broadening and posterior round shape of the pleotelson, reduction in width of inner rami, increase in length of outer rami of uropod and broadening of epimeral extensions confine to the feminine characters. It is probable that the young ones start their lives as males and with maturity develop female characters but at the same time retaining some of the male features.

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