ROSTRUM-LENGTH-TOTAL-LENGTH RELATIONSHIP IN
MACROBRACHIUM IDELLA AND M. SCABRICULUM
(DECAPODA, PALAEMONIDAE)

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ABSTRACT

A detailed statistical analysis of the rostrum length-total length relationship of two species of palaemonid prawns *Macrobrachium idella* and *M. scabriculum* has been attempted. Two methods, analysis of covariance and body proportion index methods, were employed. The growth pattern of rostrum in relation to total length of *M. scabriculum* was different in the two sexes whereas it was the same in the case of *M. idella*.

The growth pattern of the rostrum, one of the important taxonomic characters in palaemonid prawns, has not so far been studied in detail. Moreover, allometric studies in confirmation of the status of different species in this group are limited (Tiwari, 1962; 1963; Rao, 1967; Koshy, 1969, 1971; Jayachandran & Joseph, 1986). Therefore, an attempt has been made here to study the growth pattern of rostrum length in relation to total length in two species of *Macrobrachium* Bate, *M. idella* and *M. scabriculum*.

A total of 336 specimens of *M. idella* (220 males, ranging in total length from 32 mm to 110 mm, and 116 females, ranging in total length from 34 mm to 92 mm) and 196 specimens of *M. scabriculum* (116 males, ranging in total length from 24 mm to 63 mm and 80 females ranging in total length from 25 mm to 45 mm) were collected from the Vellayani lake, Trivandrum. Length from the tip of rostrum to the tip of telson is taken to be the total length and the length from the base of the orbit to the tip of rostrum to be the rostral length. Two methods have been employed in the present study - 1) analysis of covariance method to compare the growth pattern of the rostral length between the sexes (Snedecor and Cochran 1975) and 2) body proportion index using statistical 't' test (Pillai 1951).

On analysis of covariance, no significant difference in growth pattern of rostrum length could be observed between the sexes in the case of *M.
idella. Whereas, it was found to be significant in the case of *M. scabriculum* (significant difference in slope values (Fs) = 7.3293, significant at 1% level). Therefore, regression equations have been calculated separately for males and females of *M. scabriculum* and a combined equation for *M. idella* and are graphically presented in figures 1 and 2. The growth rate was almost same in the two sexes in *M. idella* (0.1575 in male and 0.1570 in female) whereas it was greater in females (0.1396) than males (0.0940) in *M. scabriculum*. The average size for rostrum length was found to be greater in females (14.2203) than males (13.6477) in the former species whereas it was greater in males (8.1034) than females (6.8187) in the latter.

When body proportion index method was applied, no significant difference in the body proportion of rostrum length and total length between the sexes in the two species were observed (21.64 ± 0.18, male; 21.17 ± 0.14, female — ‘t’ value — 1.72, *M. idella* and 17.84 ± 0.17, male; 17.73 ± 0.15, female — ‘t’ value — 0.44, *M. scabriculum*).

The overall shape, length and disposition of teeth on the rostrum have always been important taxonomic characters in palaemonid prawns. Therefore, the growth pattern of this character is useful in confirming the status as well as sexual dimorphism in this group. During the present study, when analysis of covariance was applied the rostrum showed significant difference in growth pattern between sexes in *M. scabriculum*. With ‘t’ test, no significant difference was obtained in both species. Koshy (1969) worked out the rate of growth of the rostrum in relation to carapace length of *Macrobrachium lamarrei* and found that growth rate was higher in females than males (length of rostrum 40% longer than males). The present results indicate that each species exhibits specific growth patterns characteristic to it.
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REFERENCES


