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STUDIES ON CESTODE MIGRATION AND pH CHANGES IN *CLARIAS BATRACHUS* (LINN) INFECTED BY *LYTOCESTUS INDICUS* (MOGHE)

EFFECTS of *Lytocestus indicus* (Moghe) on the hydrogen ion concentration and migration of the cestode in the intestine of *Clarias batrachus* (Linn) have been studied.

L. indicus are localized in the intestine of *C. batrachus*. It has been observed that the cestode migrates to the duodenum after feeding of their host. Before feeding of the fish, 50% of the Cestodes are in the first part of intestine, 20% in the second part, 20% in the third part and 10% in the fourth part. The fifth and sixth parts of the intestine are free from the infection. One hour after feeding of the host, 80% of *L. indicus* are in the first part, 15% in the second part and 5% in the third part of intestine. The fourth, fifth and sixth parts of intestine are free from the infection after feeding. The authors believe that the migration of the cestode after feeding of the host is for absorbing digested food materials from the duodenum.

It has been observed that the pH changes after feeding of the fish. The pH of healthy intestine is 8·2 before feeding and 7·8 one hour after feeding of the fish. The pH of the infected intestine is much lower. Before the feeding of the host, the pH of mildly infected intestine is 7·0, of moderately infected intestine 6·4 and of heavily infected intestine 4·5. One hour after feeding of the host, the pH of mildly infected intestine is 6·7, of moderately infected intestine 6·0 and of heavily infected intestine 4·0.

This is the first report of cestode migration and pH changes in helminthic infection of fishes. However, Mettrick[1] has reported worm migration in rats. Mettrick[1], Podesta and Mettrick[2] and Titchener *et al*[3] have reported pH changes in rats and pigs respectively after helminthic infections.

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ON THE OCCURRENCE OF *BULLIA TRANQUEBARICA* (RODING) NASSARIDAE (GASTROPODA) IN KAVARATTI ATOLL (LAKSHADWEEP)

DURING the course of the investigation of the natural history of Lakshadweep island, a live buccinid gastropod *Bullia tranquebarica* (Roding) belonging to the family Nassaridae under series Buccinacea was collected from Kavaratti atoll (Fig. 1). Kavaratti is situated along latitude 10° 33′ north and longitude 72° 36′ east and has a total area of about 3·629 sq. km. Specimen was collected from the lagoon on the west

of the island. The lagoon is shallow and the bottom is sandy. At the time of collection the animal was buried in the sand in the lagoon.

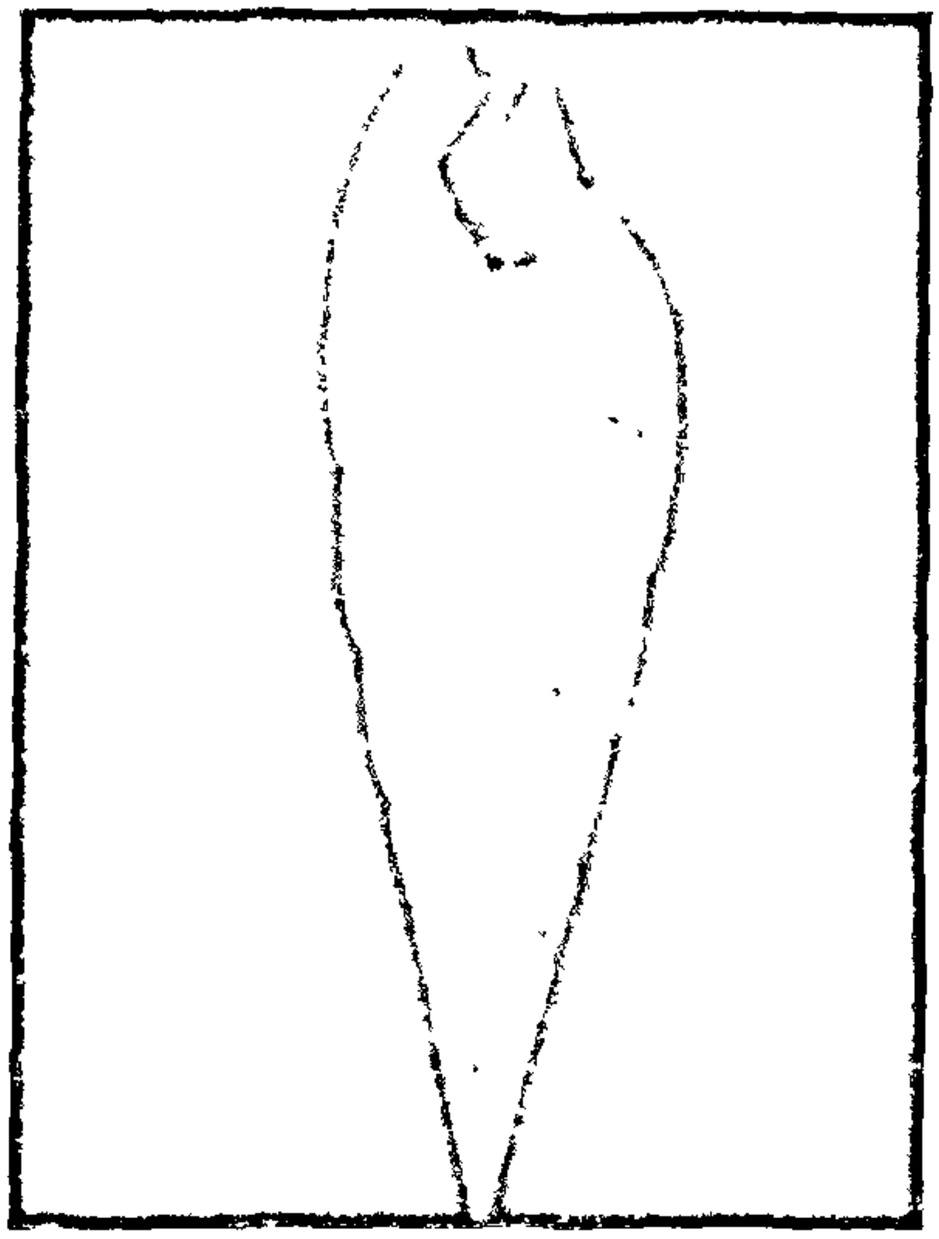

FIG. 1. *Bullia tranquebarica* (Roding).

Bullia tranquebarica has been reported by Gravely[1] from Madras coast. Sathyamurthy[2] has reported the occurrence of *B. melanoides* (Deshays) at Rameswaram, Kundagal point and Pamban of Rameswaram island which are situated very close to Madras coast. Ansell and Trevallion[3] have recorded *B. melanoides* from a beach along the south-west of India.

Genus *Bullia* has a very interesting pattern of distribution. Excepting from Madagascar this genus has not so far been reported from any of the islands of the Indian Ocean. According to Taylor[4] the distribution of *Bullia* in the Indian Ocean is restricted to continental margins from Cape of Good Hope to Burma and South Madagascar. The reason for the distribution of *Bullia* being confined to the continental margins seems to be due to the suppressed or short larval period[4]. He is of the opinion that the dispersal of *Bullia* is mainly due to rafting of egg capsules. Further, according to Thorson[5] marine larvae tend to swim in swarms and are very likely to miss small islands to establish a population. Therefore, the occurrence of *B. tranquebarica* in the lagoon of Kavaratti is surprising.

The obvious possibility for settlement of *B. tranquebarica* in Kavaratti lagoon might have been due to the dispersal by wind or current from Indian coast by rafting of the egg capsules. It is also possible that the suppression of pelagic larval life observed in the African forms may be a localized adaptation and such a phenomenon may not be existing in Indian forms. For example the Indo-Pacific gastropod *Planaxis sulcatus* has its pelagic stage suppressed in Persian Gulf population[6] while it has a normal pelagic stage in its development elsewhere. Therefore, it can be presumed that *B. tranquebarica* may have a free swimming pelagic larval life long enough to colonies even distant islands. Studies on *B. melanoides* on the west coast of India show that the egg case is attached to the foot of the maternal snail[3], while in the South African species the egg case is free[7]. It is further observed that the smallest animals collected on the beach were considerably larger than the young near hatching recorded from egg capsule[6] indicating that between the hatching in February and their appearance on the beaches prior to monsoon, a considerable time lapse occurs which is sufficient to indicate a free swimming larval stage.

It is also interesting to note that *B. tranquebarica* has not been reported by earlier workers from Laccadives and Maldives[9,10].

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