

NEW HOST RECORDS OF AND OBSERVATIONS
ON THE EPIZOIC GASTROPOD *SAPTADANTA*
NASIKA PRASHAD AND RAO

by

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(With one plate)

INTRODUCTION

Prashad and H. S. Rao (1934) described a new genus and species of limpet-like gastropod, epizoic on a shell of *Trochus niloticus* Linnaeus, family Trochidae, from the Andamans under the name *Saptadanta nasika*. Twenty-six years later, K. V. Rao (1960) reported the same species on the shells of *Pterocera lambis* (Linnaeus) from Minicoy, Lakshadwip Islands and on *P. lambis* and *chiragra* (Linnaeus), family Strombidae, from Mangalore.

Such recorded instances of commensalism in which both partners involved are molluscs, are not many. The above species in its partnership with the molluscan hosts stated above provides a good example of such an association.

The present note deals with additional hosts of interest so far not recorded for this commensal, its noticeable preference to a particular location on host shell for attachment and discussion on other points such as its probable mode of feeding consistent with its sedentary life and a comparison with the mode of feeding in other sessile forms which are closely allied to it.

MATERIAL

The material utilised for this study is obtained from the collections of the Zoological Survey of India and is as follows:—

A. 2 ex. on *Turbo spinosus* Gmelin, Sta. No. ?—Pearl Bank 16 km. from the shore of Tuticorin, 18. 28m (10 fms.), Feb-Mar., 1926, Coll. H. S. Rao.

B. 1 ex. on *Cerithium Columna* Sowerby., Sta. No ?—Pearl Bank,

19.20 km. from shore, Tuticorin, 16.45m to 18.28m (9-10 fms.), Feb.—Mar., 1926 Coll. H. S. Rao.

C. Several ex. on *Turbo brunneus* Röding, (both living and dead), Sta. No. 24-Coast (intertidal zone) near Arong village, Car Nicobar, 11-3-1972, Coll. A. S. Rajagopal.

All the specimens agree well with the holotype of the species and the original description (Prashad & H. S. Rao, 1934).

The specimens of the epizoon entrench themselves firmly in deep concavities made on host shells. Extricating them therefore often causes damage to the soft body parts as remarked by Prashad and H. S. Rao (*op. cit.*). In the present material also, it was particularly so with specimens infesting shell of *T. brunneus* where the lodgement was deep, unlike in *T. spinosus* and *Certithium Columna* Sowerby where it was superficial.

REMARKS

On the basis of observations on the present material and on information available in literature about the epizoon *S. nasika* certain facts, some of them hitherto unrecorded, have come to light which are enumerated below:—

1. The previous host record of the epizoon was limited to three species in two gastropod families, Trochidae and Strombidae. With the addition of three more species in Turbinidae and Cerithiidae to the list as shown in the material above, the number has increased to six species in four genera spread over four families. It would therefore be reasonable to expect that the host-range to be more extensive than hitherto believed and to say that there is no evidence of host-specificity in this case.

2. Since all the host records known so far are limited to gastropods only and they are not known to extend to any other group of molluscs, it would be reasonable to say the species favours gastropod hosts.

3. The material indicates that the samples were collected from varying depths from shallow water upto 10 fms. (18.28m.). How far the factors such as depth, temperature, etc., might be influencing the infestations or commensalism has not been studied. Further, the samples themselves are too insufficient to draw any conclusion on the causes of the infestation or commensalism.

4. Some of the examples of the epizoon were found attached to dead shells in the material above but none has been reported from stationary objects such as rocks and corals. In its habit it is similar to *Hipponix australis* Quoy and Gaimard which also lodges itself on gastropod shells, especially *Turbo*. Another closely allied species *H. antiquatus* (Linnaeus), however, attaches itself permanently to rocks

by secreting a valve beneath the foot. It can thus be seen that there is no uniformity in the mode of life even among closely allied species.

5. The shape and the size of the much-flattened patelloid shells are variable. When the infestation is heavy, these two characters in the shells are dependent to a large degree on the location and the extent of space available to each individual for lodging.

6. The number of ridges on a shell is also variable as was shown by K. V Rao (*op. cit.*, Table).

7. When the epizoon settles on a host shell in large numbers, tendency for them to cluster together as closely as possible in a small area is noticed. This condition is found in two shells of *T. brunneus* under study (see plate. .figs. .). The illustration given by K. V Rao (*op. cit.*, fig. 2) also shows a similar condition.

8. One specimen settling on another *vide* K. V Rao (*op. cit.*) is observed on the shell of a live specimen of *brunneus* in the present author's collection.

9. The highest infestation on a shell noticed by K. V Rao (*op. cit.*) was close to the apical region in his specimen of *Pterocera*, whereas in all cases in the present material the site is quite different. The infestation, whether high or low, is concentrated on the ventral aspect of the body-whorl of the host, particularly near its columella or around the umbilicus when the latter is present (see plate. .figs. .). Also, as many as eight characteristic concavities of the epizoon can be seen in the same location on two shells of *brunneus* (Plate. .figs. .). one from Car Nicobar and the other from Andamans.

In an old shell of *P. chiragra* from the same collections, three excavations on two finger-like processes (two on one and one on another) are found on the ventral aspect (plate. .figs. .)

DISCUSSION

It is interesting to note that while Hyman (1967, p. 383) refers the present species to the genus *Sabia* Gray, Thiele (1931) considers this genus and three others namely, *Hipponix* DeFrance, *Cochlolepas* (? Klein) and *Malluvium* Melvill as congeneric with *Amalthea* Schumacher.

Though a discussion on the validity or otherwise of the transfer of *nasika* under *Sabia* is beyond the scope of this paper, the transfer of it from the family Lepetellidae to Amaltheidae (=Hipponicidae) seems to be fully justified.

The association involved between *S. nasika* and its host is an example of commensalism, of unequal partnership wherein the epizoon which is the active partner settles on a shell of its host, a passive partner, essentially for substrate, shelter and transport. The relationship fits in well with van Beneden's definition of commensalism expanded and

elaborated by Allee *et al* (1949, p. 243). In this relation whether the epizoon partakes the food of its host or not could not be investigated because field observations on its mode of feeding were not feasible. Therefore, any comment on it is not possible except by alluding to the mode of feeding in closely related forms like *Hipponix antiquatus* (Linnaeus), studied by Yonge (1953) and *H. australis* Quoy and Gaimard, studied by Risbec (1935). The former has a very specialised sedentary habit spending all its life cemented to rocks while the latter which lives on the shells of other gastropods, usually species of *Turbo* characteristically close to the exhalent aperture, has some similarity with the present species in its mode of existence. Yonge (*op. cit.*) observes that *H. antiquatus*, despite its sedentary mode of life is surprisingly not a ciliary feeder. It uses its long proboscis for browsing on its food material *viz.* organic detritus, pieces of algae etc., that are continually brought in front of the shell by the Pacific surf, while Risbec (*op. cit.*) reports that *australis* swallows by means of its proboscis, faecal pellets rejected by the host.

Though *S. nasika* leads a sedentary life, lodged on its host's shell, it is probably not a mucociliary feeder. In this connection Hyman's (*op. cit.*, p. 353) remark, "Contrary to expectation, not all sessile prosobranchs are ciliary feeders" seems to be appropriate. Further, its preference to the ventral side of the host shell for its settlement, as is noticed in all the cases of the present material, shows a similarity to *australis* and probably the mode of feeding also may be identical. In any case, it needs further study to elucidate the point.

Prashad and H. S. Rao (*op. cit.*) and H. S. Rao (1937) observe that as a result of the excavations made by the epizoon on the shell substance, the commercial value of *T niloticus* shells was diminished. Similarly, the commercial value of affected *T brunneus* shells would also diminish since these are also used for table decoration, cameos, ornamental pieces, curios etc.

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