TABLE 1

*Measures of variability for seed oil content in Asiatic cottons*

| | *G. arboreum* | *G. herbaceum* |
|---|---|---|
| Range (%) | 12.5–22.8 | 13.5–20.4 |
| Mean (%) | 21.63 | 16.96 |
| Standard Deviation | 1.76 | 1.58 |
| Variance | 3.1 | 2.5 |
| Coefficient of variability | 8.1 | 9.32 |
| S.E. ± | 0.1 | 0.16 |

a wide range of variability was observed for seed oil content in both the species of diploid cottons (table 1). The magnitude of variability was higher in *G. arboreum* L. (12.5-22.8%) than in *G. herbaceum* L. (13.5-20.4%). The extent of variability present in the genetic stocks of these species revealed the possible genetic improvement of seed oil content in diploid cotton varieties through hybridization and selection. Harland[5] succeeded in increasing seed oil content by 7% in *G. hirsutum* L.

In the species *G. arboreum* L. four races namely *bengalense, cernuum, indicum* and *sinense* were evaluated. The genotypes 79/Lohit (22.8%), Beshnoor (22.3%), AKA12 (22.2%), H446 (22.2%), H162 B (21.5%), AC733 (21.7%) and AKH4 (21.4%) in *bengalense*; comilla (22.4%), 30820 (22.5%), 30848 (20.0%), 30847 (19.8%) and 30837 (19.6%) in *cernuum*; Gao 16CB8 (21.0%), Gao CB9 (20.7%), Gao 16CB4 (20.7%), Gao 16CB7(20.4%) and cocanada 5 (20.5%) in *indicum*; and chinese broad lobe (20.6%), chinese narrow lobe (21.2%), chinese spotless (22.3%) and chinese New Million Dollor (19.2%) in *sinense* were found elite types for seed oil content. Critical analysis of these four races revealed that the extent of variability was low in *indicum* compared to other races. Other races did not differ much from each other in this respect. In this study no relationship could be established between seed index and seed oil content.

In the species *G. herbaceum* L. only one race *ie wightianum* was evaluated. The ten best lines of this race for seed oil content were L. S. Early (20.4%), Baluchistan (19.9%), 3499 SS (19.3%), 4851 (19.2%), DH110-10 (18.9%), HK86 (18.9%), 5424 (18.9%), Kumpta (18.9%), 569 (18.8%) and 1049 IV/5 (18.8%).The above mentioned lines of *G.arboreum* L. and *G. herbaceum* L..can be utilized in breeding programmes for improving seed oil content in the respective species.

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## FIRST RECORD OF A SIMPLE ASCIDIAN, *MICROCOSMUS CURVUS* TOKIOKA 1954 FROM INDIAN WATERS

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IN India only one species of *Microcosmus* (*M. manaarensis*) has so far been reported[1-3] and the present form is the second one. It is seen attached to the pieces of coral stones in the intertidal zone of Tuticorin (Lat. 80° 47' 10"N and Long.78° 9' 60" E) near harbour. This species has earlier been reported only from Tokara[4], Palau, Mariana and Wake Islands[5]. Its occurrence in Indian waters has now been reported.

The taxonomical position of *M. curvus* is as follows:

*Class*: Ascidiacea; Order: Pleurogona; Suborder: Stolidobranchiata; Family: Pyuridae; Genus: *Microcosmus* Species: *curvus*.

The morphological characters of the species as observed are briefly given below.

Largest specimen measures 15 mm in length. The animal is roughly either oval or rectangular in shape and attached to the substratum either by the right ventral side of the body or wholly by their posterior end with test processes. The test processes are either plain and broad or branched and finger shaped. The branchial and atrial apertures are terminal and both apertures are 4-lobed. Siphons are somewhat long. They are either violet or red in colour.

*Test*: Leathery, very tough and coloured pink at the side of attachment. The anterior surface is much wrinkled. The test is without any adhering material.

*Mantle body*: Yellowish to colourless. Siphons are pale orange. Muscles are arranged very regularly as in other species of the genus.

*Branchial sac*: Generally reduced. Usually 5 folds on each side. Tokioka[4,5] had noted even upto 8 folds and ventral folds may be rudimentary. The internal

longitudinal bars are arranged as follows.

D. 0 (10) 1 (5) 2 (10) 1 (8) 1 (5) 0 V.

One or two thinner transverse vessels present. 3 to 6 stigmata in a mesh. Tentacles short and thick and bipinnate. 14 to 15 large tentacles besides a few small ones. Dorsal tubercle U shaped, with one or both arms curled in.

*Alimentary system*: The hepatic caeca are brownish yellow in colour and finger-shaped with small papillae projecting from their surface. There is an accentuated curve of the gut (figure 1) where the gonad is crossing the intestine. Anus with two plain lips.

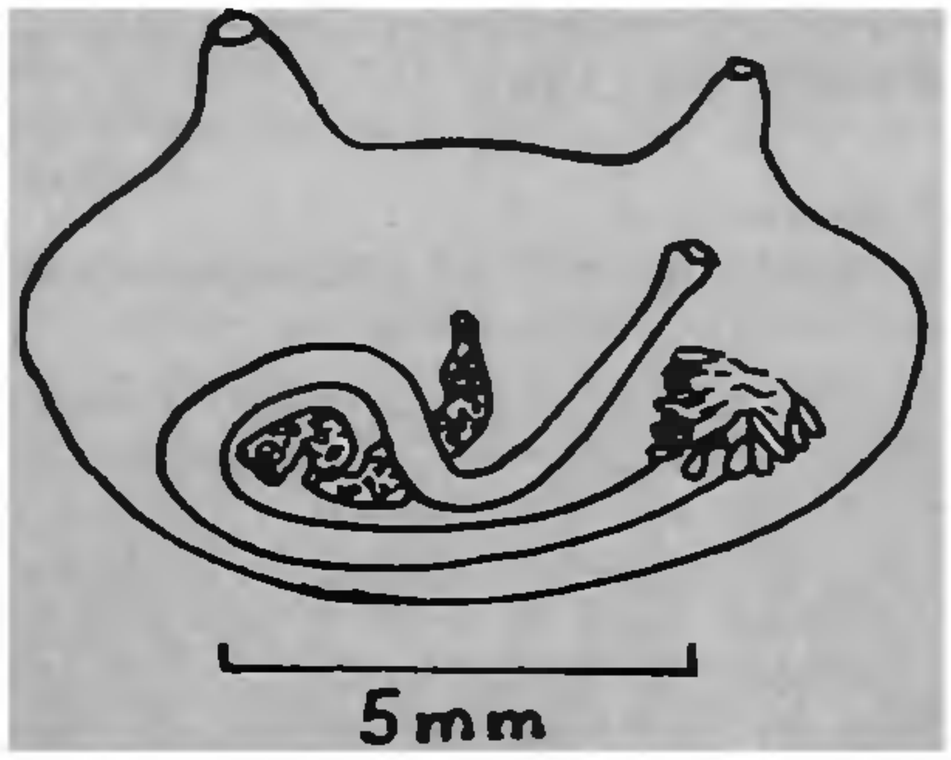


**Figure 1.** Left half of mantle body of individual, inside showing gut loop and gonad.

*Gonad:* Gonad shows much variation in shape and number. Usually one gonad on each side but a maximum of 3 have been found. Usually they are strongly curved and lobed. The gonad on the left side lies across the dorsal branch of the first intestinal loop.

*Remarks*: The reduced branchial sac, the accentuated curve of the gut and the various shapes of the gonads are distinguishable features to be noted in this Indian specimen. *Microcosmus curvus* possesses curved gonads whereas they are elongated and straight in *M. manaarensis*. Herdman's account of the appearance of one test lying within another is characteristic of *manaarensis*.

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## A RARE ASSOCIATION BETWEEN THE LARVACEAN, *OIKOPLEURA INTERMEDIA* LOHMANN AND THE PROTOZOAN, *ACINETA* SP.

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AMONG the larvaceans, species of *Oikopleura* are well known for their wide distribution in most oceans and seas. From the Bay of Bengal so far, 26 species of larvacea have been identified[1]. Prior to this, only three other reports[2-4], are known in this group from the east coast of India. *Oikopleura* spp. are particularly important as food for the larval stages of fish[5]. So far no information on the association of *Oikopleura* spp. with other organisms is available.

During one of our plankton collections from the inshore waters of Tuticorin on 22 May 1982, the authors came across an interesting and rare association between a larvacean, *O. intermedia* and the protozoan, *Acineta* sp. Out of the four specimens of *O. intermedia* encountered, only one had this sort of association. The total length of *O. intermedia* was 1.64 mm and the zooids of *Acineta* sp. ranged from 0.05 to 0.20 mm. The salinity and temperature of the

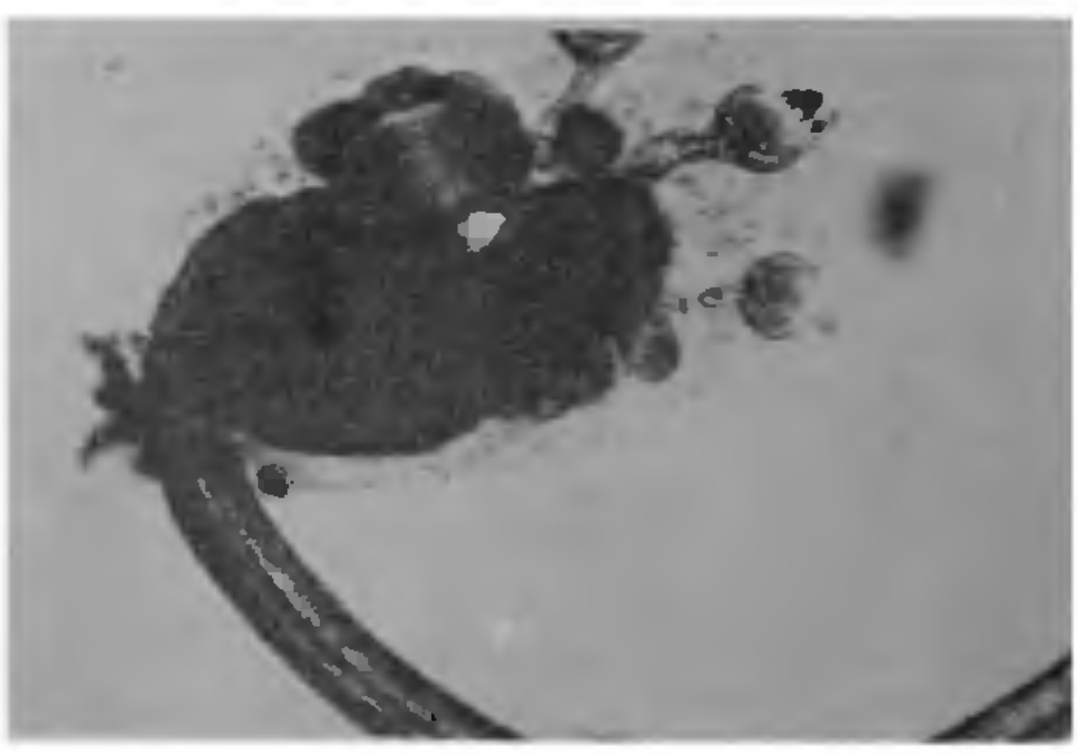

**Figure 1.** Attachment of *Acineta* sp. at the trunk region of *O. intermedia*.