Figure 1. *Cyprinus carpio* var. communis (L) bearing a gall caused by infection of *Saprolegnia diclina* (Humphrey)

cribed earlier[1-3]. The isolates were identified using the monographs of Coker[4] and Seymour[5]. The fish species were identified using the key of Jhingran and Sehgal[6]. The parasite was identified as *Saprolegnia diclina* (Humphrey) and the host as *Cyprinus carpio* var. *communis* (L). Pathogenicity tests were conducted with the isolates at room temperature ranging between 21–26°C on the lines of Scott and O'Warren[7], using individuals of *Chela laubuca* (Ham.), *Anabas testudineus* (Bl.), *Colisa lalia* (Ham.) and *Channa punctatus* (Bl.) as test fish. Injuries were inflicted by scrapping scales from different regions of the body. Hyphae of the parasite were observed on injured areas of the test fish within 12–18 hr of placing the fish in the infection troughs. These infected fish died within 19–34 hr of the infection test (table 1). The specimens kept in the troughs, in which no inoculum was added, remained unaffected and survived.

The identity of the parasitic fungus was verified by comparing with the cultures of the original inoculum.

TABLE 1

Controlled laboratory studies demonstrating the infectious ability of Saprolegnia diclina.

Name of fish	Mycosis evident within hr.	Death occurred in hr.
Chela laubuca	14–17	23–25
Anabas testudineus	12–14	19–21
Colisa lalia	15–17	29–31
Channa punctatus	16–18	32–34
Control		

The number of fish tested and those in which mycosis was evident and died was 3.

In the available literature there is no previous report of the occurrence of *Saprolegnia diclina* on *Cyprinus carpio* var.*communis*. The present communication, therefore, extends the host range of *Saprolegnia diclina* to *Cyprinus carpio* var. *communis*.

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1. Raper, J. R., *Science*, 1937, **85**, 342.
2. Tiffney, W. N., *J. Elisha Mitchell Sci. Soc.*, 1939, **55**, 134.
3. Johnson, T. W. Jr., *The Genus Achlya: Morphology and Taxonomy*, University of Michigan Press, Ann. Arbor, Michigan. 1956.
4. Coker, W. C., *The Saprolegniaceae with Notes on other Water Moulds*, Univ. of North Carolina Press, Chapel Hill, N. C., U.S.A., 1923.
5. Seymour, R. L., *The genus Saprolegnia*, Nova Hedwigia, 1970, **19**, 1.
6. Jhingran, V. G., and Sehgal, K. L., *Cold water fisheries of India*, Inland Fisheries Society of India, Barrakpore, (India) 1978.
7. Scott, W. W. and O'Warren, C., *Tech. Bull. Vir. Polytech. Inst. Virginia*, 1964, **171**, 1.

VARIABILITY FOR SEED OIL CONTENT IN DIPLOID GENETIC STOCKS OF COTTON

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REFINED cotton seed oil is one of the best edible oils and is used in most parts of the world including USA, USSR, China and middle East. Genetic improvement in the seed oil content without bringing reduction in lint yield will be an added advantage. The knowledge of genetic variability present in the gene pool is of utmost importance for a breeder for this purpose. However, little information on this aspect is so far available and that too based on a few genotypes only[1-4]. The pattern of variability for seed oil content was studied in 337 lines of *Gossypium arboreum* L. and 96 *Gossypium herbaceum* L. by non-destructive NMR using Newport analyser and is reported in this paper.

The success of genetic improvement depends upon the extent of variability present in the genetic stocks for the character to be improved. In the present study,

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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1. Narayanan, S. S., Kamalanathan, S. and Selvaraj, J. A., *Madras Agric. J.*, 1973, **60**, 1896.
2. Narayanan, S. S., Sundaram, N and Peter, S. D., *Madras Agric. J.*, 1975, **62**, 33.
3. Pandey, S. N., *Cott. Dev.*, 1977, **7**, 4.
4. Smithson, J. B. and Gridley, H. E., *J. Agric. Sci.*, 1977, **88**, 727.
5. Harland, S. C. *Emp. Cott. Grow Rev.*, 1949, **26**, 163.

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