

Figures 1–2. 1. *Synodus indicus* with pseudoneoplastic disease hamartoma. 2. Section through hamartoma; H + E $\times 280$. ha = hamartoma. mb = muscle bundles

The lesion was not a neoplasm but appeared to be a normal tissue in an abnormal place as in a developmental anomaly. The tissues represent only one germ layer, the mesoderm (figure 2). Very little information is known about the non-neoplastic condition in marine fish¹. This is mainly due to difficulties in the correct identification of the origin and type of cells, distinguishing the reactive lesions from neoplasms; differentiation of border line condition such as hyperplasia or developmental anomalies from neoplasia and also lack of known morphological or biochemical characteristics that is pathognomonic for neoplasia¹.

Though pseudoneoplastic condition was reported from 21 species of fish of the orders: Pleuronectiformes and Perciformes, two species of the order Gadiformes¹ and in *Lebistes*² the lesion, similar to the one reported in *Synodus indicus* were not reported earlier. Perusal of

the literature on the diseases of fishes give credence to the fact that the 'hamartoma' in *Synodus indicus* is a new record from Indian waters. The cause of the development of "hamartoma" is yet to be established.

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RECORDS ON *ACAULOSPORA* SPP FROM INDIA

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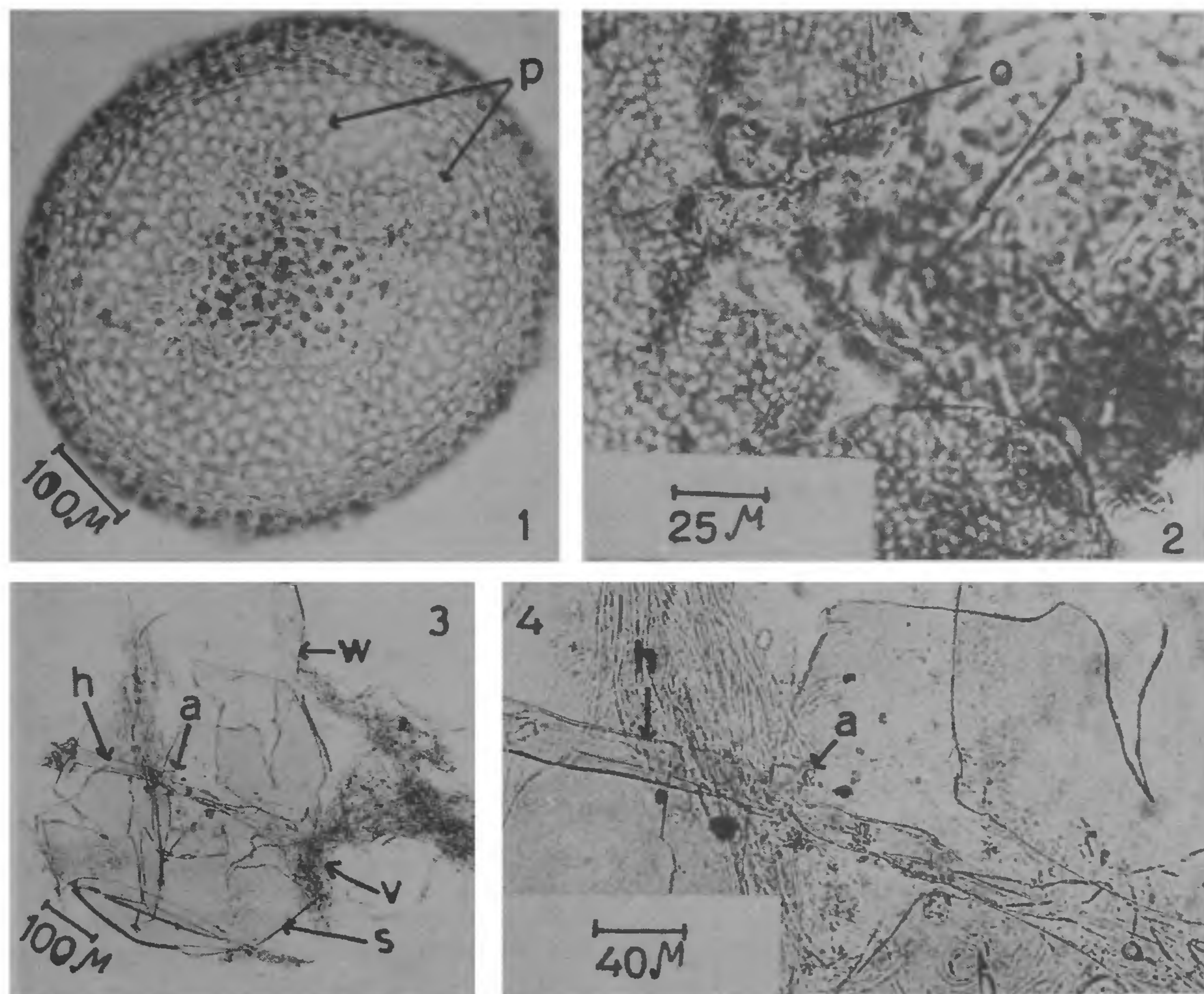
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Little is known about the taxonomy of Indian Endogonaceae. Various species belonging to the genera *Sclerocystis*, *Gigaspora* and *Glomus* have been described^{1–9}. Taxonomical studies on *Acaulospora* are lacking from India¹⁰. During investigations on mycorrhizal associations of the tree species in a sub-tropical evergreen montane forest of North-East India, two species of *Acaulospora* namely, *A. laevis* and *A. scrobiculata* described earlier^{11, 12} were collected from the rhizospheric soil of the tree species namely, *Machilus kingii* and *Alnus nepalensis* during the later part of the rainy season in 1984. The roots of the tree species were heavily mycorrhizal. The spores of these species are maintained in microbial ecology laboratory of North-Eastern Hill University, Shillong.

Endogonaceous spores were isolated from the soil by wet sieving and decanting technique of Gerdemann and Nicolson¹³. The species of *Acaulospora* were identified using the keys of Walker and Trappe¹⁴.

Acaulospora laevis Gerdemann and Trappe.

Sporocarp unknown, spores forming singly, sessile, borne laterally on a wide thin-walled hyphae 20 μ m in diam that terminate nearby in a globose vesicle of the size of spore, shrunken at spore maturity, spores smooth, 300–400 μ m, globose or sub-globose, dull



Figures 1–4. 1. Spore of *Acaulospora scrobiculata* showing surface pits. 2. Spore with two distinct walls. 3. Sessile spore of *A. laevis* and shrunken vesicle. 4. Spore with hyphal attachment. (A = hyphal attachment; h = hypha; i = inner wall; o = outer wall; p = pits; s = spore; v = vesicle; w = spore wall)

yellow, spore wall continuous except for the occluded opening 5 μm thick. Hypha below spore attachment branched.

This form was collected from rhizospheric soil of *Machilus kingii*. The characters of the present isolate resemble type description of Gerdemann and Trappe¹¹ (figures 3 and 4).

***Acaulospora scrobiculata* Trappe.**

Sporocarp unknown, spores forming singly in soil, sessile, borne laterally on thin-walled, hyaline hypha that terminates in a thin-walled vesicle, collapsed vesicle attached to spore, spore shape varies from globose to ellipsoid, 100–200 μm , olive to light brown, spore surface evenly pitted.

This form was isolated from the rhizospheric soil samples of *Alnus nepalensis*, collected in September

1984, and resembles the type description of Trappe¹² (figures 1 and 2).

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Table 1 Effect of EMS, dES and EI on the meiotic aberrations in *Solanum nigrum* L

Dose (h PSW)/ Treatments (%)	Total % of pollen mother cells with aberrations	
	Diploid	Tetraploid
EMS		
Dry/0.05	5.00	4.50
60/0.05	10.00	8.75
72/0.05	9.00	8.21
96/0.05	8.00	7.25
dES		
Dry/0.02	4.61	3.50
60/0.02	7.50	7.15
72/0.02	6.90	6.41
96/0.02	6.29	5.86
EI		
Dry/0.0025	4.04	3.87
60/0.0025	9.00	7.27
72/0.0025	8.14	7.08
96/0.0025	7.00	6.00

h, hours; PSW, presoaking in water.

POLYPLOIDY AND SENSITIVITY TO CHEMICAL MUTAGENS IN *SOLANUM NIGRUM* L

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DIFFERENT biological parameters such as genotype, genome, ploidy status, chromosome number, DNA content and nuclear volume are known to condition the response of plants to radiations. Among these, the effect of ploidy is of particular interest, since both the nature and extent of polyploidy influence radiation sensitivity¹⁻³. Parallel type of information on the sensitivity of organisms with different level of ploidy to radiomimetic chemicals is however far from scanty⁴. With this end in view, the dry and presoaked seeds of diploid and tetraploid *Solanum nigrum* L were treated with three different chemical mutagens namely ethyl methanesulphonate (EMS), diethyl sulphate (dES) and ethylene imine (EI) and their effect was studied in respect of meiotic aberrations.

The results are indicated in table 1. In *Solanum nigrum* the treatment of EMS, dES and EI produced different types of meiotic irregularities such as fragments, laggards, bridges, precocious movement and

non-orientation of chromosomes in both the diploid and tetraploid. This is quite in agreement with the earlier published data⁵⁻⁷.

Table 1 indicates that the percentage of cells carrying meiotic abnormalities induced by EMS, dES and EI is only slightly greater in diploid as compared to the tetraploid. This observation also agrees with the earlier published finding⁷.

The consistently lower percentage of meiotic aberrations in the tetraploid *S. nigrum* indicates its cytologically diploidized and stable condition. The slightly higher values of meiotic aberrations for the diploid clearly show that it is only slightly more sensitive than the tetraploid to the effects of different chemical mutagens.

The marginal differences in the sensitivity of diploid and tetraploid which has been noted in the present study might be on account of genomic peculiarities in the diploid and tetraploid of *S. nigrum*. The possibility of genomal effects seems all the more likely in view of the fact that the tetraploid *S. nigrum* has been established to be an allopolyploid⁸.

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