

Ascomycetous fungi have been studied on large scale by enthusiastic workers worldover. These cover works of Salmon (1900), Harper (1905), Gaumann (1952), Yarwood (1957-1973), Golvin (1958), Hirata (1966,1968), Dennis (1968), Homma (1973), Luttrell (1973), Muller (1973), Arx (1974), Barr (1979,1982), Braun (1980,1981) and others.

But in India little investigations pertaining to the ascomycetous fungi were done (Kamat,1975) mainly because of the concentration and attention of Mycologists and Pathologist to the fungi responsible for the destructive diseases of crop plants than the fungi on the other plants. During the last quarter of this century there had been spurt of activity in the study of this group. Madras School of Thought (Ramkrishnan and his colleagues), M.A.C.S. Lab.(Late Dr.Kamat and his students), Delhi people (Tondon, Kapoor, Munjal and others) have greatly contributed to the understanding of this group in India.

Indian work on Ascomycetes is mostly restricted to taxonomic studies and very little work is done on cytology, sexuality and developmental studies. For this 4 species belonging 4 genera Pringsheimia, Uncinula, Leptosphaerulina and Salmonomyces were selected and studied. In the first section review of historical account of work on cytotaxonomy and developmental studies is made. Second section deals with materials and methods. In the third section taxonomic studies

of two species of fungi - Pringsheimia and Uncinula are done. In fourth section cytological, developmental and cultural studies of two species belonging to Leptosphaerulina and Salmonomyces (one from bitunicatae and one from unitunicatae) have been done. In fifth section summary and conclusions are given and are briefly noted below.

FINDINGS :

1) Taxonomic studies :

a) The taxonomic studies of the fungal infection of Pandanus fascicularis Lamb. show that the fungus was early accomodated in the species Vestergrenia pandani by Hosagoudar (1984) but my studies of its taxonomy and developments show it belongs to brown, dictyosporous ascomycetous genus Pringsheimia its early accomodation into Vestergrenia was possibly because of the study of premature stages observed in cold months of rainy season. So a new combination has been proposed for its correct accomodation. It is done under the name Pringsheimia pandani Comb.nova.

b) The fungus Uncinula sterculiae Yadav, reported here for the first time from Goa (India) and Sterculia alata Roxb. is reported to be a new host record for this species.

2) Cytological Developmental and Cultural Studies :

t/ a) In the hemiascomycet^tous fungus Leptosphaerulina studied shows formation of stroma first and differentiation of functional

sex organs at later stage (there is a gametangial contact). There was Luttrell's (1951) Dothidia type of development for centrum. Leptosphaerulina alysicarpii shows chromosome number as $n=3$ and longest bivalent is nucleolar chromosome. Ascosporogenesis is by free cell formation. In cultural behaviour fungus shows :-

- i) rapid development in P.D.A. with 50 ppm Aspartic acid, P.D.A. with 50 ppm Phenylalanine, P.D.A. with 40 ppm Indole Acetic acid and 20 ppm Gibberlic acid,
 - ii) It is suppressed with Glycine and Ascorbic acid.
- b) The studies of fungus infecting Acalypha ciliata Forsk. (Euphorbiaceae) has contraversial taxonomic position as Uncinula (Pirozynski, 1965; Braun, 1981), Erysiphopsis (Sathe, 1969), Salmonomyces (Chiddarwar, 1959; Kamat and Patwardhan, 1967).

Cytological, sexuality and developmental studies done here show individuality of this fungus as follows :-

- 1) There is a sexual reproduction by gametangial contact.
- 2) Ascogonia and antheridia are functional.
- 3) Asci are formed from ascogenous hyphae.
- 4) The centrum development is Phyllectinia type.
- 5) The basic chromosome number is $n=5$.
- 6) There is a post meiotic degeneration of nuclei even before ascosporogenesis begins and formation of only one mature ascospore.

- 7) Presence of single, almost sterile ascospore, slightly swollen bases of appendages and neither totally uncinulate nor totally ascicular apices and the chromosome number is unlike that of Uncinula (n=4) and like that of Phyllactinia (n=5). These facts support cytological separation of this fungus into a new genus Salmonomyces as created by Chiddarwar (1959) and supported by Kamat and Patwardhan (1967).