Chapter 7

CORTICOLOUS MYXOMYCETES; LIFE-CYCLE, TAXONOMIC ORDER and LABORATORY CULTURE

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Introduction

The myxomycetes, also refer to as slime molds or myxograstrid are a group of fungus-like organism usually found and sometimes abundant in terrestrial ecosystem (Martin & Alexopoulos, 1969). They feed on bacteria and other microorganisms, on plant parts and plant remains (decaying logs, dead leaves*)* (Lado, 2001). They are heterotrophic motile organisms and produce spores as a mechanism for reproduction and dispersal. Under unfavorable conditions, the spores stay dormant for several years and when conditions are favorable they germinate to a mature fruiting body. Most species are unseen or sporadic and requires the use of microscope to see them, the fruiting stage otherwise called the reproductive stage in the life cycle of some myxomycetes can achieve macroscopic dimension and can be collected just like the fungal sporocarp and preserved for studies. Myxomycetes compose of a distinct and homogenous group of about 1000 species (Lado, 2001).

The myxomycetes spore germination, and subsequent stages (myxamoebae, swarm cells and plasmodia) along with details of fruiting body formation (aethalia, sporangia, plasmodiocarps) were first demonstrated by Heinrich Anton de Bary who is often refer to as the father of mycology (Martin, 1958).

As describe by A.de Bary, spore germination could give rise to one or two pleomorphic cells some of which could be flagellated and the other non-flagellated. The non-flagellated also called the myxamoebae is capable of forming pseudopodia and they feed on bacteria etc. same way as the amoebae. The flagellated cells also known as the myxoflagellates can swim unlike the non-flagellated cells but they have the same feeding mechanism as the non-flagellated. The myxamoebae multiplies by division under favorable conditions and later unites to form a plasmodia. The plasmodia increase in size and from these the fruiting bodies arise. Since he considered them to be animals, he gave the name Mycetozoa (meaning fungus-animal) (Martin, 1958). This name was accepted by some authors but myxomycetes is the name commonly used, argued that myxomycetes relation to fungi is less than that of amoeba. This argument was supported by researchers after many advance researches were conducted. Acquiring fructification does not make them be categorize in a fungal group also the capillitial found in the sporangia are not homologous with that of

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magnification of x10 to x20 should continue every two or three days for about two weeks. After this time, it may be necessary to inspect the cultures at less frequent intervals.

When specimens are harvested, they should be removed from the bark with a fine mounted needle or with fine watch-maker forceps. To prepare microscope mounts, the spores should be removed by repeatedly dipping the sporangium in a drop of Hoyer's medium on a slide to enable details of the capillitium to be readily seen. In order to prevent the preparation from drying, a nail varnish is applied to the rim with a small brush. Slides and specimens should be labelled to show the substrate, locality, date of collection of bark sample, date of setting up the moist chamber, date of harvesting and the scientific name of the specimen. Both microscopic and macroscopic observations are performed for taxonomical approach and identify with the aid of listed valuable resources Farr (1976, 1981), Ing (1999), Lado & Pando (1997), Martin & Alexopoulos (1969), Mitchell (2013), Stephenson & Stempen (1994), and internet sources which are related to the subject, etc.

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