CLASSIFICATION OF MYXOMYCETES

Classification of the Myxomycetes with a few modification is somewhat uniform, at least in subgroupings, up to the order and sub-order. G. Lister (1911, 1925), recognized two sub-classes: (1) Exosporae, bears spores exogenously, includes only one order with single family which in its turn includes single genus *Ceratiomyxa* Schroeter. (2) Endosporae possesses spore mass within non-cellular covering called as peridium. Endosporae is subdivided into two orders: (i) Amaurosporales - includes the members of dark spores. (ii) Lamprosporales – includes the members having bright coloured spores. With few modification it was followed by Hagelstein (1944). He grouped Endosporae into the order: (i) Amaurochaetales, with violate brown or purple gray spores; (ii) Cribrariales with variously coloured spores, other than violate brown or purplish gray. The main confusion in this classification is that Hagelstein (1944), placed *Diderma* Fr. and *Didymium* Schrad., apart into two distinct families which seems to be unjustifiable. Because these two genera can hardly be distinguished without the nature of the lime. Similarly *Tubifera* Gmel., *Reticularia* Bull. (= *Enteridium* Ehren. in the present concept) and *Lycogala* Mich., are placed in Tubulinaceae, Reticulariaceae and Lycogalaceae respectively. Similarly the genus *Trichia* Haller and *Arcturia* Wiggers, were placed into Trichiaceae and Arcyriaceae and at the same time *Perichaena* Fr., was separated from its close genera like *Oligonema* Rost., *Calonema* Morg., and *Hemitrichia* Rost. The later three placed together in Trichiaceae and *Perichaena* Fr. in Arcyriaceae.

Most of the authors classified Myxomycetes according to Macbride & Martin's (1934), treatment. Bessy (1950), treated Myxomycetes as an order Myxogastrales of Mycetozoa and directly divided it into 14 families. Smith's (1955), classification seems to be more revised. He raised Myxomycetes to the rank of a class and divided it into two sub-classes i.e. Exosporae and Endosporae which seems to be similar with the classification of Macbride & Martin (1934). Martin (1949), revised the classification, which was followed by Alexopoulos (1952, 1962). Where in Alexopoulos treated Myxomycetes as one of the classes of the fungi, and divided it into two sub-classes, and used the name Myxogastres instead of Endosporae. The Myxogastres was divided into Liceales, Trichiales, Stemonitales and Physarales.
Martin (1960), revised his earlier classification for the fungi, divided the division Mycota into two sub-division i.e. Myxomycotina and Eumycotina. Former with a single class Myxomycetes, consist of two sub-classes i.e. Ceratiomyxomycetidae and Myxogastromycetidae. In (1961), he raised the family Echinosteliaceae to the rank of order Echinosteliales. Nannenga-Bremekamp (1967), separated the genus Schenella Macbr., from Stemonitaceae and established a separate monogenic family Schenellaceae. Martin and Alexopoulos (1969), outlined the grouping of Myxomycetes based on Martin’s scheme of classification. The sub-class Ceratiomyxomycetidae consisting of single order of monogenic family Ceratiomyxaceae. The sub-class Myxogasteromycetidae is divided into five orders i.e. Liceales, Echinosteliales, Trichiales, Physarales and Stemonitales but did not account the family Schenellaceae. Arcyriaceae of Hagelstein’s treatment merged with Trichiaceae. In this outline, members with lime deposition and dark coloured spores placed in Physarales, and limeless members with dark colour spore placed in Stemonitales except Diachea Fr., even through it invariably contains granular lime in the stipe and columnella. This system was followed by Thind (1976).

The order Stemonitales was included in the sub-class Myxogasteromycetidae. However Ross (1933), on the basis of sporophore development raised Stemonitales to the rank of sub-class Stemonitomycetidae equivalent to the sub-class Ceratiomyxomycetidae and Myxogasteromycetidae. The sporophore development is subhypothallic in Myxogasteromycetidae and it is ephihypothallic in Stemonitomycetidae. Ainsworth (1973), accepted the treatment. It was followed by Alexopoulos (1973), Farr (1976), Webster (1980), Lakhapal and Mukerji (1981).

Traditionally the genus Clastoderma Blytt. and Barbeyella Maylan, were placed in Stemonitaceae (Lister, 1925; Martin, 1934, 1949 ; Hagelstein, 1944 ; Nannenga-Bremekamp, 1967 ; Martin & Alexopoulos, 1969). Martin (1960), erected the order Echinosteliales. Brooks (1967), discussed the distinctive type of sporocarp developmental character of Stemonitis Roth. and related genera Clastoderma Blytt and Barbeyella Meylan in common with Echinostellium Bary which have subhypothallic development and vegetative phase protoplasmodium. Where as in rest of the genera of Stemonitaceae have ephihypothallic development and vegetative phase is aphanoplasmodium. Therefore Alexopoulos & Brooke (1971), separated Clastoderma Blytt and Barbeyella Meylan from Stemonitaceae and erected a separate family Clastodermataceae and placed it under the order Echinosteliales.
In (1942), Hagelstein suggested the erection of family Elaeomyxaceae for the genus *Elaeomyxa* Hagelst. In his monograph (1944), he mentioned the family under the list, but described the genus under the family Stemonitaceae. Alexopoulos (1973), Keller & Candaussau (1973), Blackwel (1974), concluded that stuffed stipe of *Elaeomyxa* Hagelst. shows close affinity with Stemonitales, but rather indicative of a subhypothallic mode of development. On this basis, Keller (1976), merged *Reticularia* Bull, with *Enteridium* Ehren. Farr (1982), erected the family Enteridiaceae.

Alexopoulos & Mims (1979), classified the kingdom Mycetae (Fungi) into 3 division, of these Gymnomycota divided into 2 dub-division i.e. Acrasiomycotina for (Acrasiomycetes) and Plasmodiogymnomycotina. Later is divided into the class Protosteliozymycetes (for protostelids), and the Myxomyctes. The Myxomyctes include three sub-classes i.e. Ceratiomyxomycetidae, Myxogastromycetidae and Stemonitomycetidae. Hawksworth, Sutton & Ainsworth (1983), in Ainsworth & Bisby's *Dictionary of Fungi* raised Ceratiomyxomycetidae to the rank of class of the Division Myxomycota along with other classes.

Martin, Alexopoulos & Farr (1983), outlined the synopsis of the subordinate grouping of recognized taxa of Myxomyctes segregated into 3 sub-classes.

I. Sub-class: Ceratiomyxomycetidae includes single order of a monogeneric family Ceratiomyxaceae.

II. Sub-class: Myxogasteromycetidae, consists of 4 orders i.e. :
1. Liceales (Liceaceae, Enteridiaceae, Cribririaceae)
2. Echinosteliales (Echinosteliaceae, and Clastoderataeace)
3. Trichiales (Dinemaceae and Trichiaceae)
4. Physarales (Elaecomyxaceae, Physaraceae, Didymiaceae).

III. Sub-class: Stemonitomycetidae, include single order Stemonitales which in its turn divided into 2 families, i.e. Schenellaceae and Stemonitaceae.

In the present work for specific diagnosis and validity, nomenclature, work of Martin and Alexopoulos (1969) is followed until otherwise; for the treatment of the genera and higher taxa, system of Martin, Alexopoulos & Farr (1983) is followed.