CLASS: CERATIOMYXOMYCETES Martin


Spores borne externally on individual hair spicules, which are borne on the surface of erect, often branched or dendroid, sometimes poroid or morchelloid or effused sporophore. Spores on germination produce a single amoeboid, quadrinucleate protoplast, which after a thread phase and mitosis is transformed into 8 haploid swarm cells.

Includes single order.

ORDER: CERATIOMYXALES Martin ex Farr and Alexopoulos

*Mycotaxon, 6, 213,1977.*

With the characters of subclass.

Includes single family.

FAMILY: CERATIOMYXACEAE Schroet.


Includes single genus *Ceratiomyxa* Schroet.
CERATOMYXA Schroeter


The genus Ceratiomyxa is characterised by the fructification erect or prostrate, simple or branched, solitary or fascicled, poroid, dendroid or morchelloid sporophore, bearing externally on its surface unispored small spicules. Hypothallus indistinct or well developed. Spicules small, spine-like, bearing deciduous, hyaline, smooth-walled spores.

Schroeter (1889), erected the genus Ceratiomyxa, described C. musida (Pers.) Schroet., based on the type species Isaria musida Pers. (1794), now both of which are being treated as synonyms of C. fructiculosa Macbride.

Since the erection of the genus few species have been described. Martin and Alexopoulos (1969) described and illustrated 3 species of the genus from the world. Olive and Stoianovitch (1979) described C. hemispherica as a new one. However, in Ainsworth and Bisby's Dictionary of the Fungi (1983), and The Genera of Myxomycetes of Martin, Alexopoulos and Farr (1983), mentioned only three species of the genus from the world.

From India the genus was reported for the first time by Bruhl and Gupta (1927), described C. fructiculosa from West Bengal. C. sphaerosperma Boedijn was described by Agnithrudu & Chinnappa (1969), from Assam and Karnataka. The genus as a whole represented from India with the two species only. Only one species of the genus is being reported for the first time from Gujarat presented herewith.
1. *Ceratiomyxa fruticulosa* (Mull.) Macbr.

*N. Amer. Slime-Moulds*, p. 18, 1899.


(PL. I FIG. 1)

Fructification cottony white or curd white, in small clusters, about 0.3-1 mm tall. Sporophore prostrate to erect, weak, hollow cylindrical or subcylindrical thin walled, 0.02-0.30 mm broad at the base, branches arise just above the base of the sporophore and expanded at dichotomy bearing cluster of fine branches above, forming a spongy structure. The entire sporophore is covered with spiny spicules on which single spore is borne externally; spicule hyaline, thine, erect, pointed, upto 12-16 μm long, thin walled arising from a hexagonal base. Spores globose or oval, 5.6-6.5x7.5-9.4 μm in diameter, hyaline, thin walled, smooth.


**DISTRIBUTION:** INDIA: Assam (Agnihotrudu 1959); Orissa (Ghosh & Dutta 1969); T. Nadu (Agnihotrudu & Chinnappa 1969); Uttar Pradesh (Thind & Rehills 1957); W. Bengal (Bruhl & Gupta).


(PL. I FIG. 2)

Fructification densely gregarious, crowded, forming spongy mass, spreading up to 3 x 1 cm in wide, cottony white, turning turbid with age, sporophore arising from brown to dark membranous hypothallus, 0.8-5 mm in total height, thin walled, 2-4 times dichotomously branched, dendroid, hence sporophore appears to be prostrate and entangling forming spongy structure, 0.07-0.33 mm broad at base, branches of first dichotomy are 0.02-0.22 mm broad, terminal branches are 0.01-0.08 mm broad with globular or spatulate ends. Occasionally branches unite to form reticulate, anostomosing pattern. The entire sporophore is covered with spiny spicules, arising from polygonal bases, spicules are hyaline erect, tapering at the apex, 9.4-14 µm long, terminal spicules may be curved. Each spicule bearing single spore at apex. Spores pallid in mass, hyaline under transmitted light, globose or oval 6-7.5 x 8.5-10 µm in diam. smooth.


**DISTRIBUTION**: INDIA: Uttar Pradesh (Third & Rehill 1957). Lister (1925), Macbride and Martin (1934) recognised six varieties of *Ceratiomyxa fruticulosa* i.e. var. *flexuosa* Lister, var. *poroioides* (Alb. & Schw.) Lister, Var. *Caesia* (Jahn.) Lister, var. *arbuscula* Berk. & Br., Var. *filiforme* Berk & Br. and
var. rossella Cejp.

Thind & Rehill (1957) described var. arbuscula Berk. & Br. The population described in the present work is of two distinct types. Population from Mulchond (Sp. No. 3074, 3357-3360) are similar to the Indian population described by Thind & Rehill (1957) for the var. arbuscula Berk. & Br. with respect to crowded habit, size of sporophore and profuse branching. Whereas population from Shamghan and Subir are similar in habit, size and branching of sporophore described for typical variety.

**SUMMARY AND DISCUSSION**

Single species of the genus i.e. Ceratiomyxa fruticulosa (Mull.) Macbr., has been studied for the first time from Gujarat. The genus is represented only by two species from India, out of four species from the world.

The genus Ceratiomyxa is the only genus of the 'Myxomycetes' bearing spores externally (Exosporae). The sporophore of the fruiting was regarded as branches of hypothallus, spicules as a stipe and spore as a single spored sporangium (Gilbert, 1935; Olive, 1970; Schaeetz, 1972). Hence, Olive (1970, 1975) considered Ceratiomyxa more closely related to Protostelids and accordingly transferred the genus into Protosteliomycetes. However, it has been shown that, "in Ceratiomyxa, basal portion of the sporulating structure as well as the branches, when present are regarded constituting the fructification. There is often a thin
colourless layer on the substratum under the fructification and the use of the term hypothallus in Ceratiomyxa must be restricted to that manner". (Martin, Alexopoulos & Farr, 1983).

Chromosomal number in 'Endosporous Myxomycetes' vary from n=4 to 90 (Collins, 1979), Ceratiomyxa fruticulosa the only studied exosporous species has n=8 chromosome number. According to Collins (1979), polyploidy seems to be wide spread in other species. At the chromosomal level it is close to 'Endosporous Myxomycetes' rather than Protostelids.
CLASS: MYXOMYCETES Link


KEY TO THE SUBCLASSES OF MYXOMYCETES

1. Sporophore development epiphypothallic, stipe when present limeless, hollow or entirely fibrous

.....STEMONITOMYCETIDAE

1. Sporophore development subhypothallic, stipe when present usually stuffed with lime, cells or refuse matter

............ MYXOGASTEROMYCETIDAE