research article | International Journal of Plant Sciences, (July, 2010) Vol. 5 Issue 2 : 544-546

Taxonomic studies of *Stemonitis* species from the Marathwada region

R.M. KADAM, R.B. ALLAPURE AND R.P. BIRADAR

Accepted : April, 2010

SUMMARY

India with its great diversity of habitats has long been known for its rich flora and fauna the more conspicuous plants and animals have now been described and classified adequately. The Myxomycetes flora of the Udgir region is poorly investigated. A list of the *Stemonitis* species of the Udgir region is given in this paper. Since the Myxomycetes flora of this region is insufficiently studied and the literature is minimal, the information presented in the article is based mostly on the analysis of the author's own materials. This inventory of the flora of Myxomycetes of the Udgir region reveals 3 species of *Stemonitis*. The information is yet to be updated in accordance with new data on taxonomy and nomenclature of the species. However, much has been learnt about the Myxomycetes of India and much still remains to be discovered.

Key words : Taxonomy, Myxomycetes, *Stemonitis* Spp

The present study deals with the taxonomic study of some species of *Stemonitis* from Udgir region. During rainy season (June, 2003 to Dec, 2003) maximum collection of *Stemonitis* was done along with substratum and they are cultured in the laboratory on agar media along with *E. coli* bacterium for the study of plasmodium.

It must be mentioned here that even in cultures it is often difficult to grow plasmodia from spores. Author collected three species from Udgir region and one species of *Stemonitis* shows some different characters so it is a typical form.

MATERIALS AND METHODS

The *Stemonitis* species were collected along with the substratum on which they grow. They were immediately wrapped in a soft paper and kept in an envelope. Soon after collection, they were carefully dried and preserved. Each collection were numbered and dated separately. The monsoon season extending from June to October is the best period for the maximum collection of *Stemonitis*.

Author found these species on decaying wood and for the microscopic examination of *Stemonitis* mounting was done in water.

The spore marking were best studied only under oil immersion lens.

Correspondence to:
R.M. KADAM, Department of Botany, Mahatma Gandhi Mahavidyalaya, Ahmedpur, LATUR (M.S.) INDIA
Authors' affiliations:
R.B. ALLAPURE, Department of Botany, Maharashtra Udaygiri Mahavidyalaya, Udgir, LATUR (M.S.) INDIA
R.P. BIRADAR, Department of Botany, Shivaji Mahavidyalaya, Udgir, LATUR (M.S.) INDIA

On the basis of detailed studies on fresh collected material reveals following three species of *Stemonitis* .

Stemonitis axifera (Bull.) Macbr. (Plate-I Sporangia)
Stemonitis fusca Roth. (Plate-II Sporangia)
Stemonitis herbatica Peck (Plate-III Spore mass)

Laboratory cultivation of *Stemonitis* :

Author used the two membered cultures for the growth of *Stemonitis* plasmodium from spores. Early workers were able to grow some Myxomycetes in what may be called crude cultures which were always contaminated with bacteria. Alexopoulos (1953) sowed spores of *Didymium difforme* (Pers.) grow on crude cultures. Similarly Miller (1899) grew plasmodia on sterilized hay infusion. Kambly (1939) germinated spores of the Myxomycetes in distilled water and transferred the swarm cells to nutrient agar plates and thereby secured typical plasmodia.

We cultured *Stemonitis* by using spore suspension on nutrient agar medium. Cohen (1939) was the first to study this problem more critically by growing pure cultures of plasmodia of the Myxomycetes in association with pure cultures of a known species of a bacterium. Growth of a particular Myxomycetes species in association with particular species of a bacterium was called a two membered culture. In our culture, which maintained at 25^0C temperature showed no growth of plasmodia.

Plasmodia could grow in association with *E. coli* at 20^0C temperature. But yet sporangia could not develop from these plasmodia.

RESULTS AND DISCUSSION

The present study reveals that the third species (Plate 3 spore mass) from the Udgir region collected on 20th

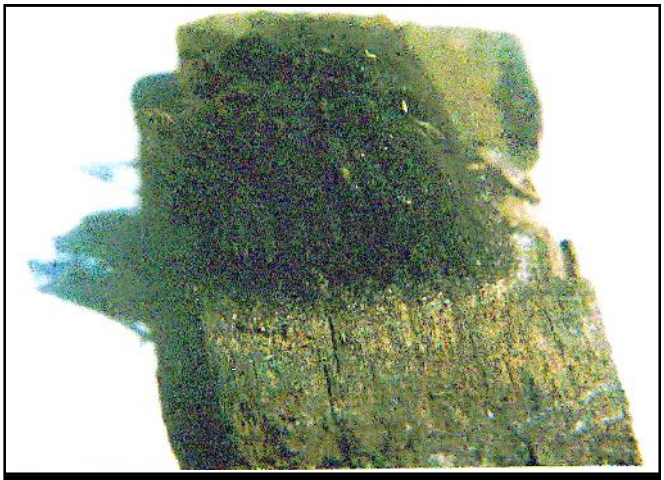

Plate 1 : *Stemonitis axifera* (Bull.) Macbr. (Sporangia)
Date of collection : 26th June, 2003
Habitat : Rotten wood

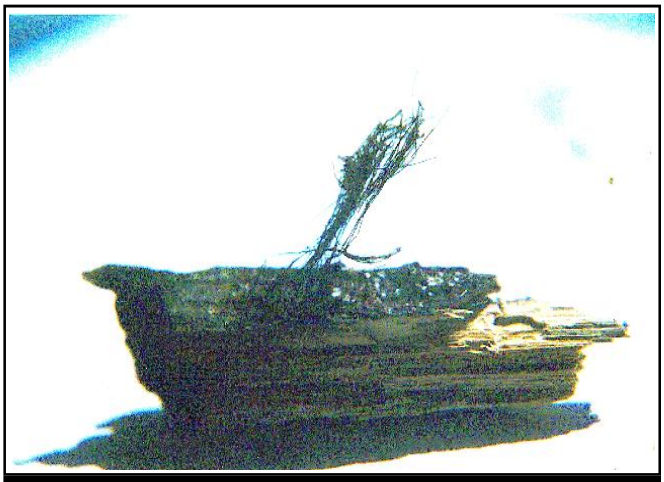

Plate 2 : Stemonitis fusca Roth Macbr. (Sporangia)
Date of collection : 10th August, 2003
Habitat : Dead and Rotting wood

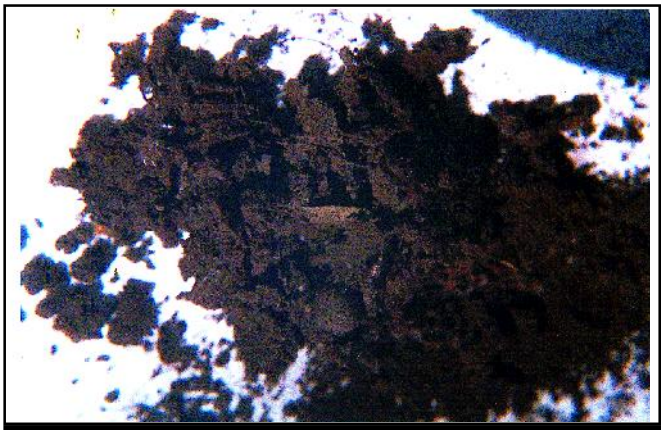

Plate 3 : Stemonitis *herbatica* Peck (Spore mass)
Date of collection : 20th August, 2003
Habitat : Dead Bamboo wood

Plate 4 : Showing growth of Plasmodium from spore after four days along with *E. coli*

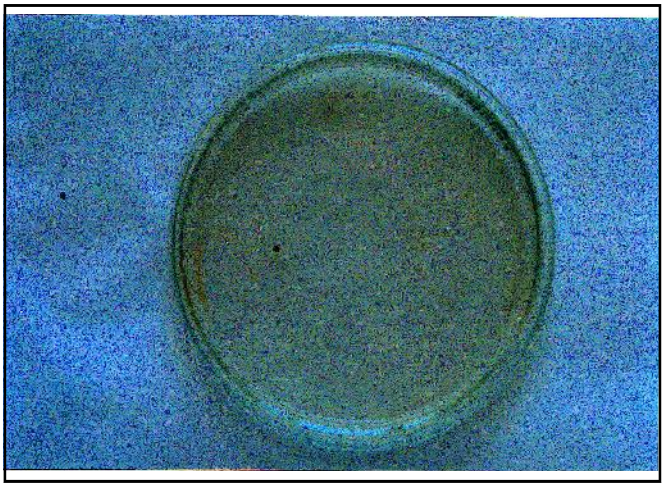

Plate 5 : Showing growth of Plasmodium from spore after seven days along with *E. coli*

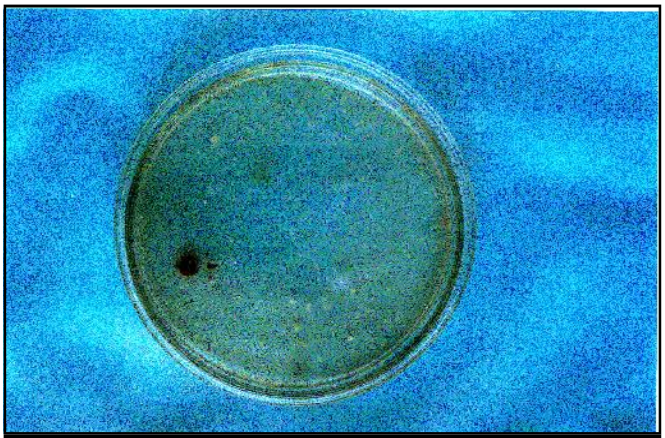

Plate 6 : Showing growth of Plasmodium from spore after fifteen days along with *E. coli*

August, 2003 did not exactly resembles to *S. herbatica* peck. However, it differs in having its spores that were not exactly globose, they are elongated and spindle shaped and measured 9-10 µ in diameter and they were smooth walled. As in *S. herbatica* peck. spores were dark brown in mass, violaceous brown by transmitted light, globose, minutely but distinctly verrucose 7-8 µ in diameter.

From above cited information it remains as an atypical form of *Stemonitis*. Thus, the work carried out so far indicates this was a atypical form and needs further study as to raised at species level. Similarly, I have my doubts regarding the spore shape and dimensions. Besides as the physiological and genetic study of this form is concerned it would be desirable to decide whether this is distinct species or not.

REFERENCES

Alexopoulos, C.J. (1953). The laboratory cultivation of *Stemonitis*. *Am. J. Bot.,* **46**: ibid. 47: 37-43.

Cohen, A. L. (1939a). Nutrition of the Myxomycetes. I. Pure culture and two membered culture of Myxomycetes plasmodia. *Bot. Gaz*., **101**: 243-75.

Cohen, A. L. (1939b). Nutrition of the Myxomycetes. II. Relations between plasmodia, bacteria, and substrate in two-membered cultured. *Ibid,* **103**: 205-24.

Gilbert, H.C. (1934). Three new species of Myxomycetes Univ. Iowa Stud. *Nat. Hist.,* **16**: 153-59

Kambly, P.E. (1939). Some physiological characteristics of Myxomycetes swam cells. *Am. J. Bot*., **26**: 88-92.

Martin, G.W. (1932). Systematic position of the slime moulds and its bearing on the classification of the fungi. *Bot. Gaz.*, **93**: 421-35.

Thind, K.S. (1973). The Myxomycetes of India-ICAR, New Delhi.

****
*****