



Full Length Article

Myxomycetes of Pachmarhi Hills (India) – xiii: The Genus *Didymium* Schrad. (ii)

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ABSTRACT

Present paper deals with the Thirteenth report in this series. The genus *Didymium* Schrad. Was studied with twelve species, out of these six species are being published in earlier paper, and rest of the six species are represented in this report i.e. *D. nigripes* (Link). Fried, *D. simlensis* Lakhanpal & Mukerji, *D. squamulosum* (Alb. & Schw.) Fries, *D. tubi-crystallinum* Nann.-Brem. & Critchfield, *D. vaccinum* (Dur. & Mont.) Buchet and *D. verrucosporum* Welden. Of these, *D. tubi-crystallinum*., has been collected for the first time since erection of the species, whereas *D. vaccinum* collected for the second time from Indian flora and *D. simlensis* Lakhanpal & Mukerji is the second report from Indian flora.

Key Words: *Didymium*, *Myxomycetes*, Pachmarhi Hills.

INTRODUCTION

The Myxomycetes (Plasmodial slime moulds) are a group of fungus like organisms usually present in terrestrial ecosystems. It possess an assimilative phase of free living, multinucleate mobile mass of protoplasm, called as the plasmodium, and a sporulating phase consisting of a mass of spores typically borne in a simple or complex membranous or tough, non-cellular spore case. In addition to spores, there is a system of free or netted threads forming a capillitium or pseudocapillitium. Myxomycetes are common inhabitants of forest ecosystems throughout the world. Most of the studies have focused on species characteristically associated with decaying wood or bark surface of living trees and debris.

The floristic study of Myxomycetes was practically neglected; there is no any report except Nanir and Rokade (1991), who has reported few species from Bhimbetaka. As a whole state remains virgin, therefore the studies of this region undertake to contribute the study of Indian Myxomycetes floristic.

MATERIALS AND METHODS

The present work is based on Myxomycetes floristic exploration from the region. An extensive and intensive field works was undertaken to collect the maximum number of specimen of Myxomycetes. Visits to different localities were made frequently. Specimens were collected along with their natural substrate For the preservation of the specimens, empty cigarette boxes were used. Paper trays of the proper size were prepared so as to get it fit inside the box tray.

The specimen along with its natural substrates was cut into suitable size and glued with the fevicol adhesive in the centre of the paper tray. Each box was provided with field notes of respective specimen. The accession number was written on the specimen box and on paper tray also, and entered in accession register. After observation, specimen boxes were stored and placed in 'Generic' boxes provided with naphthalene ball to prevent insect entry.

In rainy season, the collected specimens were dried in incubator or oven at 40° c. But sun drying was found to be most suitable for maintaining natural characters. Artificial drying sometime leads to the shrinkage of weak and flaccid stalk, hardening of wet sporangia and cracking of peridium. All specimens were identified and confirmed with the help of Martin & Alexopoulos (1969), sometimes Lister (1925), Hagelstein (1944), Farr (1976), were followed Monographs on Indian Myxomycetes of Thind (1977), Lakhanpal & Mukerji (1981), were of almost indispensable for final confirmation. Concerned literature in this regards were also studied.

RESULTS AND DISCUSSIONS

1. *Didymium nigripes* (Link). Fried. Syst. Myc. 3, 119, 1829.

The species is distinguished by its dark stipe, columella and peridium, minutely warted spores of 7-10 um in diam., with clusters of warts. The population studied is smaller in size, as compared to earlier Indian reports. Lister (1925), described var. *xanthopus* (Ditm.) A. Lister, from W. B., is now treated as distinct species, *Didymium iridis* (Ditm) Fr. (Fig. 1. a, b).

Collection Examined: SPN.GTK / 4170, Oct. 1989, 4708, Sept. 1990, Badamahadeo; 4709, Oct. 1989, Lady point; 4870, Aug. 1997, Old church, Pachmarhi (M. P.). On dry leaves.

Distribution: India: Assam (Agnihotrudu, 1959); Delhi (Singh & Pushpavathy, 1965); H. P. (Lakhanpal and Mukerji, 1981); Karnataka (Indira, 1968); T. N. (Agnihotrudu, 1956); U. P. (Thind & Sohi, 1956); W. B. (Lodhi, 1934); Gujrat; M. P; M. S.

2. *Didymium simlensis* Lakhan. & Muker. Rev. de Mycologia, 62, 1970.

The species is characterized by depressed globose, sporangia; lime duplex; small flattened or top shaped columella; strongly warted and subreticulate spores. The present population differs from type description in having large sporangia and smaller spores.

The species is closely related to *D. intermedium* Schroet, by duplex lime in peridium and stalk, strongly warted, subreticulate spores; however, distinguished from it by the presence of white, limy, rotate, hypothallus, scattered sporangia and flattened well developed columella. It is also close to *D. squamulosum*, (Alb. & Schw.)

Fries., but differs from its duplex lime, smaller columella and strongly warted, subreticulate spores.

The species was known from the type locality (Simla), with its type collection only. It has been collected from M. S. and M. P. The present report is the second report of the species from Indian flora. (Fig. 2. a, b).

Collection Examined: SPN.GTK./ 4878, Aug. 1997, M. E. S. Ininspectors Bunglow, Pachmarhi (M. P.). On dry leaves.

Distribution: India: H.P. (Lakhanpal and Mukerji, 1979); M. P. and M. S.

3. *Didymium squamulosum* (Alb. & Schw.) Fries. Symb. Gast., p. 19, 1818.

The species is characterized by depressed globose, white, umblicate sporangia; short, stout, rugose, limy stipe; small, rotate, venulose, limy hypothallus; globose or hemispheric columella; corrugated limy deposition on peridium and verrucose spores.

The present population is smaller to Indian populations studied by earlier workers. (Fig. 3. a, b, c, d).

Collection Examined: SPN.GTK / 4717, Oct. 1989, Pathar Chattan, Pachmarhi (M.P.). On stick.

Distribution: India: Delhi (Singh & Pushpavathy, 1965; Lakhanpal & Mukerji, 1981); H.P. (Lakhanpal, 1973; Thind, 1977); Punjab (Thind, 1977); T. N. (Agnihotrudu, 1956); U. P. (Lakhanpal & Mukerji, 1981; Thind & Sohi, 1956); W.B. (Lodhi, 1934; Thind, 1977); M. P., M. S.

4. *Didymium tubi-crystallinum* Nann.-Brem. & Critchfield. Proc. N. ned. Akad. Wet. C, 91 (4), 416-418, 1988.

Capillitium containing lime suggests to be a species of *Physarum*. However, crystalline lime (although not stellate) on peridium suggests clearly to be a species of *Didymium*. *D. tubi-crystallinum* Nann. - Brem. & Critchfield, is quite distinct in its capillitium, aeriolate peridium, nature of lime crystals. Colourless capillitium may sometimes be found in *D. squamulosum*, but is no way, even in plasmodiocarpous form of latter is comparable with *D. tubi-crystallinum* Nann.-Brem. & Critchfield. In type description, size of the plasmodiocarp is smaller (upto 20 mm long), capillitium has wiser swellings and spores are somewhat less conspicuously marked as compared to the present population.

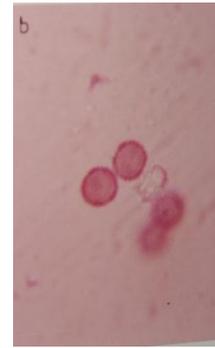
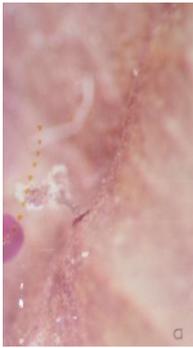


Fig. 1. (a)

Fig. 1. (b)

Fig. 2. (a)

Fig. 2. (b)

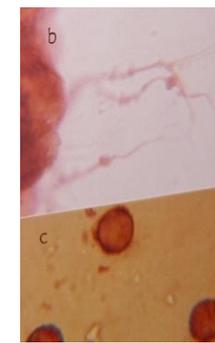
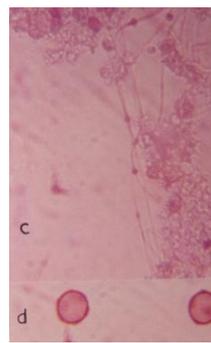


Fig. 3. (a, b)

Fig. 3. (c, d)

Fig. 4. (a)

Fig. 4. (b, c)

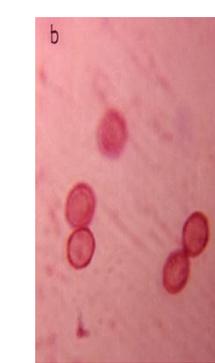
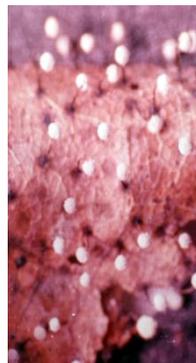
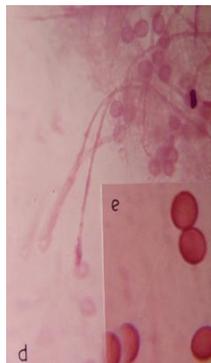
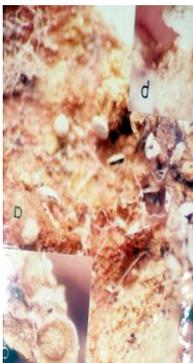


Fig. 5. (a, b, c)

Fig. 5. (d, e)

Fig. 6. (a)

Fig. 6. (b)

Fig.1. *Didymium nigripes* (Link). Fried.

Fig.2. *Didymium simlensis* Lakhan. & Muker.

Fig.3. *Didymium squamulosum* (Alb. & Schw.) Fries.

Fig.4. *Didymium tubi-crystallinum* Nann.-Brem. & Critchfield.

Fig.5. *Didymium vaccinum* (Dur. & Mont.) Buchet.

Fig.6. *Didymium verrucosporum* Welden.

However, veined, netted, terete plasmodiocarps; regularly wrinkled (aeriolate) peridium forming surface reticulum of minute ridges in which rhomboidal lime crystals are withheld; presence of columella alongwith length; capillitium with swellings containing crystalline

lime 'agglomeration' spores conspicuously warted and with lax reticulum are the marks of the species.

The species was known from the type locality i. e, from California. The species has been collected and being described for the first time from eastern hemisphere in general and from Indian flora in particular. (Fig. 4. a, b, c).

Collection Examined: SPN. GTK / 4814, Aud. 1997, Govt. Lakkedkot, Pachmarhi. (M. P.). On dead wood.

Distribution: India: M. P.

5. *Didymium vaccinum* (Dur. & Mont.) Buchet. Soc. Myc. 36: 110. 1920

This species is characterized by the prominent columella with the peridial attachment to its margin and strongly verrucose spores. The population studied in this work have spores warty, warts in straight and curved lines which from the lax reticulum. These characters differentiate it from the Indian population described earlier by Ghosh & Dutta (1963). It was reported from Indian flora for the first time from Orissa only, and this is a second report of its kind from India. (Fig. 5. a, b, c, d, e).

Collection Examined: SPN. DMJ / 2850, 2882, Oct. 1992, Pachmarhi (M. P.). On bark.

Distribution: India: Orissa (Ghosh & Dutta, 1963); M. P.; M. S.

6. *Didymium verrucosporum* Welden. Mycologia, 46, 98, 1954.

D. verrucosporum, is the member of *D. nigripes* complex. It differs from that species in its pure white columella and delicate colorless peridium and from *D. iridis*, by darken and strongly warted spores with clusters of warts and lines. The species can be characterized by its nodding sporangia; long, slender, subulate stipe darken towards the base; yellow brown or violaceous capillitium bearing swellings and distinctly warted spores with clusters and line of warts. Lakhanpal (1973) described the species for the first time from India, in which he did not observe the line of warts on spores. Populations studied in the present work are smaller in size. (Fig. 6. a, b).

Collection Examined: SPN.GTK./ 4216, 4218, Sept. 1986, Jambudwip; 4219, Sept. 1986, Sangam; 4220, Oct. 1992, 4710, Oct. 1985, 4711, Oct. 1989, 4712, Sept. 1990, Badamahadeo; 4796, 4877, Aug. 1997, M.E.S. Inspector bungalow; 4871, Aug. 1997, Beefall, Pachmarhi (M.P.). On dry stick, newspaper.

Distribution: India: Delhi & H.P. (Lakhanpal, 1973); M.P.; M. S.

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