

Two new records of Sarcoscyphaceous fungi from India

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Two Sarcoscyphaceous discomycetes i.e. *Acervus episparti* (Berk. & Br.) Pfister and *Microstoma protracta* (Fr.) Kanouse are being reported along with their detailed description for the first time from India.

Key words : Sarcoscyphaceous, *Acervus episparti*, *Microstoma protracta*.

INTRODUCTION

Uppal *et al.* (1935) reported the occurrence of *Peziza epispertia* Berk. & Br. from Maharashtra, India. Pfister (1975) while monographing the genus *Acervus* Kanouse studied a large number of species from different herbaria and transferred many species to it. One of us (VP) while looking for Sarcoscyphaceous fungi in PAN herbarium Chandigarh came across *Acervus episparti* (Berk. & Br.) Pfister. The species had never been published from India in this combination. It was studied thoroughly and modern description and illustration was prepared. Another species of *Acervus*, collected in the neighbourhood of Banaras Hindu University was reported as *A. flavidus* (Berk & Curt.) Pfister by Pant (1978). With the addition of *Acervus episparti* there are thus confirmed reports of two species of this genus from this country.

Yet another unreported fungus, encountered in PAN herbarium, labelled as *Microstoma* sp. has been described by Thind (1970). He had given a detail description of this specimen hazarding a guess that it may be a new species of *Microstoma* Bernst. He, however, did not assign any specific epithet for the collection. The collection was also restudied and the following description is provided.

MATERIALS AND METHODS

Standard method of reviving the dried specimens and

subsequent study of macroscopic and microscopic characters were made.

DESCRIPTION

Acervus episparti (Berk. & Br.) Pfister, Occas. Papers Farlow Herb. of Crypt. Bot. 8:3, 1975.

= *Peziza epispertia* Berk. & Br., J. Linn soc. Bot. 14: 103, 1873.

Apothecia upto 2.1 cm in diam, gregarious, sessile, deep to shallow cupulate when young later extending and finally margin becomes wavy turning inwards or outwards, soft fleshy, seated on conspicuous thread-like, yellow mycelium, external surface orange yellow, smooth. In section : excipulum upto 815 μ m thick, not well demarcated into ectal and medullary zones, textura intricata, hyphae up to 18 (-32) μ m wide, thin walled, densely filled with shining granular contents, branched, compact and mostly vertically oriented perpendicular to the external surface towards hymenium, becoming swollen (up to 35.6 μ m) and short septate towards external surface somewhat forming a zone (about 200 μ m thick) of cellular elements, hypothecium in distinct (based on Kaushal, 1982, unpublished). Asci 100-130.5 x 5-6.5 μ m, 8-spored, cylindrical J(-). Ascospores 5.0-8.5 x 3.5-5.0 μ m, ellipsoid, hyaline, smooth 1-2 guttulate. Paraphyses upto 5.0 μ m wide cylindrical and stout.

Habitat : On wet manured soil mixed with forest litter.

Specimen examined : PAN 28237, on wet manured soil mixed with forest litter under pure Teak forest. Umling Shillong, Meghalaya Leg. R. Kaushal, Sept. 28, 1979.

Other specimens examined : R.B.G. Kew, Petch 6555 *Phaedropezia epispartia* Berk. & Br., Parade-niya. Nov. 1927, Herb. Hort. Bot. Reg. Kew (Based on Pant, 1978).

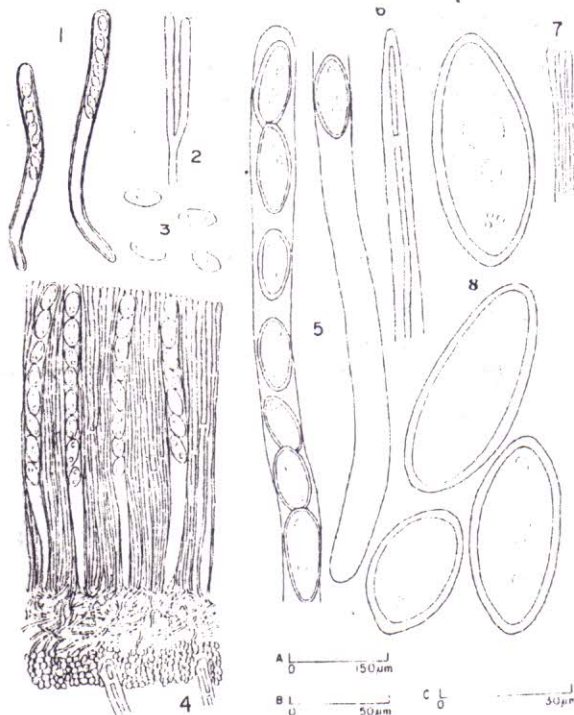


Fig. 1: *Acervus epispartius* : 1. Asci showing arrangement of spores. 2. Non-septate branched paraphyses. 3. Mature ascospores; *Microstoma protracta* : 4. Vertical section of an apothecium showing tissue structure. 5. Ascus showing arrangement of ascospores. 6. Hair showing septate lumen. 7. Paraphyses showing anastomoses. 8. Mature ascospores. Scale Lines : A for Fig. 4; B for Figs. 1, 2, 5, 6, 7; C for Figs. 3 & 8.

The ascospores in the two collections agree quite well (PAN 5.0-8.5 x 3.5-5.0 μm Vs. K. 4.5-6.5 x 3-4.5 μm). In other characters also they do not differ much and appear to be conspecific (Fig. 1.1).

Microstoma protracta (Fr.) Kanouse, Mycologia 40 : 486, 1948.

\equiv *Peziza protacta* Fr. Nov. Symb. Myc. Mantissa, Act. Reg. Soc. Sci. Upps. 3 Ser. 1:230, 1851.

Apothecia upto 1.1 cm diam and 4.5 cm in height, stipitate, usually in clusters of 4-10 to a point, hairy,

fleshy, external surface yellowish orange to reddish, fading on drying. In section : ectal excipulum made of textura angularis to globulosa tissues 40-60 μm thick, medullary excipulum upto 67-102 μm thick, gelatinized textura porrecta tissues; subhymenium upto 40 μm made of textura intricata tissue. Asci cylindrical, J(-), 8-spored, abruptly constricted at the base 466-580 x 18.0-25.0 μm . Ascospores hyaline to pale orange, ellipsoid to fusoid, narrow at the ends, smooth, filled with guttules of different sizes, 30.0-48.0(-56) x 15.5-23.5 μm . Paraphyses about 3.0 μm wide at the base and enlarged upto 4.5 μm at the tips, thin walled, septate, branched and anastomosing (Fig. 1, 2). Hairs floccose, thick, lumen very narrow, multiseptate, bases simple and attenuated, tapering upward to subacute apices, originating from external cells of the ectal excipulum. Hairs were found to undergo a typical flattening out on coming in contact with the KOH solution (2% KOH for 45 minutes and 5% for 10 minutes).

Habitat : On decomposing twigs.

Specimen examined : PAN 2181, on dead and buried angiospermic twigs, in mixed forest. Tral, Srinagar. J&K Leg. K.S. Waraich, April 19, 1967.

The above specimen was collected in the month of April as the locality from where the specimen was collected, remains snow covered during the winter months, perhaps it appears soon after the melting of snow. This peculiar time of appearance points its similarity to *M. protracta*. The Norwegian collection of this species studied by Eckblad (1968) was collected in the month of May. Schröeter (1908) and Buller (1934) also point out that this species is collected on frozen ground or after the melting of snow. The American and Canadian specimens examined by Kanouse (1948), were also mostly collected in the months of April-May. *M. floccosum* (Schw.) Raitv. the other species reported from India has however been collected in the months August to October i.e. during and after the rainy season.

The large asci in the Indian collection are closer to the Norwegian material than to the much smaller asci of the American specimens. Ascus base is no doubt constricted abruptly but neither the appendage like structure (in Thind's description) nor the slender hyphae (Kanouse, 1948) could be seen. The ascospores match those of the American and

Norwegian specimens in size and shape as well as in presence of the numerous oil globules.

This collection was treated as a possible new species

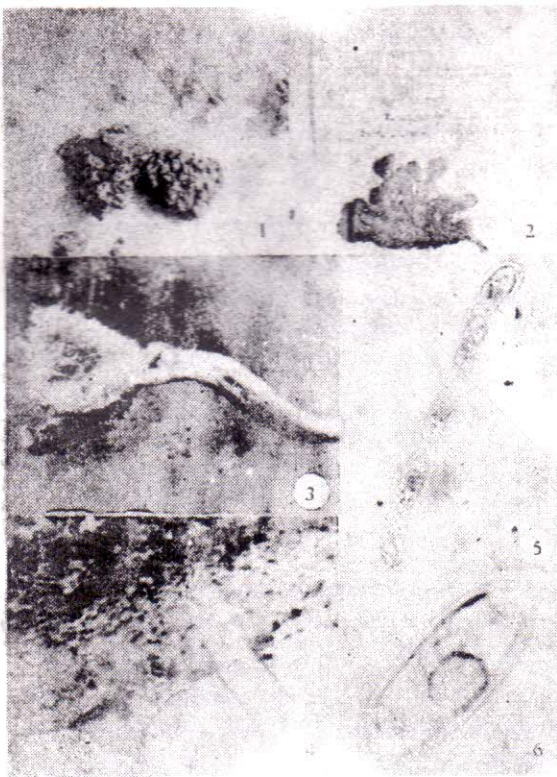


Fig. 2 : 1. Habit photograph of *Acervus epispartius* (X.4); *Microstoma protracta*. 2. Cluster of apothecia arising from the pseudorhiza (X.3.). 3. An apothecium (X2.5.). 4. Vertical section of an apothecium showing excipulum (X350). 5. 'Parse sporifer' of an ascus showing spores arrangement (X400). 6. Mature ascospore (X1100).

of *Microstoma* because according to Thind (op.cit.) its ascospores had striations like those of genus *Cookeina* Kuntze and hyaline, thick-walled, septate flexuous to erect hairs on the apothecia typical of the genus *Microstoma*. Repeated and careful examination of slides failed to bring out any trace of striations. The ascospores are perfectly smooth as they are in the American and Norwegian collections. It appears that the presence of striations reported by Thind (op.cit.) in the ascospores was an error of observation. The hairs arise from the inner layers of excipulum (cf. Kanouse who mentions them to from outermost tissues of ectal excipulum). Hairs are typical in morphology as well as chemical nature. They undergo

the characteristic change in KOH as reported for *M. floccosum* (Pant and Tewari, 1973).

The fruitbodies in the Indian collection develop from pseudorhiza (Fig. 2) as is the case of American specimens (Kanouse, 1948). The asci as well as ascospores exhibit wide variation in different collections and need not be given much importance. The tissue structure also is similar to that of Norwegian material as illustrated by Eckblad (op.cit.).

Taking the above points in to account, the PAN specimen, originally determined as *Microstoma* sp. by Thind, is definitely *M. protracta*.

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