

## Studies on the genera *Phillipsia* and *Nanoscypha*

VINDESHWARI PRASAD<sup>1</sup> AND DEVESH CHANDRA PANT<sup>2</sup>

1. Department of Mycology, N. D. University of Agriculture and Technology, Faizabad 2. Department of Mycology and Plant Pathology, Banaras Hindu University, Varanasi 221005, Uttar Pradesh

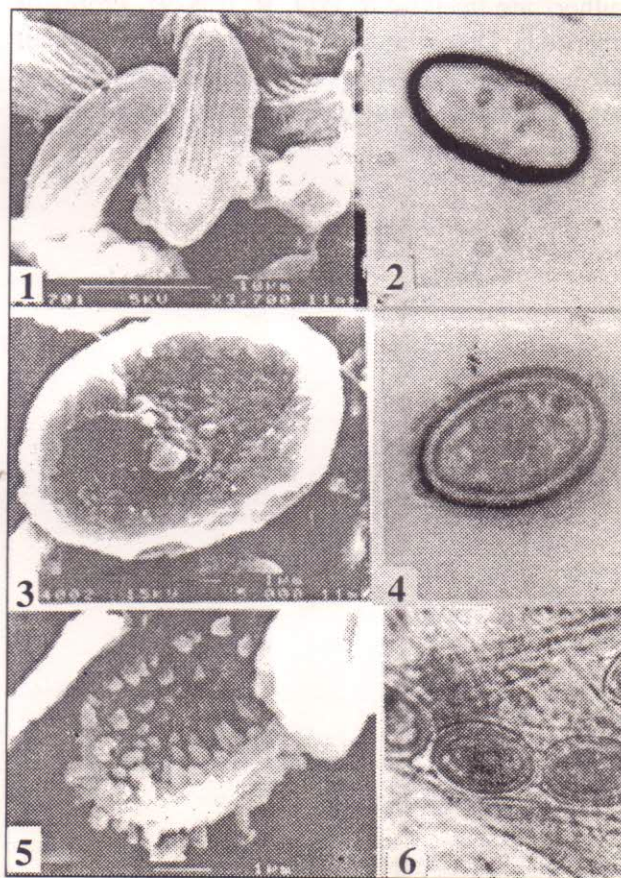
Ascospores of 3 species of *Nanoscypha* i.e. *N. denisonii*, *N. phyllogena* and *N. waterstonii* known to be of smooth surface under the light microscope were found to be variously ornamented when examined under the scanning electron microscope. Possibility of relationship between *Phillipsia* and *Nanoscypha* was discussed.

**Key words :** Discomycetes, Sarcoscyphaceae, Sarcoscyphineae

Paden (1977), while describing 2 new species of the genus *Phillipsia* Berk. thought that one of his new species *P. rugospora* might be related to the genus *Nanoscypha* Desiszon. He even postulated that the genera *Phillipsia* and *Nanoscypha* might be closely related and suggested scanning electron microscopic examination of the ascospores in the genus *Nanoscypha*. The use of SEM technique in the taxonomy of discomycetes is not very old and Elliot and Kaufert (1974), Pfister (1975), Paden (1977, 1983) and Pant (2001) are some of the workers who have actually used it.

The present paper deals with the re-examination, of ascospores, under electron microscope, of 3 species of the genus *Nanoscypha* i.e. *N. denisonii* Das & Pant, *N. phyllogena* (Seaver) Das & Pant and *N. waterstonii* (Seaver) Pfister. All these species are known to have smooth ascospores under the light microscope (Seaver 1925, 1939, Das and Pant 1984), a character typical of the genus *Nanoscypha* (Denison, 1972). The electron microscope, however, revealed that the ascospores in all these 3 species are variously ornamented (Figs. 1-6). Interestingly ornamentation in 2 of these *Nanoscypha* species is similar to that found in some species of *Phillipsia*.

The epispore in the ascospores of *N. denisonii* is thrown into thick, longitudinal, sometimes



**Figs. 1-6 :** Ascospores of *Nanoscypha* species under light and electron microscopes. Figs. 1—2. *N. denisonii*. 1. scanning micrograph 2. light micrograph. X 1600. Figs. 3—4. *N. waterstonii*. 3. scanning micrograph. 4. light micrograph. X 1100. Figs. 5—6. *N. phyllogena*. 5. scanning micrograph. 6. light micrograph. X. 800.

anastomosing ridges like those of *Phillipsia subpurpurea* Berk. and Br. Ascospores of *N. waterstonii* show irregular low folds, somewhat similar to *P. rugospora*. Small, thick, blunt projections on the spore surface in *N. phyllogena*, however, do not resemble any of the known species of *Phillipsia*. They are perhaps similar to those of *Pachyella adnata* (Berk. & Curt.) Pfister (Pfister, 1975).

This observation thus appears to support the suggestion of a possible relationship between the genera *Phillipsia* and *Nanoscypha*. A final conclusion must, however, await SEM examination of more species of the two genera including their type species.

ACKNOWLEDGEMENTS

Authors are thankful to Prof. R. P. Korf, Professor Emeritus, Department of Plant Pathology, Cornell University, Ithaca, New York for going through the manuscript and to Prof. J. P. Tewari, Department of

Agricultural Food and Nutritional Sciences, University of Alberta, Canada for the Scanning micrographs.

REFERENCES

Das, C. M. and Plant, D. C. (1984). The genus *Nanoscypha* from India. *Indian Phytopath.* **37** : 294-298.

Denison, W. C. (1972). Central American Pezizales. IV. The genera *Sarcoscypha*, *Pithya* and *Nanoscypha*. *Mycologia* **64** : 609-623.

Elliot, M. E. and Kaufert, M. (1974). *Peziza badia* and *P. badiiconfusa*. *Can. J. Bot.* **52** : 467-472.

Paden, J. W. (1977). Two new species of *Phillipsia* from Central America. *Can. J. Bot.* **55** : 2685-2692.

.....(1983). Sarcosmataceae (Pezizales, Sarcoscyphineae). *Flora Neotrop. Monogr.* **37** : 1-17.

Pant, D. C. (2001). *Galiella celebica* from India. *Mycotaxon* **79** : 315-118.

Pfister, D. H. (1975). Scanning Electron Micrographs of ascospores of *Pachyella* (Discomycetes). *Mycotaxon* **3**(1) : 105-108.

Seaver, F. J. (1925). Studies on Tropical Ascomycetes - III., Porto Rican cup-fungi. *Mycologia* **17** : 45-50.

..... (1939). Photographs and description of cup-fungi - XXXIV. A new *Humarina*. *Mycologia* **31** : 533-536.

(Accepted for publication December 15 2002)

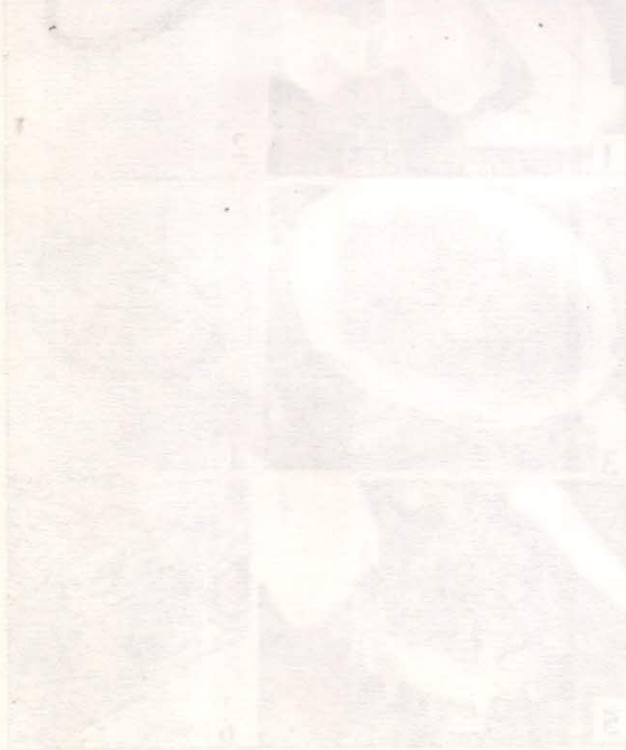


Fig. 1. Scanning electron micrograph of ascospore of *Nanoscypha* sp. showing anastomosing ridges and blunt projections. X 1000.

The present paper deals with the examination of the ascospores of the genus *Nanoscypha* in the light of SEM technique in the taxonomy of Discomycetes. The present paper deals with the examination of ascospores, under electron microscope, of the genus *Nanoscypha* as it has been the aim of the present study to examine the ascospores of the genus *Nanoscypha* (Das & Pant 1984) in the light of SEM technique. All these species are known to have their ascospores under the light microscope (Seaver 1925; Das and Pant 1984). A characteristic of the genus *Nanoscypha* (Denison 1972; the electron microscope, however, revealed that the ascospores in all these species are variously ornamented (Fig. 1-6). Interestingly ornamentation in 2 of these *Nanoscypha* species is similar to that found in some species of *Phillipsia*.

The spore in the ascospores of *N. waterstonii* is blown into thick longitudinal, sometimes