CYTOLOGICAL STUDY OF BASIDIOSPORE OF Puccinia ruelliae (Berk. & Br.) Lagerh.

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Teliospores of Puccinia ruelliae (Berk. and Br.) Lagerh. were reported to produce basidium and basidiospore in tap-water. Development of infection structure by its uredospores2 and nuclear behaviour during infection structure development3 have also been studied. This paper presents results of a cytological study of basidiospore of P. ruelliae.

Teliospores were scraped from freshly collected leaves of Ruellia prostrata Lamk. and allowed to germinate in tap-water on glass slides at 20°C following De and Roy4. Teliospores germinated and produced basidiospores within 48 h. The water on the slides was allowed to dry and the teliospores showing development of basidium and basidiospores were fixed in a mixture of equal parts of propionic acid and ethyl alcohol for 24 h. The slides were then washed in 70% alcohol for 5 min, transferred to alcoholic-HCl-carmine stain solution for 24 h at 60°C, rinsed in 70% alcohol and mounted in 45% propionic acid5.

The teliospores produced 4-celled basidium and each cell developed a basidiospore on a sterigma. Basidiospores were hyaline, thin-walled, smooth, uninucleate, 14.0–17.5 × 5.0–7.0 μm, with broad apiculus. The nucleus within the basidiospore of P. ruelliae was beaded, spherical and large, up to 2.0 μm in diameter. No nucleolus was observed. The basidiospores germinated in situ producing a single germ tube, and germination took place before the spores were discharged (figure 1) or delayed until after discharge. All the germinating spores observed were uninucleate even after formation of a long germ tube (figures 1–3).

Singh6 showed formation of binucleate basidiospore of P. ruelliae as a result of a mitotic division. Mims5 recorded uninucleate, binucleate and quadri-nucleate basidiospores in Gymnosporangium juniperi-virginianae Schw., which inspired me to verify Singh’s6 observation. I observed 1217 basidiospores of P. ruelliae but none of them was binucleate or quadri-nucleate. Mitosis did not occur in any spore since all the germinating spores observed were uninucleate even after formation of a long germ tube. The present observation thus contradicts that of Singh6.

Figures 1–3. Germinated uninucleate basidiospores of Puccinia ruelliae (Berk. and Br.) Lagerh. 1, before discharge; 2 and 3, after discharge.

From a study based on a large number of rust fungi, Anikster7 concluded that binucleate basidiospores are the general rule in them. This opinion of Anikster7 is not applicable to P. ruelliae because the present study reveals that its basidiospores are not
binucleate but uninucleate. However, the nucleus within the basidiospores of P. ruelliae was beaded and the beaded appearance was probably due to its heterochromatic nature.

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SOME NEW REPORTS ON KERATINOPHILIC FUNGI

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The isolation of keratinophilic fungi and related dermatophytes by the hair baiting method has revealed their occurrence in the soil of various habitats of India and other locations\(^1\)–\(^5\). Reports on the occurrence of keratinophilic fungi in stress habitats such as house dust are few. The present study provides information on the occurrence of keratinophilic fungi in house dust in India for the first time. The keratinophilic fungi and dermatophytes were isolated by hair baiting method\(^6\)–\(^7\) and cultures were maintained on Sabouraud's dextrose agar at 30 ± 2°C. Some of the fungi were also deposited at ITCC, New Delhi; IMI, Kew; and UAMH, Alberta.

Of the 91 house dust samples collected from 13 sites of Kanpur, India, 84.3% samples yielded 35 taxa, listed below in decreasing occurrence (%): Chrysosporium carmichaeli (100), Chrysosporium farinicolae (100), Mycophyllum tharae amanophor of Corynascus novoguineensis (100), Chrysosporium tropicalic (100), Arthroderma flavescens (62.1), Chrysosporium tuberculatum (29.2), Aphanasus species (19.5), Chrysosporium species (15.4), Trichophyton flavescens (14.4), Chrysosporium keratinophilum (14.2), Chrysosporium mordarium (14.2), Chrysosporium queenslandicum (14.2), Microsporum species (11.1), Microsporum fulvum (11.1), Microsporum gypseum (11.1), Trichophyton vanbreuseghemii (9.7), Arthroderma gertleri (7.3), Arthroderma teereus (7.3), Chrysosporium crassitunicatum (7.0), Chrysosporium sulphureum (4.8), Chrysosporium indicum (2.5), Chrysosporium panicola (2.5), Chrysosporium lucknowense (2.4), Mycophyllum anamorph of Arthroderma tuberculatum (2.4), Myxotrichum (2.4), Onygena (2.4), Ctenomyces sereus (2.2), Chrysosporium evolecani (1.0), Acremonium obclavatum (1.0).

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EPIDERMAL SURFACE PATTERNS OF ACHENE IN ELEOCHARIS R. BR. (CYPERACEAE)

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In the Cyperaceae, scanning electron microscopic studies of achene surfaces provide criteria useful for the delimitation of taxa at various levels\(^1\)–\(^2\). A perusal of the literature reveals that no work has been done on achene micromorphology in the genus Eleocharis. The present work was on E. acutangula. (Roxb.) Schult, E. atropurpurea (Reutz. Presl.), E. congesta D. Don., E. dulcis (Burm. f.) Henschel, E. palustris (L.) R. & S. and E. retroflexa (Poir.) Urb. The genus Eleocharis of the tribe Cyperae (subfamily Cyperoideae, family Cyperaceae) inc-