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Sexuality and oxidase tests of *Corticium evolvens* Fr.

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Interfertility studies and oxidase tests were carried out on *Corticium evolvens* Fr. which causes white rot on wood. It has been found that this species possesses tetrapolar sexuality and gives positive result in oxidase test and therby supports the hypothesis of Nobles that the species which possess tetrapolar type of sexuality are associated with white rots and positive oxidase reactions.

Key words : *Corticium evolvens*, sexuality, oxidase test, white rot

INTRODUCTION

Studies on interfertility and oxidase reactions in Hymenomycetes received great impetus particularly when Nobles (1958) attributed taxonomic importance to these characters and advanced the hypothesis that in the Polyporaceae, species which possess tetrapolar type of interfertility are associated with white rots and positive oxidase reactions, while species with bipolar interfertility cause brown rots and give negative oxidase reactions. From the evolutionary point of view she considered the tetrapolar type to be more advanced than the bipolar type. Information so far obtained from the members of the Polyporaceae generally supports this view of Nobles (1958) with a few exceptions (Sen and Sehgal, 1967; Van der Westhuizen, 1963).

Though sexuality and cultural characteristics of several members of the Corticiaceae have been worked out, but attempts to see whether the viewpoint of Nobles (1958) based on members of the Polyporaceae also holds true for wood-rotting members of the Corticiaceae have very rarely been made. The present paper communicates the results of interfertility tests and oxidase reactions of *Corticium evolvens* Fr., a member of the Corticiaceae, commonly occuring on dead wood causing white rots.

MATERIALS AND METHODS

Twenty five monosporus cultures were isolated from the spores of a sporophore of *C. evolvens* collected from Pithoragarh, Uttar Pradesh, India, where it was found growing on a dead wood of angiosperm. Each of these cultures showed good growth; they were checked carefully for clamp connections. The absence of clamp connections was taken as confirmation of their monokaryotic nature. Finally 20 monokaryotic cultures were paired

among themselves in all possible combinations by placing the inocula 25-30 mm apart on 2.5% malt agar slants. The culture tubes containing paired inocula were then incubated at room temperature (28-32°C) for a fortnight and the hyphae from the line of contact between the paired mycelia were examined under the microscope for the presence of clamp connections.

Oxidase tests were carried out by growing the polysporous mycelia of the fungus for 7 days at room temperature (28-32°C) on 2.5% malt agar media containing 0.5% gallic acid and tannic acid in seperate petridishes following the method laid down by Davidson *et al.* (1938).

RESULTS AND DISCUSSION

Analysis of the results of interfertility test shows that the basidiospores of *C. evolvens* fall into four mating groups on the basis of their ability to form dikaryotic mycelia, recognisable by the presence of clamp connections. The presence of clamp connections indicated the compatible mating of the paired mycelia and the absence of clamp connections indicated incompatible mating. The genetic constitutions of the four groups have been designated as A_1B_1, A_2B_2, A_1B_2 and A_2B_1 following Nobles *et al.* (1957). Dikaryotic mycelia were formed only in matings between A1B1 × A_2B_2 and A_1B_2 × A_2B_1, i.e. between mycelia having no common allele. Therefore, *C. evolvens* is heterothallic and possesses tetrapolar type of sexuality with allelomorphs for heterothallism at two loci. The distribution of mating types among the basidiospores studied is given below :

A_1B_1:1,5,16,18,19,20	A_1B_2:2,3,9,11,14
A_2B_2:7,8,12,13,17	A_2B_1:4,5,6,10

In oxidase test a dark coloured zone appeared in the medium around the fungal inoculum which presented positive proof of the production of extracellular oxidase enzyme by the test fungus.

From the results obtained it may be concluded that *Corticium evolvens* Fr. possesses tetrapolar sexuality and gives positive result in oxidase test, and thereby the hypothesis of Nobles (1958) on the Polyporaceae also finds support in *C. evolvens*, a fungus belonging to the Corticiaceae.

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