

Dikaryotization seems essential for hypha formation and infection of coccid in the life-cycle of *Auriculoscypha anacardiicola*

Patinjareveettil Manimohan, Anjitha Thomas

Department of Botany, University of Calicut, India

Purpose: *Auriculoscypha* (Basidiomycota, Pucciniomycetes, Septbasidiaceae) is a monotypic genus and *A. anacardiicola*, the only known species, is endemic to southwest India. This fungus is part of an interesting instance of plant-insect-fungus interaction. It is invariably associated with a coccid, *Neogreenia zeylanica*, belonging to the scale insect family Margarodidae. This fungus gets its nourishment from the coccid using its haustoria that enter the body cavity of the insect and submerge in the haemolymph, while the insect feeds on the sap of the sieve tubes of host trees using its stylet. The basidiocarps of the fungus emerge from a tubercle partially immersed on the bark of the host tree within which the enslaved coccids reside. In several phytopathogenic fungi such as the rusts and the smuts, only a dikaryon can infect the host tissues. The present study was an attempt to verify the hypothesis that dikaryotization is a prerequisite for hypha formation and coccid-infection in the life-cycle of *A. anacardiicola*.

Methods: Light-microscopic observations using Giemsa staining and fluorescent microscopic observations of DAPI-stained material were made to determine the number of nuclei in cells/hyphal compartments at various stages in the life-cycle of the fungus.

Results: Our studies revealed that while the basidiospores were consistently unicellular and uninucleate at the time of discharge, the hyphae of *A. anacardiicola* were consistently dikaryotic.

Conclusions: Coupled with the observed inability of a single basidiospore to establish a mycelium, our study indicates that dikaryotization is essential for hypha formation and the establishment of infection in the life cycle of *A. anacardiicola*.