Pak. J. Bot., 18(1): 175–177, 1986.

SECONDARY CONIDIAL PRODUCTION IN *ARTICULOSPORA TETRACLADIA* INGOLD

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Articulospora tetracladia Ingold is a dimorphic aquatic hyphomycete (Marvanova & Marvan, 1963; Khan, 1981) commonly found on decaying submerged plant debris both in running and still water systems. Normally, on complete immersion, cultures of this fungus produce tetraradiate thalloconidia (Fig. 1a, b) while conidiophores trapped lineally in the surface film, produce di-morphic angulata type condidia (= *Articulospora angulata* Tubaki, 1957) Fig. 1c, d). During a study on factors affecting conidial dimorphism in *A. tetracladia* (Khan, 1983), it was noted that normal tetraradiate and the dimorphic angulata conidia of this fungus variously produced secondary conidia. In immersed cultures, the majority of liberated conidia (71.28 ± 3.19%; as observed in one case after 22 h immersion) remained afloat for a period before settling down. Upon eventual settlement at the base, they germinated producing typical appresoria. While afloat, numerous normal tetratadiate conidia get trapped in the surface film of the immersion system, and through microcycle-conidiation (Khan, 1983) produce secondary five-armed angulata conidia. These angulate conidia develop at the extremities of parent normal tetraradiate conidia and also along the length of conidial arm, where it is separated (Fig. 1e).

No intermediate structures comparable to germ tube or conidiophore is formed, as observed by (Skidmore, 1976), in some phylloplane hyphomycetes. Occasionally the normal tetraradiate conidia were found giving rise to 3–7 daughter angulate conidia. The normal tetraradiate conidia, which neither get trapped in the surface film, nor settle down at the solid base (= eddying conidia; Khan, 1981) produce secondary conidia of similar morphology. These secondary-normal conidia may develop directly at the tips of the arms of mother tetraradiate normal conidia (Fig. 1f), or in some cases an intermediate simple hyphal structure (= conidiophore; Smith *et al.*, 1981) intervenes the mother and daughter conidia (Fig. 1g). The angulate conidia, in the surface film, in a yeast like manner produce secondary conidia of similar morphology. No angulate conidia were found giving rise to secondary tetraradiate conidia, in any part of the immersion system. The angulate conidia that settle down at the solid base, produce normal germ tube. However, structures comparable to typical appresoria were not observed in germinating angulate conidia. In 4–5 days (Khan, 1983) secondary angulate conidia

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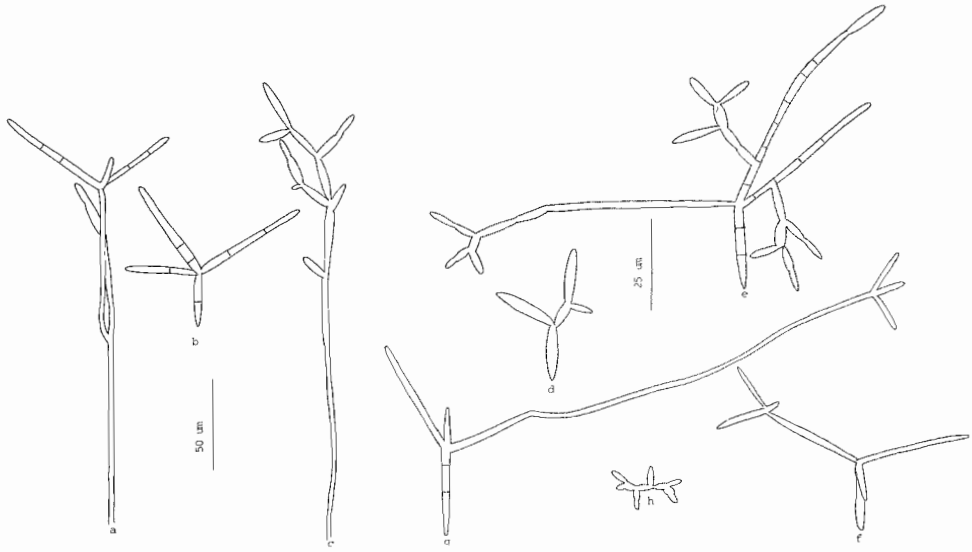

Fig. 1. Conidial development in *Articulospore tetracladia* Ingold.
a, b. – Tetraradiate conidia.
c, d. – Angulate conidia.
e. – Tetraradiate conidium giving rise to angulate conidia.
f. – Tetraradiate conidium directly giving rise to a tetraradiate conidium.
g. – Tetraradiate conidium giving rise to a tetraradiate conidium with an intermediate conidiophore.
h. – Angulate conidium giving rise to an angulate conidium.

predominate the conidial population in the surface film as a result of microcycle-conidiation. These appear as a monoplane network. All secondary conidia in *A. tetracladia* bear smaller size (approx. 50% reduction) than the parent conidia. The surface film angulate conidial population is a matter of possible ecological advantage to *A. tetracladia* from the point of view of inoculum potential, conidial viability and dispersal not only in the aquatic habitat, but also possibly in the terrestrial situation as described by Bandoni (1974).

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(Received for publication 22 October 1985)