Trichocladium melhae sp. nov., a new tropical marine fungus

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Trichocladium melhae, a mitosporic fungus, collected frequently on wood associated with sand in Hong Kong, Malaysia and Singapore is described as a new species. The fungus is compared with other Trichocladium species.

Key Words: marine fungi, mitosporic fungi, taxonomy.

Introduction

We have collected and isolated a Trichocladium sp. similar to T. alopanallona from tropical marine sand on several occasions. Recently Goh and Hyde (1999) monographed Trichocladium, accepting 18 species and describing a number of new species. They referred another 22 Trichocladium names to other genera, e.g. Bactrodesmium, Henispora and Pithomyces. Of the species discussed by Goh and Hyde (1999) none are identical to the species collected by us and it is therefore described as a new species.

Materials and methods

Wood and sand samples collected in the intertidal zone were returned to the laboratory in plastic bags, examined, incubated in sterile plastic boxes at ambient temperature and re-examined after 4-6 weeks. Material was mounted in seawater for both spore measurements and photography. Material for SEM was prepared as described by Moss and Jones (1977). Single-spore isolation of the fungus was carried out on cornmeal seawater agar (CMA) with added antibiotics: streptomycin and penicillin G, 0.5 g L^{-1} each. The fungus formed dark brown colonies on CMA with a growth rate of 3 cm in 2-3 weeks at 25 C.
**Taxonomy**

*Trichocladium melhae* E.B.G. Jones, Abdel-Wahab and Vrijmoed, sp. nov.  

(Figs. 1-6)

*Hyphae* subhyaline to dilute brown, septate and branched; *Coinidiophora* uni- to pauci-cellulata, semi-macronemata 5-20 × 2-5 μm; *Conidia* ellipsoidea, fuscus; cellula apicalis 6.5-13 μm longa, 4-9 μm diametro.

*Etymology:* from the Arabic word *melhae* meaning to grow in saline water, in reference to the marine habitat where the fungus grows.

*Hyphae* sub-hyaline to light brown, septate and branched. *Coinidiophores* 5-20 μm long and 2-5 μm in diam. (\(\bar{x} = 8 \times 4 \mu m, n = 30\), macronematous, simple, one (two) celled, light brown, lateral (apical), and short. *Conidia* dark brown to fuscous, and constricted at the septa (Figs. 10, 11). *Apical cell* 6.5-13 μm long and 4-9 μm in diam. (\(\bar{x} = 8.5 \times 6.5 \mu m, n = 52\), elongated to ellipsoidal in shape, *middle cell* 4-13.5 μm long and 2.5-6 μm in diam. (\(\bar{x} = 8 \times 5 \mu m, n = 25\)) while third cell is 5-7 μm long and 4.5-5 μm in diam. (Figs. 6-9). Conidia formed on saltwater agar medium slightly smaller in dimensions; *apical cell* 5.9-11.8 μm long and 3.9-5.9 μm in diam. (\(\bar{x} = 8.5 \times 5 \mu m, n = 100\)). Solitary conidia sometimes born directly from the mycelium (Fig. 9).

**Table 1:** Morphological comparisons of *Trichocladium melhae* and *T. alopallonella*

<table>
<thead>
<tr>
<th></th>
<th><em>T. melhae</em> (This paper)</th>
<th><em>T. alopallonella</em> (Kohlmeier and Kohlmeyer, 1979)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conidia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apical cell</td>
<td>6.5-13 × 4-9 μm</td>
<td>8.5-15.5 × 7-12 μm</td>
</tr>
<tr>
<td>Overall shape</td>
<td>Elongate ellipsoidal</td>
<td>Subglobose to ellipsoidal</td>
</tr>
<tr>
<td>Colour</td>
<td>Dark-brown</td>
<td>Fuscous</td>
</tr>
<tr>
<td>Number of cells</td>
<td>1-3</td>
<td>1-2</td>
</tr>
<tr>
<td>Septal constriction</td>
<td>Deep</td>
<td>Moderate</td>
</tr>
<tr>
<td>Coinidiophore</td>
<td>1-3-celled</td>
<td>1-2-celled</td>
</tr>
<tr>
<td></td>
<td>5-20 × 2-5 μm</td>
<td>3.5-6.5 × 3.5-6 μm</td>
</tr>
</tbody>
</table>


*Other material examined:* Singapore, on driftwood, 12 July 1989; Singapore, Labrador, East Coast, driftwood buried in sand, 21 September and 4 October 1989; Malaysia, Morib, on sand associated with wood, 6 November (1 collection) and 14 June (3 collections) 1989 (All collections E.B.G. Jones).

The following isolates of *T. melhae* were made: PP 3971-3974, isolated from driftwood, Singapore 1989; PP 4110-4117 Labrador Beach, Singapore, 21 September 1989; PP 4194-2005, driftwood, east Coast, Singapore, 4 October 1989; PP 5966-5968 driftwood, Taiwan, 24 May 1991.
Trichocladium melhae has consistently been found near high seawater mark either on lignocellulosic material buried in sand at beaches or on test blocks exposed in the sea. Conidia develop on the surface of the sand grains. Trichocladium melhae closely resembles T. alopallonella however, it differs in having fuscous elongate conidia that are highly constricted at the septa and smaller (Table 1).

Acknowledgments

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References


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