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MYROTHECIUM TONGAENSE ANAM.-SP. NOV.

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ABSTRACT

Myrothecium tongaense anam.-sp. nov. is described from the calcified green alga Halimeda from Tonga.

INTRODUCTION

While visiting the island of Lifuka in the Kingdom of Tonga, one of us (B.K.) recently collected a dead thallus of a siphonaceous chlorophyte Halimeda sp. which bore conidiomata of a species of Myrothecium. Comparison with the other species of Myrothecium has shown it to be a new species.

TAXONOMIC PART

Tulloch (1972) accepted 13 anamorph-species in the anamorph-genus Myrothecium Tode ex Fries. The genus is characterized by setose or non-setose "...cupulate, sporodochial or synnematal..." conidiomata with a palisade of conidiophores terminating in a dense hymenium of "...hyaline or darkened..." phialides. The hymenium is often bordered by a slightly to strongly involute margin composed of branched, septate, straight or slightly coiled, smooth-walled to roughened, septate hyphae. The subhymenium may be either textura intricata or textura porrecta and may arise from a basal stroma of textura angularis. The hyaline to pale green conidia (dark green to black in mass) vary in shape from "ellipsoid" to "rod-shaped" and are either

smooth-walled or may bear striations. In some species, the conidia bear mucilaginous apical appendages (Thompson & Simmens 1962, Tulloch 1972).

Species of Myrothecium have been recovered from soil (Barron 1968) and from many plant species (Tulloch 1972). This is the first report of a Myrothecium sp. occurring on an alga. We were able to isolate the fungus in pure culture; loosely organized but otherwise characteristic conidiomata develop after approximately 15 days at 24°C on PDA.

Myrothecium tongaense Kendrick, DiCosmo & Michaelides
anam.-sp. nov.

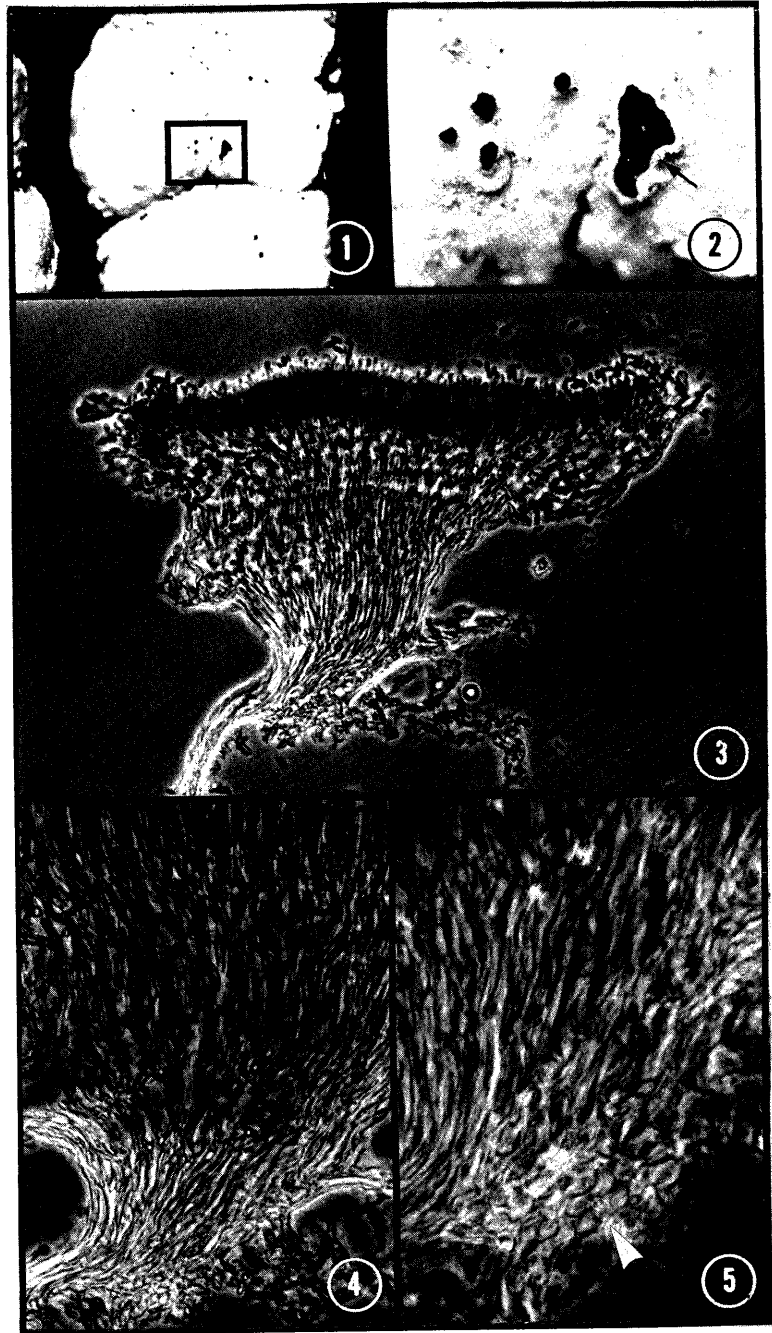
Hyphae immersae, ramosae, septatae, hyalinae, laevigatae, 2-3.5 µm lat.

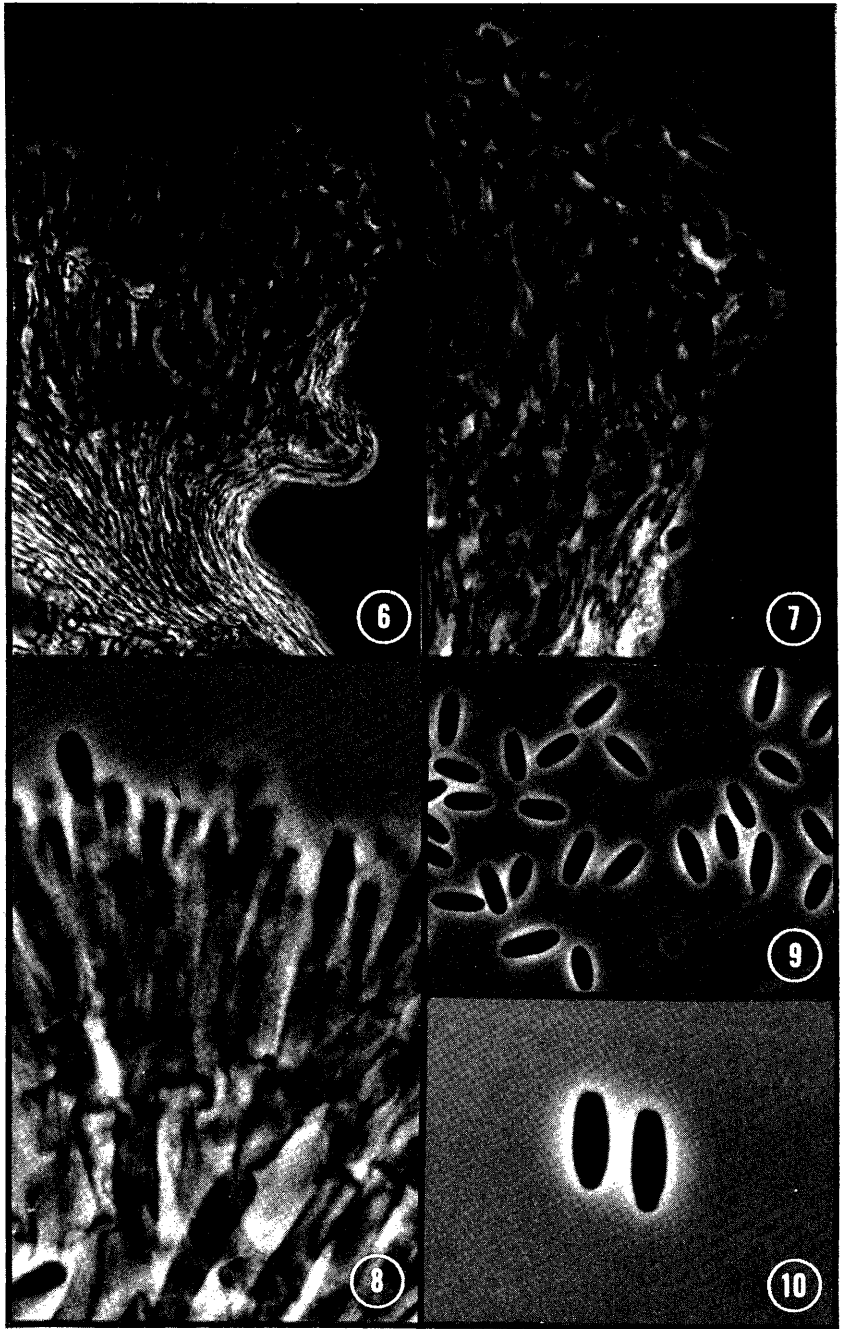
Conidiomata sporodochia, dissita vel gregaria, irregularia, ebrunea, 60-300 µm lat. Margo involuta 10-15 µm lat., bene evoluta ex textura intricata orientes ex hyphae spirales convolutas ostendentes, ramosae, septatae, hyalinae, verruculosae. Subhymenium ex texturam porrectam hyalinis facientibus, mutatum versus partem fertilem in texturam intricatam; stroma basale non bene evolutis ex textura angularis orientes. Conidiophorae ex textura intracata orientes, ramosae, septatae, hyalinae, laevigatae, 80-100 x 2.5-3 (-3.5) µm. Cellulae conidiogenae phialides, subcylindricae, pallide viridi, verruculosae, 9-17 x 1.5-2.5 (-3) (\bar{x} =13x2) µm, colli bene evolutae. Conidia blastico-phialidica oblonga vel ellipsoidea, ad apicem truncata, ad basim decrescentia et truncata, 5-7 x 2(-2.5) (\bar{x} =6x2) µm; ratio mediano long./lat. = 3:1, in masse nigra.

Myrothecium tongaense Kendrick, DiCosmo & Michaelides
anam.-sp. nov. Figs. 1-10

Immersed mycelium composed of branched, septate, hyaline, smooth-walled hyphae 2-3.5 µm diam.

Figs. 1-10. Myrothecium tongaense. 1. Habit on Halimeda sp. x 5. 2. Conidiomata from rectangle in Fig. 1; arrow indicates fringe of marginal hyphae. X25. 3. Vertical section of conidioma. X300. 4. Tissue types of the conidioma. X480 (see text). 5. Detail of base of conidioma, arrowhead indicates the textura angularis. X1200.





Conidiomata sporodochial, scattered to gregarious, irregular in outline, 60-300 μm diam. Margin well developed, slightly involute, of textura intricata, 10-15 μm wide, composed of branched, septate, hyaline, verruculose, loosely coiled and twisted hyphae. Subhymenium of hyaline textura intricata above becoming hyaline textura porrecta below ultimately resting on a poorly developed basal stroma of textura angularis (Figs. 3-5). Conidiophores arising from the subhymenium, branched, septate, hyaline, smooth-walled, 80-100 x 2.5-3 (-3.5) μm terminating in a dense conidial hymenium. Conidiogenous cells phialides, subcylindrical, pale green, verruculose, 9-17 x 1.5-2.5 (-3) (\bar{x} =13x2) μm , with a prominent collarette. Conidia blastophialidic, oblong-ellipsoid, apex truncate, base constricted and truncate, pale green, smooth-walled, 5-7 x 2 (-2.5) (\bar{x} =6x2) μm , mean length/width ratio=3:1, collecting in blackish masses.

Habitat: on calcified portions of a dead thallus of Halimeda sp.

Specimen examined: Holotype, DAOM 176764, B. Kendrick, Pangai, Lifuka, Ha'apai Group, Kingdom of Tonga, 1980-V-1; WAT, microscopic preparations derived from holotype; WAT, cultures on PDA and Sabouraud's nutrient agar derived from conidial inoculations from holotype.

Myrothecium tongaense is similar in morphology to M. cinctum (Corda) Sacc., M. roridum Tode ex Fries and M. verrucaria (Alb. & Schw.) Ditm. ex Fr., but easily distinguished from all three of these. The conidial walls of M. tongaense lack the dark longitudinal striations characteristic of M. cinctum. Conidia of M. tongaense also lack the mucilaginous apical appendage seen in M. verrucaria. M. roridum is most similar to M. tongaense; however the "...rod shaped or narrowly ellipsoid, rarely slightly ovoid..." conidia (Tulloch 1972) of M. roridum are easily distinguished from the oblong-ellipsoid conidia with truncate bases and apices of M. tongaense. In addition, the marginal hyphae of M. roridum are smooth-walled, while those of M. tongaense are verruculose.

Figs. 6-10. 6. Vertical section of conidioma X480. 7. Marginal hyphae. X1200. 8. Conidiogenous cells, arrows indicate collarettes. X2000. 9. Conidia. X1200. 10. Conidia X2000.

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