

Overgrowth of fungi (endolithic hypermycosis) associated with multifocal to diffuse distinct amorphous dark discoloration of corals in the Indo-Pacific

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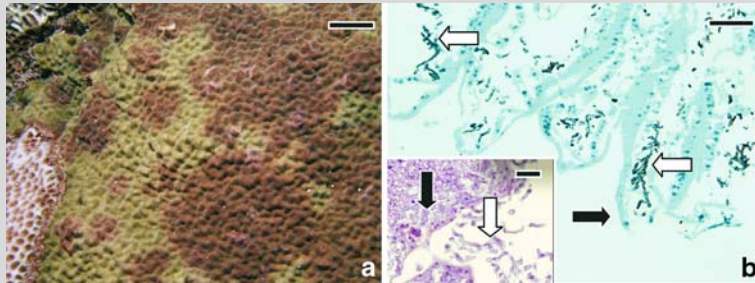


Fig. 1 (a) Diffuse distinct dark discoloration in *Psammocora nierstraszi* from American Samoa, bar = 1.5 cm; (b) Fungal hyphae (white arrows) invading normal tissue (black arrow points to epidermis), bar = 60 μ m, Grocott's methenamine Silver. Inset: Fungal hyphae (white arrow) adjacent to basal body wall, note associated masses of necrotic coral tissue (black arrow), bar = 20 μ m, Haematoxylin and eosin

Coral disease surveys in American Samoa and Hawai'i revealed colonies with a distinct dark discoloration affecting 20–60% of the colony surface (Fig. 1a). In some cases, tissue loss with algal infiltration was present within discolored areas. On microscopy, these lesions had marked overgrowth of the coral skeleton and tissues with septate branching structures that stained positive with Grocott's Methenamine Silver (fungal hyphae) accompanied by necrosis and fragmentation of coral tissues (Fig. 1b). We have observed this condition grossly and microscopically in *Pavona varians*, *Psammocora nierstraszi*, and *Montipora* sp. in American Samoa and in *Pavona maldivensis* and *P. varians* in Hawai'i.

This condition resembles Dark Spots Disease from the Caribbean (Solano et al. 1993) that also shows endolithic hypermycosis (Galloway et al. 2007), suggesting that the association between dark discoloration of corals and overgrowth of endolithic fungi may be common (Western Atlantic, Indo-Pacific). Based on gross and microscopic morphology, tissue atrophy may precede overgrowth of endolithic fungi, but this awaits confirmation through systematic studies that monitor the development of lesions over time (pathogenesis). Using standardized terminology (Work and Aeby 2006) to describe lesions facilitates regional comparisons of coral disease.

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Reef sites

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