

Fungi from marine environments – potential bioprospecting of a “neglected” niche

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Marine environments constitute approximately 70% of the earth's surface and are comprised of many ecological niches. Even though marine environments can be considered hostile to fungal species, members of the fungal kingdom are present in the seas (especially in association with sessile marine invertebrates). Results of analysis of hundreds of fungal strains isolated from coral and marine sponges have determined that many of them are taxonomically related to ubiquitous terrestrial taxa. Among them, *Penicillium*, *Aspergillus*, *Cladosporium*, *Trichoderma* and *Alternaria* species were highly prevalent. In addition to their function via possible interactions with their hosts and other microorganisms, as well as their roles in carbon and nitrogen cycling, many marine-derived fungi can be potentially beneficial for medicinal, agricultural and industrial purposes. Examples include the increased salt tolerance of marine-derived mycoparasitic *Trichoderma* spp. Such isolates have proven to be as efficient (so far, under greenhouse conditions) biocontrol agents as their terrestrial counterparts. Many marine-derived fungi produce biologically active metabolites. Thus, they are well suited for bioprospecting efforts, a fact supported by the growing number of novel compounds identified from these organisms. Combining the isolation of fungi that produce unique metabolites, along with the chemical analysis of those compounds and with the genetics-based analyses of their mode of action, provides a promising platform for increasing the arsenal of putative anti-fungals for medical and agricultural uses.