Dissertation Title	Taxonomy and Phylogeny of Microfungi from Marine Based Habitats in Thailand
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ABSTRACT

Marine and coastal habitats are highly productive ecosystems that support diverse biological communities and provide essential ecosystem services. Coastal vegetation forms a critical interface between terrestrial and marine environments, providing habitat and shelter for organisms, contributing to coastal protection against flooding, erosion, and pollution, and supporting food resources and tourism related activities. However, these habitats are threatened by climate change and human activities. Fungi play a crucial role in coastal ecosystems through decomposition and nutrient recycling, yet fungal diversity in these ecosystems remains insufficiently explored, especially in tropical regions. This study provided a detailed reference for genera of salt marsh fungi and investigated saprobic fungi associated with decaying wood submerged in seawater and seashore plants, with particular emphasis on the salt marsh hosts *Suaeda maritima* and *Sesuvium portulacastrum,* which provide habitat for diverse organisms and contribute to coastal ecosystem stability in Thailand. Fungal identification was based on morphological characteristics and multigene phylogenetic analyses. Four new genera, *Catenomycella, Halomaris, Littoraliplantomyces* and *Neoloratospora,* and 33 new species were introduced; *Acremonium plucheae, Alloperoneutypa suaedae, Amphisphaeria leucaenae, Catenomycella sesuvii, Catenomycella thailandica, Chromolaenicola leucaenae, Cylindrotrichum marinum, Didymella lantanae, Emericellopsis limonii, Halocryptovalsa suaedae, Halomaris sexualis, Halomaris suaedae, Laburnicola suaedae, Leptospora lantanae, Littoraliplantomyces haylingensis, Myrmecridium hydei, Neoacremonium maritimum, Neocamarosporium littoraliplantae, Neocamarosporium pranburiense, Neocamarosporium salinum, Neocamarosporium sesuvii, Neocucurbitaria lantanae,*

Neoloratospora suaedae, Paramyrothecium appendiculatum, Phaeosphaeria lantanae, Phaeosphaeria sesuvii, Preussia suaedae, *Rosellinia maritima, Stachybotrys sesuvii, Tetraploa maritima, Torpedospora suaedae,* and *Waltergamsia maritima*. Additionally, 22 new host records, 11 geographic records, 9 first marine habitat records and 12 new collections were reported. Each identified species is provided with detailed descriptions and illustrations. A total of 117 fungal strains were analyzed, including 53 isolates from submerged decaying wood and 64 from seashore plants. Fungal composition across substrates and hosts was assessed using statistical analyses and visualized with heatmaps and charts. Submerged wood fungi were dominated by *Sordariomycetes* (72%), *Microascales* (46%) and *Halosphaeriaceae* (43%), particularly at higher salinities. Seashore plants fungi showed greater taxonomic diversity, with *Dothideomycetes* (56%) and *Pleosporales* (39%) predominating. Fungal overlap between substrates was limited, with only five genera and two species shared. Salinity influenced community composition, with higher fungal diversity at lower salinities and increased dominance of *Halosphaeriaceae* at higher salinities. Fungal morphs also differed between substrates, with hyphomycetous asexual morphs prevalent on submerged wood and coelomycetous asexual morphs dominating aerial plant tissues. This study highlights the high diversity and substrate specificity of saprobic fungi in marine based habitats and underscores the influence of environmental factors, particularly salinity, on fungal community structure.

Keywords: Ascomycota, Aquatic Fungi, Halophyte, Marine Fungi, Salt Marsh Fungi, Salt Tolerant, Taxonomy and Phylogeny