Kopchai Taboonpong 2014: Diversity of Microfungi in Marine Sediment from the Gulf of Thailand and Andaman Sea and The *In Vitro* Antagonistic Activity Against Plant Pathogenic Fungi. Master of Science (Plant Pathology), Major Field: Plant Pathology, Department of Plant Pathology. Thesis Advisor: Professor Leka Manoch, Ph.D. 76 pages.

Sediment samples were collected using SCUBA diving from the coral reef in the Gulf of Thailand at Koh Chang and Koh Yak-Lek, Trat Province and Andaman Sea at Mu Koh Phi Phi National Park and Mu Koh Lanta National Park, Krabi Province. For fungal isolation, the soil plate method and potato dextrose agar supplement with 70% seawater were employed. A total of 50 fungal isolates comprising 8 genera 12 species were found, including *Aspergillus flavus*, *A. fumigatus*, *A. niger*, *A. ochraceus, A. terreus*, *A. versicolor, Aspergillus* spp., *Cladosporium cladosporioides*, *Emericella nidulans*, *Eupenicillium parvum*, *Eurotium amstelodami*, *Eurotium* spp., *Neosartorya* sp., *Penicillium* spp. and *Talaromyces flavus*. Among then, *Penicillium* spp. was the dominant species found in most locations comprising 21 isolates, followed by *Aspergillus spp*. (18), *Eurotium* spp. (4), *Cladosporium cladosporioides* (3), and one isolate each of *Emericella nidulans*, *Eupenicillium parvum*, *Neosartorya* sp. and *Talaromyces flavus*.

Five isolates of marine-derived fungi, including *Penicillium* sp.1 (KUFC 10001), *Eurotium amstelodami* (KUFC 10011), *Eupenicillium parvum* (KUFC 10018), *Neosartorya* sp. (KUFC 10037) and *Talaromyces flavus* (KUFC 10046) were tested for *in vitro* antagonistic activity against 9 species of plant pathogenic fungi, namely *Alternaria brassicicola*, *Colletotrichum gloeosporioides*, *Curvularia lunata*, *Fusarium oxysporum* f.sp. *cubense*, *Helminthosporium oryzae*, *Phytophthora palmivora*, *Pyricularia oryzae*, *Rhizoctonia solani* and *Sclerotium rolfsii*. The results revealed that *Eupenicillium parvum* (KUFC 10018) inhibited 92.31% mycelial growth of *Phytophthora palmivora*, follow by *Neosartorya* sp. (KUFC 10037) and *Talaromyces flavus* (KUFC 10046) inhibited 83.87% and 83.33% mycelial growth of *Pyricularia oryzae* and *Alternaria brassicicola*, respectively. However five species of marine-derived fungi failed to inhibit mycelial growth of *Sclerotium rolfsii*.

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