

Genetic diversity of culturable fungi associated with corals in the Gulf of Thailand.

Jariya Sakayaroj^{1*}, Satinee Suetrong², Sirapong Papan¹, Sita Preedanon², Supicha Saengkaewsuk², Anupong Klaysuban², Noppol Kobmoo³, Thippawan Yoocha⁴, Wirulda Pootakham⁴, Sittiporn Pengsakun⁵ and Thamasak Yeemin⁵

¹ Walailak University, 222 Thaiburi, Thasala, Nakhon Si Thammarat, 80161

² National Biobank of Thailand, NSTDA, 144 Thailand Science Park, Khlong Nueng, Khlong Luang, Pathumthani, 12120

³ BIOTEC, NSTDA, 112 Thailand Science Park, Khlong Nueng, Khlong Luang, Pathumthani, 12120

⁴ National Omics Center, NSTDA, 144 Thailand Science Park, Khlong Nueng, Khlong Luang, Pathumthani, 12120

⁵ Marine Biodiversity Research Group, Faculty of Science, Ramkhamhaeng University, Bangkok 10240

*Corresponding author, e-mail: jsakayaroj@gmail.com

ABSTRACT:

The corals are one of most biodiversity in marine ecosystem. Numerous microbes associated with corals including zooxanthellae, protist, prokaryotes (bacteria and archaea) and viruses. This study aims to investigate the genetic diversity of culturable fungal community associated with shallow corals in the western Gulf of Thailand. Ribosomal DNA sequence analysis and morphological analysis of 251 fungal isolates revealed a great diversity of culturable fungal phylotypes from three corals species: *Porites lutea*, *Pavona decussata* and *Pocillopora damicornis*. The most abundant fungi were classified in the Ascomycota. The predominant orders included the Eurotiales, Acrospermales, Amphisphaeriales, Chaetothyriales, Diaporthales, Dothideales, Pleosporales, Venturiales, Xylariales, and Ascomycota incertae sedis. The present study revealed 7 orders of a Phylum Basidiomycota dominated by the Agaricales, Hymenochaetales Polyporales, Wallemiales, Cantharellales, Exobasidiales, and Ustilaginales. A principal component analysis (PCA) was performed to compare the abundance and correlation between fungal community with sampling locations and different coral species. The results revealed significantly distinct clusters of fungal communities corresponding to the geographical habitats of their coral hosts ($P < 0.05$). The result from this research could provide knowledge on genetic diversity, biology and ecology of population structure of fungi associated with shallow corals in the western Gulf of Thailand.

KEYWORDS:

Fungal community, ribosomal DNA, scleractinian corals