

Sarocho Choochuay 2014: Study on the Diversity and Distribution of Symbiotic Mushroom (*Termitomyces* spp.) of Fungus Growing Termites in Thailand using Molecular Technique. Master of Science (Microbiology), Major Field: Microbiology, Department of Microbiology. Thesis Advisor: Mrs. Yaovapa Aramsirujiwet, Ph.D. 122 pages.

A study was made on diversity and distribution of *Termitomyces* spp. in fungus garden of various fungus growing termites (*Odontotermes*, *Macrotermes*, *Hypotermes*, *Microtermes* and *Ancistotermes*) using molecular method. Samples of fungus gardens were collected from 8 Provinces ; Bangkok, Kanchanaburi, Loei, Maha-sarakham, Nakronnayok, Nakronratchasima, Ratchaburi and Uthai-thani. The fungus nodules from each fungus garden were cultured in PDA, ninety one isolates were obtained. The DNA of each isolate was extracted and amplified in ITS1-5.8 rDNA-ITS2 and partial sequence of large subunit region and grouped by Polymerase Chain Reaction - Restriction Fragment Length Polymorphism (PCR-RFLP) method using restriction enzyme *Hha*I and *Hae*III. Those 91 isolates could be separated into 34 groups and the representative within each group were sequenced. Phylogenetic analyses were done. Phylogenetic tree were constructed comparing with the database sequences of *Termitomyces* spp. using Neighbor-Joining method. The result shown that all 34 groups from PCR-RFLP result could combined into 10 groups in phylogenetic tree. However, there were 2 groups that were not closed to the *Termitomyces* spp. and the rest were very close related to *Termitomyces* spp. Result of the phylogenetic tree showed that the fungus nodules in the fungus gardens belong to *Termitomyces* spp. Comparision of the sequenced DNA with DNA database showed that isolated *Termitomyces* spp. mushrooms were close related to *Termitomyces* spp. ever reported in Chanthaburi, Kanchanaburi, Nakhonratchasima, Pathum Thani, Prachin Buri, Saraburi and *Termitomyces* spp. from another countries both from the same type and different types of termites host. Revealed that *Termitomyces* spp. has distributed in wide area and no specificity between the fungus growing termites host and habitat.

---

Student's signature

---

Thesis Advisor's signature