

## **Ectoparasite Fungi Species Found on Subterranean Termite *Reticulitermes* spp. in Japan**

by

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### **Abstract**

*Reticulitermes* spp. are one of the important termite pests in Japan. They cause damage to wooden houses and structures. Various deterrents and control strategies are currently used by applying chemical treatments or physical barriers against these pests. The extensive application of chemical pesticide can cause environmental problems and insecticide resistance. Therefore, over five decades studies on termite control using biological agents such as fungi have been reported, but none have investigated ectoparasitic species. There are 20 fungi species classified as parasites of termites, found all around the world. This study was conducted to develop the potential of ectoparasitic fungi as termite biocontrol agents by identifying those species occurring on *Reticulitermes* spp. in Japan. It would be the first national survey in Japan. Two to five colonies of *Reticulitermes* spp. were collected from 17 locations (from Okinawa Prefecture to Hokkaido Prefecture) in Japan. Termites nesting in tree branches were brought back to the laboratory and a subsample consisting of 500 workers and 20 soldiers were separated from the debris then frozen for two hours prior to observation. Termites were individually examined under a dissecting microscope to observe and identify ectoparasitic fungi. Three species of ectoparasitic fungi are commonly found, namely *Laboulbeniopsis termitarius*, *Antennopsis gallica*, and *Termitaria* sp. These fungi species are reported to cause negative impact to their hosts i.e. decline in the activity but rarely cause disease symptoms, although death can occur over time. Therefore, these fungi have potential to be developed as termite biocontrol agents.

**Keywords:** *L. termitarius*, *A. gallica*, *Termitaria* sp., ectoparasite, *Reticulitermes* spp.