

Natural distribution and symbiosis of mycorrhizal fungi under the trees grown in Sakaerat
Environmental Forest ecosystems.

ANIWAT CHALERMPONGSE and THIRAWAT BOONTHAVIKOON.

Forest Pest Control branch Division of Silviculture, Royal Forest Department., 1983.

ABSTRACT

The study objective was aimed to investigate the natural distribution and symbiotic mycorrhizae of dipterocarp and non - dipterocarp species naturally grown in the habitats of the dry - deciduous and semi - evergreen dipterocarp forest ecosystems at Sakaerat Environmental Research Station (SERS) , Northeastern Thailand. Lateral and short roots of seedlings and trees were dugout, cleaned and fixed in 3% glutaraldehyde. The rapid clearing and staining tree roots were modified by using the technique of Phillips and Hayman. Assessement of mycorrhizal association was verified and examined through the stereoscopic, compound and scanning electron microscopes (SEM). Fruiting bodies of large Hymenomycetes growing under the tree shades were collected and identified as ectomycorrhizae fungi. Hypogeous chlamydospores of Endogonaceae were extracted and diagnosed by soil sieving and decanting techniques using the method of Gerdemann and Nicolson. Results showed that almost every species of trees growing in the natural habitats of Sakaerat Environment Research Station indicated symbiotic mycorrhizas. Most species of Dipterocarpaceae were obviously demonstrated ectomycorrhiza. Other species of Fagaceae, Caesalpiniaceae and Rubiaceae were also performed ectomycorrhizal association. The vesicular - arbuscular (endomycorrhizal) type was formed 73.6 % of trees growing in the dry - deciduous dipterocarp forest and 80.7 % in the semi - evergreen dipterocarp forest where as the ectomycorrhizal type was shown 26.4 % in the dry - deciduous dipterocarp forest and 19.3 % in the semi - evergreen dipterocarp forest ecosystem. Attempts were made to identify ectomycorrhizal fungi and found that many species of Russulaceae and Lepiotaceae were predominantly distributed. VA mycorrhizal fungi were restricted to the species of *Gigaspora* , *Glomus* , *Acaulospora* , *Sclerocystis* and *Entrophospora* in the family Endogonaceae. These finding results will be the beneficial information for further mycorrhizal research and development programs of the tropical reforestation in Thailand.