

# **2003 TAIWAN INTERNATIONAL SCIENCE FAIR**

**CATEGORY : Microbiology**

**PROJECT TITLE : Ectomycorrhizal Inoculation of  
Anisoptera thurifera and Shorea  
guiso : GROWTH AND  
PHOSPHORUS DYNAMICS**

**AWARD : Second Award**

**SCHOOL : Philippine Science High School-Main  
Campus**

**FINALISTS : Jenny S. Aggangan**

**COUNTRY : Philippines**

## **Ectomycorrhizal inoculation of *Anisoptera thurifera* and *Shorea guiso*: Growth and Phosphorus Dynamics**

Jenny S. Aggangan

Dipterocarps coming from Southeast Asia comprise about 53% of the world's total exports of tropical hardwood products. However, the supply of dipterocarps is rapidly declining. The government is currently embarking on the establishment of dipterocarp plantations and encourages inoculation with ectomycorrhizal fungi to improve seedling growth and survival in degraded sites. *Anisoptera thurifera* (Blanco) Blume and *Shorea guiso* (Blanco) Blume rooted cuttings were inoculated with mycelial beads containing either *Pisolithus* PTG, *Pisolithus* H6394, or *Astreus* sp. *Pisolithus* PTG was collected from *Acacia mangium* stand in Malaysia, *Pisolithus* H6394 from *Eucalyptus* trees growing in a heavy metal contaminated area in New Caledonia, *Astreus* sp obtained from dipterocarp forest in Mt. Makiling, Philippines. The results showed that *Astreus* sp gave the highest root colonization (38%), height increment (86%), fine root (51%), coarse root (27%), shoot (43%) and total dry weight (40%) of *A. thurifera* over the control treatment. *Astreus* – inoculated plants had the highest shoot P uptake (41%) while PTG inoculated ones obtained the highest fine root P uptake (0.273 mg/root). The uninoculated plants had the lowest height increment, dry weight, and P uptake. In *S. guiso*, *Pisolithus* H6394, gave the highest increment (100%). Data were only obtained from four months of nursery experiments, hence, a longer nursery and field experiments should be conducted to achieve a complete evaluation of the physiological functions of ectomycorrhizal associations. Moreover, a wide range of ectomycorrhizal fungi associated with dipterocarps should be incorporated for selection of host compatibility.

## 評語

Excellent Work!

Detailed observation of growth & phosphorus dynamics has been well presented. More advanced experiments and results are expected in the future.

# **2003 TAIWAN INTERNATIONAL SCIENCE FAIR**

**CATEGORY : Microbiology**

**PROJECT TITLE : Giving Bugs the Chop !**

**AWARD : Third Award**

**SCHOOL : Te Awamutu College**

**FINALISTS : Angela Rose Captein**

**COUNTRY : New Zealand**