

## **Effects of indigenous and non-indigenous arbuscular mycorrhizal fungi on growth and plant nutrient uptake by terung asam (*Solanum lasiocarpum* Dunal)**

### **ABSTRACT**

Terung asam (*Solanum lasiocarpum* Dunal) is a native fruit vegetable that is gaining interest as a commercial crop in Sarawak and Malaysia. Malaysia is covered by soils that are highly weathered, acidic, and low in fertility and depend on chemical fertilisers to promote good plant growth. Alternative means to reduce dependency on chemical fertiliser, for example arbuscular mycorrhiza fungi (AMF), must be sourced. Very few research on terung asam has been documented particularly on nutrients uptake. The objectives of this research were to investigate the effect of indigenous and non-indigenous AMF on nutrient uptake by terung asam. A greenhouse experiment was conducted consisting of three treatments namely control (T1), indigenous AMF (T2), non-indigenous AMF (T3). The treatments were arranged in a complete randomised design with four subsamples and four replicates. Thirty-day-old seedlings were transplanted and measured for their heights and stem diameters for 90 days. Fresh and dry shoot and root weights were taken during harvesting. Plant nutrient analyses were conducted using Kjeldahl method for total N, single ashing for P and single ashing and double acid for K, Ca and Mg. The results revealed the addition of AMF spores at 200 spores per pot, increased plant height by 13 to 33% and stem diameter by 5 to 25% and more leaves were retained by T3 plants at harvesting. T3 recorded higher fresh shoot (11.27%) and dry shoot (14.98%) as well as fresh root (23.67%) and dry root (22.77%) weights than T1 plants. Addition of AMF in treatments T2 and T3 promoted better nutrient uptake by aboveground and belowground biomasses particularly for K, Ca and Mg. T3 was superior in terms of the nutrient uptake for most nutrients. AMF used in T3 showed better results as the AMF spores were proven effective in promoting plant growth while AMF used in T2 were obtained from the field and untested. The findings of this study showed the potential of indigenous and non-indigenous AMF in promoting growth and nutrient uptake by terung asam plants.

**Keyword:** Arbuscular mycorrhizal fungi; Biomass; Growth; Nutrient uptake; Terung asam