

## **Technical Session (Oral) B6: Earth and Chemical Sciences**



## Effect of Mycorrhizae on Drought Tolerance and Yield of Soybean (*Glycine max L*)

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### Abstract

Soybean (*Glycine max*: Fabaceae) is a mycotrophic (mycorrhizal) profitable crop that is grown commercially for human consumption. At present soybean is one of the five major grain legumes cultivated in Sri Lanka. A Greenhouse experiment was conducted to determine the influence of mycorrhizae as a substitute for inorganic fertilizer on growth and yield of Soybean and to determine how mycorrhizae inoculation to soybean effect in drought tolerance and soil microbial activity.

Five soil amendments were tested: namely, Mycorrhizae + sterilized soil + compost (T1), Mycorrhizae + sterilized soil + standard dose of NPK (T2), Sterilized field soil + compost (T3) and Sterilized field soil+ standard dose of NPK (T4), non sterilized soil (control-T5). Standard dose of mycorrhizae (2g mycorrhizae/5L water) and NPK (NPK- 35:130:35) were used. Each treatment was irrigated with three different water levels; 50 ml (W1), 100 ml (W2) and 200 ml (W3) per day. Complete Randomized Design (CRD) with three replicates was used. Statistical analysis was carried out using the Student Newman-Kuells Means Separation Test of SAS program (9.1.3).

Significantly highest dry weight of seed/pod (3 g and 2.7 g respectively) observed on plants grown in Mycorrhizae + sterilized soil + compost (T1) and Mycorrhizae +sterilized soil + standard dose of NPK (T2). Mycorrhizae inoculation in soybean enhances the tolerability of drought condition. T1 and T2 treatments were given the comparatively higher values for the all measured growth parameters of soybean than the other treatments even at low water levels.

**Keywords:** Inorganic fertilizer, Mycorrhizae, Soybean

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