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Effective spore density of Vesicular Arbuscular Mycorrhizae (*Glomus mosseae*) for Cinnamon (*Cinnomomum verum* Presl Syn. *Cinnomomum zeylanicum* Blume) seedlings

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As VAM (Vesicular Arbuscular Mycorrhizae) association positively influences plant growth and development of associated higher plants, introduction of mycorrhizae would be a complementary alternative to improve the fertilizer absorption efficiency of true cinnamon (*Cinnomomum verum* Presl Syn. *Cinnomomum zeylanicum* Blume) seedlings. Therefore, as an initial step, this experiment was carried out to select a suitable spore density of the VAM fungus (*Glomus mosseae*) for inoculation of cinnamon seedlings at the nursery stage. Four mycorrhizal inoculum levels of *G. mosseae,* namely 25 g (T1), 75 g (T2), 150 g (T3) and 300 g (T4) were tested with a control (T5). The mean initial spore density of this inoculum was 154 spores/50 g (3 spores/ g). Three month old cinnamon seedlings were planted in clay pots filled with 1:1 sterilized top soil and river sand with the above (T1 to T5) inoculum levels. Staining procedure for mycorrhizal structures of cinnamon roots was found to be satisfactory and confirmed the success of VAM inoculation of cinnamon seedlings. Root colonization percentages for each treatment were 25, 35, 55, 27.5 and 2 for T1, T2, T3, T4 and control (T5) respectively. Plants of T2 showed the maximum root dry weight of 261 mg at the 2nd month after inoculation and it is significantly higher ($P< 0.05$) than non- inoculated control plants (151 cm). Relative positions of the treatments for root dry weights were similar at the 4th month after inoculation. Similarly shoot dry weight was also significantly higher for T2 plants (431 mg). Overall observations indicated that inoculation of cinnamon seedlings with 75 g of Inoculum consists of mycorrhizal spores (mean spore density was 231/75 g of inoculum) and structures with sorghum (*Sorghum bicolor* L.) roots and moist soil seems to be appropriate for enhancement of seedling growth in cinnamon.

Acknowledgement: Financial assistance by the NSF research grant RG/2007/Ag/01 and Department of Export Agriculture.