Investigating the Association of Vesicular Arbuscular Mycorrhiza (VAM) with *Commelina benghalensis* Weed Species

H.M.M.P.S. Herath, K.G. Prematilake and H.M.P.M. Gunasena

Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka

A study was conducted to investigate an association between Vesicular Arbuscular Mycorrhiza (VAM) and *Commelina benghalensis* weed. In field experiment 1 carried out at Wewessa estate consisted of 2 treatments, *i.e.* tea alone and a tea plot infested with *C. benghalensis*. In field experiment 2 carried out at the Uva Wellassa University, tomato was planted as an indicator plant in association of *C. benghalensis.* Single nodal stem cuttings of *C. benghalensis* was planted at 4, 8 and 12 cuttings per plot as treatments. Experiment was undertaken in a randomized complete block design with four replicates. Plant height of tomato and creeper length of *C. benghalensis* were measured weekly. Soil N, P and pH were analysed before and 3 months after commencement and tea yield was measured weekly at Wewessa estate. In both experiments VAM spore counts and root colonization percentages were calculated at 6 weeks' intervals. Dry weights of both *C. benghalensis* and tomato were measured. A significantly higher VAM colony count (19.5) and spore count (21) were reported in the treatment of Tomato planted with 12 *C. benghalensis* cuttings per plot 3 Months After Planting (MAP) when compared to that of Tomato planted with 4 cuttings per plot and the initial root colony count. Phosperous level in the rhizosphere was also significantly ($p<0.05$) increased when tomato planted with 12 *C. benghalensis* cuttings per plot, 3 MAP when compared to that of tomato planted with 4 cuttings per plot. In the field trial, there was no any significant ($p>0.05$) difference in tea yield between tea alone and tea planted in association of *C. benghalensis.* The study concluded that there is an association between VAM and P solubilization in *C. benghalensis*. This association has favourably affected on tea and tomato growth.

Keywords: Arbuscular Mycorrhiza (VAM), *Commelina benghalensis*, Root colonization, Soil spore count, Vesicular