

**INVESTIGATING THE ASSOCIATION OF VESICULAR  
ARBUSCULAR MYCORRHIZA WITH  
*Commelina benghalensis* WEED SPECIES**

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by

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## ABSTRACT

A study was conducted to investigate an association between Vesicular Arbuscular Mycorrhiza (VAM) and *Commelina benghalensis*, which is an aggressive weed infesting tea cultivations. Root colonization of *C. benghalensis* by VAM, the availability of VAM spores in its rhizosphere and the status of *C. benghalensis* as a weed in crop cultivation were studied as specific objectives. A preliminary study was carried out to identify the nature of the weed followed by a pot experiment using single nodal stem cuttings of *C. benghalensis* and Chillie plants as indicator plant. Four treatments such as 3 single nodal stem cuttings of the weed, 6 single nodal stem cuttings of weed with two Chillie plants, 6 single nodal stem cuttings of the weed alone and two Chillie plants alone. Experimental design was Completely Randomized with 10 replicates. Growth measurements of Chillie (height) and *C. benghalensis* (creeper length) were measured at fortnight intervals. Fresh and dry weights of Chillie and weed were measured 10 weeks after planting cuttings (WAP) and soil nutrient analysis for Carbon, Nitrogen and Phosphorus was done. Soil VAM spore counts were taken and root colonization percentages of VAM were calculated. There were no any significant differences between treatments on Root colonization percentages and spore counts in *C. benghalensis*. Root colonization percentage by VAM was ranged from 50-65% at 10 WAP and the soil VAM spore count was ranged 170-185 per 100 g of soil. Except for Phosphorus other nutrients were found to be limiting for growth of Chillie. Longest creeper length and creeper fresh and dry weights were recorded with *C. benghalensis* planted alone with 6 nodal cuttings. Height, fresh and dry weight of Chillie were significantly lower when it was planted with *Commelina* compared to those of Chillie, planted alone. The study concluded that there is a close association between VAM and *C. benghalensis* particularly due to Phosphorus solubilization though there is a competition between the weed and the crop

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