

Investigating the Association between Vesicular Arbuscular Mycorrhiza (VAM) and *Commelina benghalensis*

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A study was conducted to investigate the presence of an association between the Vesicular Arbuscular Mycorrhiza (VAM) and *Commelina benghalensis*. The effect of *C. benghalensis* as a weed was also studied as a specific objective. A pot experiment was carried out using single nodal stem cuttings of *C. benghalensis* and chili plants applied in 4 treatments, i.e. 3 stem cuttings + 2 chili plants (Treatment 1), 6 stem cuttings + 2 chili plants (Treatment 2), 6 stem cuttings alone (Treatment 3) and 2 chili plants alone (Treatment 4). Experiment was carried in a Completely Randomized Design with 10 replicates. As an indicator plant, chili seeds were sown after 3 days of planting weed cuttings and thinned out upto two plants per pot. Growth measurements of chili (height) and *C. benghalensis* (creeper length) were measured at fortnight intervals. After 10 weeks of planting cuttings, fresh and dry weights of chili and weed were measured, soil nutrient analysis for Carbon, Nitrogen and Phosphorus for each treatment was done, soil VAM spore counts were taken and root colonization percentages of VAM were calculated from each treatment. Root colonization percentages and the spore counts gave no any significant difference among treatments having *C. benghalensis*. Root colonization percentage by VAM ranged from 50-55% at 10 weeks after planting and the soil VAM spore count ranged 170-185 per 100 g of soil. Soil phosphorous level was significantly higher in pots with *C. benghalensis* due to Phosphorous solubilization. Therefore, the limiting factors for plant growth seemed to be some other nutrients or factors, rather than Phosphorus. Longest creeper length, creeper fresh and dry weight were observed in treatment 3 and significantly lower in treatment 2. Height, and fresh and dry weight of chili were significantly lower in treatment 2 and treatment 3 compared to treatment 4. The study concluded that there is an association between VAM and *C. benghalensis* and although there is a competition between the weed and the crop there are some favorable effects particularly due to Phosphorus solubilization.

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