INVESTIGATION OF POSSIBLE VESICULAR ARBUSCULAR MYCORRHIZAL (VAM) ASSOCIATIONS IN PREVALENT WEEDS IN TEA LANDS OF THE UVA REGION

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
In partial fulfilment of the requirements for the award of
Bachelor of Science in Tea Technology and Value Addition

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Tea Technology and Value Addition Degree Programme
Faculty of Animal Science and Export Agriculture
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2018

ABSTRACT

A study was carried out to investigate the possible Vesicular Arbuscular Mycorrhizal (VAM) associations in some prevalent weeds in tea lands of the Uva Region. VAM association in roots of some weeds are said to be favourable for crop growth. Root samples from the rhizosphere of *Ageratum conyzoides, Axonopus compressus, Bidens pilosa, Borreria latifolia, Cleome rutidosperma, Drymaria cordata, Eleusine indica, Erigeron sumatrensis* and *Oxalis corniculata* were therefore collected from three tea estates, Wewessa, Spring Valley and Telbedde in Badulla district of Uva region. VAM root colonization percentages and spore counts were calculated using the Grid method and Doncaster's counting disc method, respectively. Rhizosphere soil of highly VAM associated weeds were tested for soil Phosphorous. Rhizosphere soils of all weeds were tested for soil pH, to evaluate the variations of colonization and spore population with the soil pH level. There was a close association of VAM with selected nine weed species. The highest colonization percentage was recorded as 60.39% with *A. compressus* weed roots and the lowest as 35.42% with *E. indica* roots. The highest spore number was counted as 187 per 5g soil with *B. latifolia* and the lowest as 66 per 5g soil with *E. indica*. The lowest soil Phosphorus level was measured as 4.17 ppm with *A. conyzoides* and the highest was measured as 10.43 ppm in soil with *E. sumatrensis*. The pH of the cultivated land was within the range of 4.2 to 6.2 and the barren land was within the range of 5.6 to 7.3 at 19 ± 1 °C. There was a systematic moderate positive correlation between, root colonization percentages and soil pH but no systematic correlation between spore counts and soil pH.

Keywords: Vesicular-Arbuscular Mycorrhizal (VAM), Root colonization, VAM spore count, Weeds, Soil Phosphorus