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## GROWTH RESPONSES OF TEA (*Camellia sinensis* L.) NURSERY PLANTS TO VERMIWASH APPLICATION

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The high cost of agrochemicals and their unfavorable effects on human health and the environment have initiated a shift from conventional agriculture to organic agriculture. Vermiwash is one of the potential nutrient sources for organic tea cultivation. However, there has been limited work done so far on its effects on tea growth. This study investigated the potential of vermiwash application as a biofertilizer for tea nurseries.

An experiment was conducted in the glass house of the Department of Crop Science, Faculty of Agriculture, University of Peradeniya, using three month old nursery tea plants (cultivar TRI 4006) planted in soil filled polythene bags. Four treatments were used: T1: Application of recommended nursery tea fertilizer (T65) alone, T2: vermiwash alone as a foliar application, T3: vermiwash foliar application with half-dose T65, and T4: no application of fertilizer or vermiwash (control). One plant was considered as an experimental unit and 24 replicates were allocated per treatment. Treatments were arranged in a completely randomized design. Treatment applications were done at two week intervals and plants were randomly rearranged weekly. Plant growth parameters were measured weekly and after 8 weeks, 8 plants from each treatment were destructively sampled. Growth parameters, fresh and dry weights, leaf nutrient and chlorophyll contents were measured. Data were analyzed using SAS.

Vermiwash applied tea plants performed equally well compared to the recommended fertilizer treatment in terms of the measured parameters. The differences were not statistically significant amongst treatments, except for the leaf N content. Significantly high leaf N content was observed with T1 followed by T2 and T3, while T4 had significantly lower leaf N. The leaf N contents in T2 and T3 were higher than the minimum requirement of leaf N (3%). Vermiwash is known to contain microflora such as *Azotobacter*, *Agrobacterium* and *Rhizobium*. The presence of these microbes may convert organic nitrogen, amino acids etc. to available forms for plants through ammonification and nitrification processes.

Leaves that developed with the recommended fertilizer mixture had the highest levels of chlorophyll a, b and total, followed by vermiwash + half – dose T65, and then plants treated with vermiwash only, with the control plants having the lowest.

Vermiwash gave equally good results compared with the artificial fertilizer. Vermiwash was also able to reduce 50% of T65 fertilizer without affecting growth. The results were not statistically significant, which could be due to application of treatments for a short period of time. Hence, it will be useful to continue this experiment for a longer duration.