

**EFFECT OF DIFFERENT EARTHWORMS FEEDING
MATERIALS ON PHYSICO - CHEMICAL CHARACTERISTICS
OF *VERMIWASH* AND GROWTH PERFORMANCES OF TEA**

[*Camellia sinensis* (L.) O. Kuntze]

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by
HEWAINNE GIHANI MADURANGA JAYASINGHE

**Department of Export Agriculture
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

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ABSTRACT

Vermiwash is a liquid extract consisting of macro and micro nutrients, plant growth hormones and beneficial microorganisms which is used as an organic fertilizer. Sri Lankan organic tea farmers currently use wild sun flower (*Tithonia diversiflora*) as the earthworms feeding material for production of *vermiwash*. Selection of different earthworms feeding materials would increase the *vermiwash* production and quality. This study was conducted at Idalgashinna Bio Tea Garden to identify the effect of different earthworms feeding materials on physicochemical characteristics of *vermiwash* and to determine the effect of foliar application of it on growth performances of mature tea (*Camellia sinensis* (L.) O. Kuntze). In the first experiment, four different feeding materials, namely, decomposed *Gliricidia sepium*, *Tripsacum laxum*, *Cymbopogon confertiflorus* and refuse tea were used as the treatments. The physicochemical characteristics were compared with the standard test sample (control) prepared by *Tithonia diversifolia* at 5th, 7th and 9th weeks after establishment of *vermiwash* unit. The second experiment was conducted using organically grown tea cultivars CY 9, DN and TRI 2025 at their mature phase in the Up Country Intermediate Zone. Two levels of the standard *vermiwash*, 10% and 100% were applied in comparison with the control (0%) to evaluate the growth performances of tea cultivars. The results showed significant differences in macro and micro nutrient contents between treatments with time. The highest mean nitrogen was recorded with *G. sepium* (121.8 mg ml⁻¹) followed by refuse tea (116.5 mg ml⁻¹). Magnesium and Potassium contents were similar and Phosphorus was slightly different among all treatments. pH (5 to 8.4) and EC (1.6 to 5.4 mS cm⁻¹). Color of *vermiwash* progressively decreased with time. The overall results indicated that *Gliricidia sepium*, *Tripsacum laxum* and refuse tea can be used as a feeding material alternative to *Tithonia diversifolia* for production of *vermiwash*. The fresh weight of shoots (g), mean fresh weight of one bud and two leaves (g), shoot density of one bud and two leaves and immature bud (Shoot per m²) of three cultivars showed better performances with both application levels of *vermiwash* as compared to 0% application level. Field experiment should be further extended to identify the long-term effects and the consistent response pattern of mature tea cultivars.

Keywords: *Vermiwash*, Feeding materials, Growth performance, Tea