B-143: Stimulation of growth of tea plants by using earthworm casts

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Tests have indicated that earthworm casts, have a relatively higher nutrient content. There is considerable evidence that earthworms have positive effects on plant growth and productivity, but the available evidence almost exclusively concerns annual crops. Little is yet known of the influence earthworms exert on tea plant production, a perennial vegetative crop. Therefore a preliminary trial was conducted to elucidate the role of naturally available earthworm casts on plant growth.

This experiment was conducted in 1x1x3 m cement tanks at TRI sub station at Hantana. 75g casts per plant with 6 applications per year, 150g casts per plant with 6 applications per year, 250g casts per plant with 6 applications per year, 15g T200 fertilizer mixture per plant with 6 applications per year were the treatments. Earthworm casts were collected from the Hantana forest. Plants of the clone TRI 2025 were used. The experimental design was randomised complete block design with 4 replicates.

The growth assessments were carried out at 6 months, 12 months and 18 months after planting. Results indicated that treatment with 250g earthworm casts per plant exhibited enhanced growth (dry weight of leaves, dry weight of main stem, dry weight of side shoots and total plant dry weight) compared to other treatments.

Earthworm casts have excellent properties as a highly significant alternative source of supplying nutrients. Although naturally available cast is a limiting factor to apply casts at the rate of 3125kg/ha, tea estates or tea smallholders can easily produce earthworm casts in earthworm culturing sheds. Since the material used to culture earthworms are freely available, it helps to reduce the cost of fertilizer and other chemical agricultural inputs as well as environmental problems due to these materials.