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## Production of tea and increase in earthworm density-biomass following vermicompost application

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**Statement of the Problem:** Vermicompost is a nutritive organic fertilizer rich in NPK, micronutrients, beneficial soil microbes and increases plant growth and its yield. Tea (*Camellia sinensis*) is an economically important and intensively managed cash crop in Tripura. Earthworms play a significant role in the structure of soils and its over-all above ground crop productivity.

**Methodology & Theoretical Orientation:** The present study was conducted during January 2015 to November 2016 at Harishnagar Tea estate (Tripura, India) to study the effects of different doses of vermicompost on tea production and earthworm population. The experiment was set up with 3 different amounts of vermicompost [T0 (control), T1 (5 tons ha<sup>-1</sup> yr<sup>-1</sup>), T2 (10 tons ha<sup>-1</sup> yr<sup>-1</sup>) and T3 (15 tons ha<sup>-1</sup> yr<sup>-1</sup>)] each having 4 replicas in the plots of 2-year-old tea plants. Evaluation of different plant parameters was assessed. Earthworms were also collected by hand digging and sorting method during the experimental period to determine species composition, density and biomass. Composite soil samples from each experimental plot were collected for soil analysis.

**Findings:** Among all the experimental plots, highest values of pH (5.49), electrical conductivity (865 µMho), organic carbon (2.29%), available phosphorus (25.25 mg%) and potassium (60.25 mg%), TPC (0.522 mg GAE/g sample) and TFC (1.576 mg QEE/g sample) estimation of tea leaf was observed significantly in T3 plot in the second experimental period (2016). During the second year (2016), average leaf length (8.81 cm) and leaf width (3.55 cm), number of tea leaf plucks (10.17 plant<sup>-1</sup>) and total leaf production (92.71 tons ha<sup>-1</sup> yr<sup>-1</sup>) were significantly highest in the T3 plot. A total of only 3 earthworm species viz. exotic, *Pontoscolex corethrurus* (60%), *Metaphire houlleti* (24%) and native, *Drawida assamensis* (15%) were collected from the experimental plots. A significant (p<0.05) but gradual increase in density and biomass of earthworms were also recorded in the second year (2016) with the increase in the amounts of vermicompost. In fine, it is advocated that application of vermicompost in the tropical soils of tea agro-ecosystem promotes plant growth and increases the crop yield through increase in density and biomass of earthworms.

### Biography

Priyasankar Chaudhuri is a Professor of Zoology in Tripura University (A Central University) and did his PG and PhD from the Calcutta University, Kolkata. He is an eminent Earthworm Scientist with more than 80 research papers in national and international journals of repute. He is the author of the book "Kenchor Jeevan Baichitra: Kencho Prajukti (2006)" written in Bengali on the Biology and Ecology of Earthworms in North-East India with special emphasis on vermiculture and vermicomposting. He has participated in more than 25 National and International Symposia and visited Avignon (France) 1990, Vigo (Spain) in 1998, Cardiff (UK) 2002 and Shanghai (China) 2016 to present his research papers in International Symposia on Earthworm Ecology and Agricultural Sciences. He was elected as the Fellow of Zoological Society, Kolkata (1998) and Fellow of the Society of Applied Sciences, India (2010). His biography has been cited in the Who's Who in Science and Engineering 2006-2007 (Marquis, USA). The Academic Forum of the Society of Earthworm Ecology and Environmental Research (SEEER) awarded Certificate of Appreciation to him as an Earthworm Biologist in 2012. He was selected as one of the "Inspiring Teacher of Tripura University", Tripura in 2013. He has been honored with "Science Excellence Award" in 2015 and "Bharat Siksha Ratan Award" in 2016.

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