Vermicompose as a Source of Electricity

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Vermicomposting is a very effective, eco-friendly, cheap and easy method of recycling biodegradable waste using selected species of earthworms. Vermicompost is also rich in metal ions, acids and salts that has the potential to be used as an electrolyte. The main aim of this investigation is to exploit the potential lying in earthworm species to convert spent tea waste into high quality vermicompost that can be used as an electrolyte to generate electric current. The spent tea waste was vermicomposted for 60 days using Eudrilus eugeniae. An effective voltage was measured between copper and zinc electrodes immersed in vermicompost (electrolyte). The voltage was doubled when three isolated vermicompost cells were connected in series and could light up an LED bulb. The total macronutrients (N, P, K and Ca) and micronutrients (Fe, Cu, Mn and Zn) showed elevated levels in vermicompost when compared to control which contributed to the chemical reaction at the electrodes to create a potential difference across the electrodes thus giving a voltage. The present study reveals that the vermicomposting has a great future in generation of electrical energy from biodegradable waste