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Management of Temple Flower Waste of Jaipur City by Vermicomposting and its Effect on Soil and Plant Growth of *Pisum sativum*

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Abstract

Solid waste management is one of the major challenges faced by many countries around the globe. Inadequate collection, recycling or treatment and uncontrolled disposal of waste in dumps can lead to severe hazards, such as health risks and environmental pollution. In India, at most of the religious places, a huge tonnage of solid waste is generated largely during functions, worships, ceremonies and festivals. The quantity of flower waste generated by few major temples of Jaipur city was assessed. In the present study different proportions of mixture of cattle dung and floral wastes were taken and vermicomposting process was done using *Eisenia foetida* earth worm species.

The control (mixture without floral waste) took a longer time to decompose while the mixtures of floral waste and cow dung decomposed in less time. The bioconversion ratio i.e., waste into vermicompost was found to be high in 50:50 and 60:40 proportion. After the vermicomposting process analysis of various physical and chemical parameters was done. It was found that 25°C temperature, 8.0 pH, 1-2 mm particle size, 80% moisture content, black colour, odourless, 0.88 bulk density were optimum parameters for floral waste vermicomposting. Vermicomposting resulted in lowering of EC, C:N ratio, C:P ratio and increase in nitrogen, phosphorus, potassium, calcium, magnesium and sulfur. The pot culture studies of *Pisum sativum* plants (using prepared floral waste vermicompost as fertilizer), various growth parameters like mean stem diameter, mean plant height, mean leaf number and total plant biomass showed good enhancement of growth. The results indicate that integrated effect of all the nutrients present in flower waste vermicompost results in the increased growth and yield of *Pisum sativum* plants and also played a crucial role in improving soil properties, as compared to control. Thus, vermicomposting of temple flower waste is an excellent and ecofriendly method to get valuable products which will lead to a healthier and waste free environment

Keywords: Temple floral waste, Vermicomposting, *Pisum sativum*, Growth, Parameters