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Physico properties and Macro nutrients (N, P, K) analysis of *Eudrilus eugeniae* vermicompost

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Abstract

In Indian agriculture chemical fertilizers play a vital role in the same time they create a problem to non-target organisms. The aim of this analytical research is to identify the physical nature and macro nutrients (N, P, K) of the *Eudrilus eugeniae* vermicompost. The vermicompost nitrogen, phosphorus and potassium composition was 2.16, 1.21 and 1.38 respectively. As a result of it, we are known vermicompost is the best medicine for sicked soil. Finally we recommend the vermicompost instead of chemical fertilizers.

Keywords: Vermicompost, *Eudrilus eugeniae*,

Introduction

Now a days, agricultural practice systems has become extremely expensive due to requiring heavy inputs (chemical fertilizers and pesticides) and becoming out of reach for farmers because they are economically poor. The problem of farmers has increased by unscientific disposal of municipal solid waste. Growing population and growing needs are the today's problem for farmers and government.

Chemical fertilizers played a significant role in Indian agriculture; its continuous and unscientific use has disturbed the soil health, which in turn leads to lower crop yield and quality (Iyer Shanti *et al* 2012). The long-term use of chemical fertilizers without organic supplements damages the

soil physical, chemical and biological properties and cause environmental pollution (Aebiach *et al* 2000).

External inputs to agricultural production systems include mineral inorganic fertilizers such as urea, ammonium nitrate, sulfates and phosphates and pesticides including herbicides, insecticides, nematicides, fungicides, veterinary health products and soil fumigants. All these products are applied with the ultimate goal of maximizing productivity and economic returns.

It has clearly been established that chemical fertilizers have impact on soil fertility as well as soil organisms particularly earthworms, but there had been fewer studies of the influence of inorganic fertilizers on earthworm populations. The impact of inorganic fertilizers on earthworms may be direct, for instance, by changing the acidity of the soil, or indirectly, by changing the form and quantity of the vegetation that ultimately provides food for worms.

Increasing public awareness of the negative environmental impacts, growing consumer demand for healthier products and criticism of high input production systems lead to more emphasis on organic crop production under integrated management systems (Guarda *et al* 2004). Vermicompsting is an eco-friendly process that transforms energy rich and complex organic substances into stabilized humus like product vermicomposts (Suthar & Singh 2008). The present research was to assess the vermicompost nutritional values.

Materials and Methods

Chemical composition: The Physico properties and macro nutrients of the vermicomposts of *Eudrilus eugeniae* was analyzed, at Madurai agriculture research center.

Result and Discussion

Table: 1 Physical nature of vermicompost

Parameter	Unit	Value
pH		7.69
EC	dsm-1	1.19
Organic carbon	%	17.7

Table: 2 Macronutrients evaluation of vermicompost of earthworm (*Eudrilus eugeniae*)

Parameter	Unit	Value
Nitrogen	%	2.16
Phosphorus	%	1.21
Potassium	%	1.38

India is the largest producer and consumer of fertilizers in the world. The increasing cost and side effects of chemical fertilizers, growing ecological concern and the farmers interest in organic compost. Municipal solid waste through low-cost technologies, such as vermicomposting, is necessary to overcome environmental problems caused by accumulating of municipal solid waste in landfills.

In the present study the micro and macro nutrients were analysed for better management of municipal solid waste. Table 1 revealed the physical nature of vermicompost. In another study with macronutrient analysis recorded. The macronutrients recorded for N, P, K was determined.

Conclusion

Vermicompost obtained in this research were rich in N, P and K for plant's growth and good physical properties. These characters make vermicompost useful as soil conditions, ecofriendly organic fertilizers and good substitute. Vermitechnology used for waste and soil ecosystem management.

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