

Management of Kitchen Waste by Using Vermicomposting Method

Chavan R.G¹ , Alandikar N.P² , Bansode R.D³,Thakur A.A⁴ ,
Totad K.C⁵ , Lamkane S.L⁶
Civil Engineering Department ,
A.G.Patil Polytechnic Solapur

Mr. Shaikh S.N
Civil Engineering Department ,
A.G.Patil Polytechnic Solapur

II. VERMICOMPOSTING

Abstract:- Vermicomposting is a process in which earthworms are used to convert organic materials into humus-like material known as vermicompost. A number of researchers throughout the world found that the nutrient profile in the vermicompost is generally higher than traditional compost. In fact, vermicompost can enhance soil fertility physically, chemically and biologically. Physically, vermicompost-treated soil has better aeration, porosity, bulk density and water retention. The chemical properties such as pH, electrical conductivity and organic matter content are also improved for better crop yield. Although vermicomposts have been shown to improve plant growth significantly, the application of vermicomposts at high concentrations could impede the growth due to the high concentrations of soluble salts available in the vermicomposts. Therefore, vermicomposts should be applied at moderate concentrations in order to obtain maximum plant yield. This review paper discussed in detail the effects of vermicompost on soil fertility physically, chemically and biologically. Future prospects and economy on the use of organic fertilizers in agriculture sector were also examined.

Keywords — *Vercomposting, PH, Physically, Chemically, Biologically, Earthworms.*

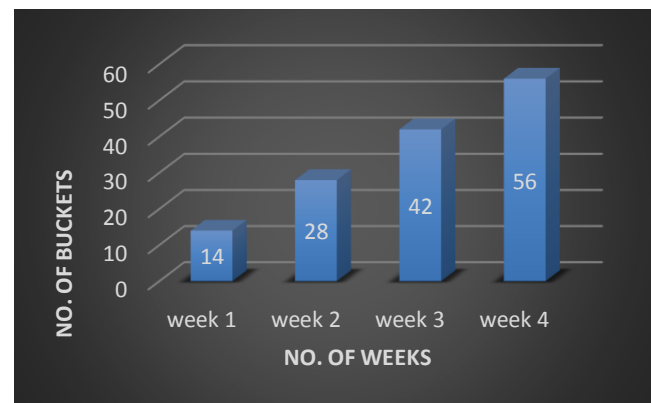
I. INTRODUCTION

Every Home Kitchen Generates food scraps for disposal throwing these scraps in the garbage can create odor problems and adds to the volume of waste going in the landfill disposing of kitchen scraps in a garbage disposal is convenient but it adds to the burden of the waste treatment system and throws away a potentially valuable resource. Further more garbage disposals are not recommended for the homes that rely on a septic system for waste disposal. A viable alternative tot disposing of food scraps in the landfill or the sewer system is tot compost them. The resulting materials is a useful addition to gardens and potted plants.

Industrialization and urbanization is increasing day by day. as a result of this the generation of solid waste is a major problem all over the country within the urban as well as rural area. in view of this the management of solid waste produced is of prime need to keep the environment safe and clean.

Vermicomposting technology is one of the best options available for the treatment of organics-rich solid wastes. The term vermicomposting is coined from the Latin word ‘Vermis’ meaning to the ‘worms’. Vermicomposting refers to composting or natural conversion of biodegradable garbage into high quality manure with the help of earthworms. Earthworms play a key role in soil biology; they serve as versatile natural bioreactors to harness energy and destroy soil pathogens. The worms do so by feeding voraciously on all biodegradable refuse such as leaves, paper (nonaromatic), kitchen waste, vegetable refuse etc. Earthworms have been used stabilization for many years.

III. WASTE GENERATION IN A.G. PATIL POLYTECHNIC INSTITUTE, SOLAPUR



IV. MANAGEMENT OF KITCHEN WASTE



V. CONCLUSION

Vermicompost can be described as a complex mixture of earthworm faeces, humified organic matter and microorganisms, which when added to the soil or plant growing media, increases germination, growth, flowering, fruit production and accelerates the development of a wide range of plant species. The enhanced plant growth may be attributed to various direct and indirect mechanisms, including biologically mediated mechanisms such as the supply of plant-growth regulating substances, and improvements in soil biological functions. Use of this type of organic fertilizer therefore has great potential; however some recent studies raise serious doubts about the general applicability of these results and propose a more complex model of action for these types of effects. Stimulation of plant growth may depend mainly on the biological characteristics of vermicompost, the plant species used, and the cultivation conditions. Extensive research on inorganic fertilization and plant breeding, carried out within the framework of conventional agriculture, has allowed agricultural producers to fine-tune nutrient inputs and plant needs in order to maximize yields. However, such detailed knowledge has not yet been attained as regards the interactions between plants and organic fertilizers in sustainable agriculture. Given the complex and variable composition of vermicompost in comparison with inorganic fertilizers and the myriad of effects that it can have on soil functioning, a clear and objective concept of vermicompost is required, and the complex interactions between vermicompost-soil-plant must be unraveled in order to maintain consumer confidence in this type of organic fertilizer.

VI. RESULT

Garbage or organic wastes produced by various canteen's make up the municipal or corporation garbage which today results in environmental problem. Vermicomposting which is an environmental-friendly technique implying no pollution what so ever can convert all such wastes into wealth. Vermicomposting is a sustainable technique for solid waste disposal. The present study results of the laboratory experiment have thus, proved the value of major nutrients. However, the manorial value of the vermicomposting depends upon the raw materials used.

Vermicomposting produced from the canteen wastes is not only the having beneficial effects on soil health and growth, quality and yield of crop but also playing vital role in eradication of pollution hazards.

- It helped to reduce volume of agro waste and to generate additional revenue.
- The problem of disposing the agro waste may be solved by constructing such as the vermicomposting production unit.

- The agro waste converted in vermicomposting which will earn economic benefits.
- No hazardous effluents are generated from a compost production unit using agro wastes.
- There are no pesticide residues, weed seeds heavy metals, sand termite or wax, plant root diseases, etc. Vermicomposting can be used for all crops agricultural, horticultural, and ornamental and vegetables at any stage of the crop.
- It will reduce the requirement of more land for disposal of fruits and vegetable wastes in near future.
- It helps to create better environment, thus reduce ecological risk.

REFERENCES

- [1]. Edwards, C.A. and J.R. Lofty 1972. *Biology of Earthworms*. London: Chapman and Hall Ltd. 283 pp.
- [2]. Bhadauria T and Ramakrishnan PS. 1996. Role of earthworms in nitrogen cycle during the cropping phase of shifting agriculture (jhum) in northeast India. *Biology and Fertility of Soils* 22:350–354.
- [3]. Bhiday MR. 1994. Earthworms in agriculture. *Indian Farming* 43(12):31–34.
- [4]. Coleman D C. 1985. Through a red darkly: an ecological assessment of root soil microbial faunal interactions.
- [5]. Edwards, C.A. 1998. "The Use of Earthworms in the Breakdown and Management of Organic Wastes". In: Edwards, C.A. (Ed) *Earthworm Ecology*. St. Lucie Press, Boca Raton, pp. 327-354.