



7.3.1 INSTITUTION DISTINCTIVNESS

1. Title of the Practice: Solid waste management by vermicomposting

Objective of the Practice

- Vermi-composting activity is of immense importance in solid waste management which is beneficial for society and also keep college campus clean.
- It creates awareness among the students about clean environment and best from waste. Analysis will help to know concentration of nutritive elements present in variety of cast generated by different waste for carbon and other important element present in different type of casts
- To provide experiential knowledge of subject

The Context: Vermi-composting activity is of immense importance in solid waste management which is beneficial for society and also keep college campus clean. It will also create awareness among the students about clean environment and best from waste. Vermicast (also called worm castings, worm humus or worm manure) is the end-product of the breakdown of organic matter by an earthworm. These castings have been shown to contain reduced levels of contaminants and a higher saturation of nutrients than do organic materials before vermicomposting. Vermicompost contains water-soluble nutrients and is an excellent, nutrient-rich organic fertilizer and soil conditioner. Vermi-composting is a part of applied Zoology. To create an awareness among the students about environment Department of Zoology has taken an initiative and started this activity since 2017-18. We use pit method for vermicomposting. We prepared variety of vermicasts from different wastes. Analysis was done for carbon and other important element present in different type of casts during session 2020-21.

The Practice: Uniqueness of this activity is that we made this project research oriented through which variety of vermicasts generated from different type wastes. Analysis of carbon and other important element present in different type of casts.

Evidence of success: About 250 kg vermicompost generated from green waste of college campus and Research paper based carbon and NPK analysis was published with students.

Problems encountered and resource required- Corona Pandemic situation is the main problem encountered.



CARBON NITROGEN EVALUATION OF VARIOUS VERMICAST BY NUTRITIONAL WASTE MANAGEMENT

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ABSTRACT:

Earthworms are the major component of soil in most ecosystem that helps in converting nutritional waste into nutrient rich soil. Their activities beneficial for enhancing soil nutrient cycling. Especially concentration of organic carbon and Nitrogen are the indicator of soil fertility. The Marigold (Zendu) and Chrysanthemums (Shevanti) flower waste from holy places and Cabbage leaf waste from vegetable seller was collected separately and cast generated from these waste analysed for the comparative study for the evaluation of organic carbon, Nitrogen and carbon nitrogen ratio an essential elements in cast generated from these wastes separately using IS and APHA method. Carbon and Nitrogen, the essential element for plants was found in high concentration in Marigold flower waste (9.18%) when compared with control sample and other waste while carbon nitrogen ratio found to be more in cast generated from cabbage leaf waste.

Keywords: - Cast, APHA, IS, Organic

INTRODUCTION :

Soil is the largest storehouse of the organic carbon. Soil organic carbon plays an important role in soil fertility and water conservation. SOC is also known to increase soil nutrient cycling capacity. The higher SOC content results in an improvement of the soil's condition. This has been discussed widely within the soil quality concept (Andrews et al. 2004). Zvomuya et al. 2008 identified total SOC content as one of the key soil quality indicators associated with differing yield. Numerous studies focused on the role of earthworms in soil carbon mineralization and stabilization. Earthworms are known to modify the soil structure and alter the physicochemical parameters. Earthworms occurring globally in almost every ecosystem are biochemical reactors that transform unstable carbon components into more stable forms. Earthworm feeding and casting behavior serves as a mechanism for physical stabilization of carbon trapped within (Elvin Thomas, V. Shanthi

Prabha) Humification of organic matter by earthworms render a biochemical stabilization mechanism for soil carbon. Several studies highlighted the presence of earthworms to have a positive impact on the soil organic carbon (SOC) content (Gilot 1997; Bossuyt et al. 2005). Utilization of nutritional waste to restore important nutrient in soil is utmost important in urban areas.

India shows a variety of cultural heritage and uses flowers for decoration as well as for worship in holy places. Later these flowers are thrown as a waste material. The organic waste generated from vegetable markets has no proper disposal and hence dumped in open ground which results in environmental pollution and nutritive elements present in such waste is wasted. These wastes mixed with municipal solid waste and allowed to decay naturally. Sometimes this waste is also dumped into nearby water bodies like wells, rivers and lakes which leads to pollution of water as well as environment, it also affects aquatic life. Solid

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