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Use of vermicomposting: A foretase

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Abstract

Solid waste management is a term that is used to refer to the process of collecting and treating solid wastes. It also offers solutions for recycling items that do not belong to garbage or trash. As long as people have been living in settlements and residential areas, garbage or solid waste has been an issue. Waste management is all about how solid waste can be changed and used as a valuable resource. Vermicomposting is a simple biotechnological process of composting, in which certain species of earthworms are used to enhance the process of waste conversion and produce a better product. In the present paper different aspects of solid waste management and vermicompost in particular have been studied.

Keywords: Solid waste, Management, Vermicomposting, Resource

Introduction

Solid waste handling deals with the art of collecting and treating wastes of solid form. It might provide some of possible ways for reusing items that may not adhere to the solid trash. Civilization gave a new problem of handling garbage or solid waste. Waste management will give a way to know- how in which solid waste can be converted as a valuable resource Solid waste treatment might be adapted by one and all especially the very own large producers of this waste that is big factories owners all over the world ^[1]. Industrialization has resulted into the issues of creation of solid waste besides bringing prosperity to masses.

Almost every hour, billions of solid waste needs to be handled and marshaled at various places above or below the ground (Garg, 2001) ^[1]. This waste originated from houses, industrial houses, hostels, hospitals and various other agricultural production activities. These disposal places generates very foul smell if the waste is not disposed of in a scientific manner with proper treatment. It might have an ill effect on the air and definitely will gravely disturb the wellbeing of living beings, birds and our plants. Following are few of the major sources of solid waste (Garg, 2001) ^[1].

- **Household**

Houses where we people live generates something the keycradles of solid waste. Trash from homes might be consisting of perishable vegetable peeling wastes, toys, waste napkin paper etc. including some of unique wastes like big volume homely items especially some of old electronics that is seldom used, tires, water pipes, old mattresses and used oil cans. Majority of us use garbage bins for discarding this wastes and afterwards these bin are vacated by a trash disposing firm/person for its further disposal.

- **Manufacturing**

Manufacturing and trading of goods are assumed to be one of the greatest funders of solid waste. It consists of light and heavy fabricating units, building construction sites, manufacturing plants, nuclear and chemical plants. They contribute to the solid waste in form of housekeeping wastes, perishable wastes, wrapping wastes, ashes, knocking down products, some of special wastes, therapeutic wastes etc.

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• **Trade**

Trading facilities and buildings are an emerging source of solid waste now a day. Commercial units and amenities in the present scenario relate to hotels, souks, dhabas, storage and processing centers including the office buildings. Solid wastes generated in this ways from these places consists of plastics, vegetable wastes, metals, paper, glass, timber wood, etc.

• **Organizations**

Organizations like seminaries, universities and vocational trade schools, sisterhoods, colleges, military barracks and other government centers also contribute to the solid waste. A few of the common solid wastes produced from these places include glass, rubber waste, plastics, sustenance wastes, timber, paper, metals, electronics etc.

• **Creation and Devastation Areas**

Creation of new units especially building positions are a big contributor to the waste issues. Structural sites include new places for infrastructure sites as well as old renovation units and building demolition sites. Some of the solid wastes produced in these places include steel materials, concrete, wood, plastics, rubber, copper wires, dirt and glass.

• **Agriculture**

Crop growing units, plantations and, vineyards constitute a great source of solid waste. They generate pastoral wastes, spoiled food, bug killer cans etc.

• **Biomedical**

It refers to caring units and biomedical equipment and chemical industries. In nurseries and old age caring centers including therapeutic units.

Methods of Solid Waste Management

• **Landfill**

It's the most commonly used solid waste removal method tillnow. Trash is mainly placed in very thin layers, compacted/pressed and enclosed with soil and finally covered by a plastic foam. In modern days, the landfills getprearranged such that the landfill erection site is covered with a liner material like that of a plastic and sand. It serves the purpose of protecting the ground water from being contamination resulting from the percolation (George Tchobanoglous and Frank Kreith, 2002) [2]. When the landfill is completed, it is finally encapsulated with sand and clay. The top soil and gravel is also placed to prevent the percolation of water.

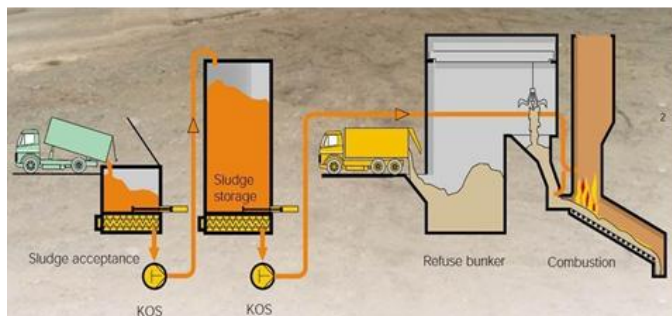


Landfill

• **Incineration**

It makes use of burning of solid wastes at very high temperatures under the controlled environment so that until

the wastes are turned into ashes, the working of incineration is carried out. Incinerators are made with very good amount of insulation property so that there is a minimum amount of heat loss while burning of solid wastes is continued (George Tchobanoglous and Frank Kreith, 2002) [2]. It's a must for biomedical wastes and even can be adapted for other units also provided it's economical. The beauty of this method is that it reduces the volume of waste up to 20 or 30% of the original volume (George Tchobanoglous and Frank Kreith, 2002) [2]. Thus it's easy to handle the final end product and more of places will be saved.



Incineration process

• **Reuse**

Salvaging and reprocessing of resources is the process of taking useful out of discarded items for next purpose. Ideally, these items are processed and cleaned before they are recycled. The techniques aim at improved methods including reduction of energy loss besides the consumption of new material and reduction oflandfills (George Tchobanoglous and Frank Kreith, 2002) [2].

• **Composting**

Availability of sufficient cosmos for landfills and the compostable waste is reducing day by day and this technique gives an alternative to decompose the wastes in a designed engineered way. Only biodegradable waste materials arethe key sources of the process. A very good quality manure is formed from the compost in an environmentally friendly way and is a boon for agricultural purposes.



Composting

Generation process by Vermicomposting

Vermicomposting is a method in which a particular generic of earthworms enhance the process of organic waste conversion for the production of a better end-product that is ready to use in agricultural farms as a manure [3]. It is a mesospheric process making use of earthworms. Earthworms consumes the carbon based waste products, digest it in their digestive system and excretes it in a gritty form (cocoon) which is known as vermicompost [3].



Vermicomposting

Vermicomposting with Earthworms

In simple terminology, vermicompost is earthworm excrement known as castings, which might increase viability of the soil (Grace Gershuny and Jocylenlanger, 2011) [3]. The chemical emissions from the earthworm's digestive tract is a boon in breakdown of the soil and organic matter, so the castings will result in production of more nutrients that are immediately available to plants. Vermicomposting is a straightway biotechnological art of composting, in which a few of the special generic species of earthworms are used to increase the process of waste conversion and produce a better product (Grace Gershuny and Jocylenlanger, 2011) [3]. This is basically the putrefaction of carbon based material by making use of earthworms. We might get brilliant benefits by saleable generation of vermicompost as this is getting in vogue day by day. Vermicompost, besides supplying nutrients and growth enhancing hormones to plants, improves the soil structure leading to increase in water and nutrient holding capacities of soil. In India, generally, it costs very little and is about 10 to 15 rupees to produce 1 kg of vermicompost and this can be sold at 40-42 Rs/kg in open market (Grace Gershuny and Jocylenlanger, 2011) [3].

Conclusions

In India, generally, it costs very little and is about 10 to 15 rupees to produce 1 kg of vermin compost and this can be sold at 40-42 Rs/kg in open market. So this venture needs to be promoted as this is the only possible way of conserving the nature seemingly.

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