

Bio-Waste Processing With Black Solider Fly Larvae

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Abstract: *Fly larvae composting converts different organic sources into valuable end products. Which can as nutrient rich larvae, Which can be used as animal feed (or) nutrient rich soil amendment. The present study is the life cycle of the black solider fly. We make use of the black solider fly larvae's voracious appetite. Why this particular fly is suitable for organic waste management .This study confirms the organisms of our interest in about the black solider fly hermetic illusion The WormsDo not take any kind of environment, the spread of disease*

Keywords: Composting, Black solider fly, Nutrients.

1. Introduction

Increasing population and urbanization results in increasing waste generation. Most cities are finding it difficult not only to cope with the existing situation but also to anticipate future trends and prepare and plan for this. No (or) unreliable waste collection results in waste accumulation in neighborhoods and endangers public health. Deficient treatment (or) disposal severely pollutes the environment and contributes to global warming.

The integrated sustainable waste management framework was divided in the 80's has been iteratively improved Since the version consists of two overlapping triangle that represent two sides of a solid waste management system.

The hardware of the system also called physical components, and the software of the system, that the governance aspects. The physical elements in the Municipal Solid Waste Management chain that covers generation, collection, reuse, and recycle and disposal. Poor countries generate less waste, rich countries generate more waste. At the same time, the size of cities is also rapidly growing. Remember the waste composting may vary quite significantly, depending on the location .Many households have goats (or) they have friends that have goats and most of the organic material, kitchen scraps from the households are fed these goats by the innovative biological treatment process . Which is feeding bio-waste to insect larvae and then harvesting the larvae as protein source? In this particular solider fly suitable for organic waste management. In this fly found in the temperate and tropical areas. It's quite a big fly compared to the house fly, it's about 10 times heavier and it's adult lives only for about a week .During this time ,it doesn't take up food, that means, it does not hop from one food source to the other and therefore cannot spread diseases moreover, its major activity is to find a mate to reproduce soon after it steps into adult stage.

2. Materials

This study was conducted in the Guntur district of Andrapradesh. This properties of waste, especially composition, moisture, density and also caloric value. The

number of collection vehicles that are necessary, then it's also important to assess the quantity of waste that is generated. Waste is generated in the household which needs to be removed and collected by vehicles. Which on the other hand covers the physical elements, starting with waste generation collection transport treatment and recycling or landfill disposal?

3. Methods

This is how it works an adult fly lives for about a week and during this time it mates and the female lie is lay a 1000 eggs close to a suitable feed source. This can be a wide variety of organic material, such as food, market waste animal manure and slaughterhouse waste. The eggs take about three days to hatch and small larvae emerges is, only about one millimeter in size. These tiny larvae search now for food and on it for over a period of 14 days. During this time, they grow from one millimeter to around 2.5 centimeters length and finally weigh about 200 milligrams.

They go through five larvae stages before they molt then become the so- called, ,pre-pupa. These prepupa search for a dry, dark location to pupate, and thus it usually crawls out of the waste source. Pupation takes about three weeks and results in the emergent fly. This is the natural cycle, of Black solider fly larvae. First, we have to manage a breeding and rearing facility which guarantees us a constant supply of fresh young larvae to add to the waste, and then we need to provide the flies with an environment which makes them happy and stimulates them to meet. This means enough light, space and humidity or even a water source. We call them as love cages, within the love cage; we provide the female with a medium like a sheet of corrugated cardboard.

Then it is placed above a substrate which gives off a strong smell or stinks that the females have attract by the smell and fill the holes with eggs. Here, a few females which are just about to place their eggs into the openings. Each package contains 800 to 1000eggs .Once the larvae have hatched; we keep them in the nursery for five days before adding them to the bio-waste. We prepare the waste by grinding it up, so that the larvae can feed easier on it.

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This makes them an attractive feed source for animal and they can be replacing by the fish meal nowadays is used in animal feed. The demand has been increased because there is much more aquaculture is developed today than before is in vague and also the wild fish population on the other hand is depleting.

4. Discussion

Do you know what is happening in the area? Most of the people live in the midst of this waste .Most of the waste their surroundings takes effect. To remove this waste to the worms are very useful. Most of this waste control &manage methods is not available. to use this type of worms there is no effect of the environment and creatures

It is very expensive to remove the solid waste . Easy to remove the larvae can do this as a solid waste. The study can be found through.Also, the cost of such simple techniques in the future; we can save a lot of money. There was no damage to the environment people, these creatures were able to prove.

5. Conclusion

In our present generation one of the major problem how to remove the solid waste management. This study very useful to future generation why because it is also use to agriculture to increase the soil fertility and soil quality

References

- [1] United States Environmental Protection Agency (2013). "Reducing Food Waste for Businesses: Food Waste Basics". Wastes - Resource Conservation - Food Waste. United States Environmental Protection Agency - Official Website
- [2] D. G. Wilson (1976). "A brief history of solid- waste management" International Journal of Environmental Studies. Vol. 9, Iss. 2. 123-129. DOI: 10.1080/00207237608737618
- [3] P. A. Olivier (2009) "Utilizing lower life forms for the bioconversion of putrescent waste." Black Soldier Fly Blog - Official Website.
- [4] Gui MM, Lee KT, Bhatia S. Feasibility of edible oil vs. non-edible oil vs. waste edible oil as biodiesel feedstock. Energy 2008;33:1646e53.
- [5] Canacki M. The potential of restaurant waste lipids as biodiesel feedstocks. Bioresource Technology 2007;98:183e90.
- [6] Peterson CL, Reece DL, Hammond BJ, Thompson J, Beck SM. Processing, characterization and performance of eight fuels from lipids. ASAE Paper 1994; 94:6531.
- [7] A value added manure management system using the black soldier fly .D. Craig Sheppard G. Larry Newton Sidney A. Thompson
- [8] Soldier fly larvae as feed in commercial fish production K. Bondari, D.C. Sheppard
- [9] Cointreau-Levine, S., and A. Coad (2000). Private Sector Participation in Municipal Solid Waste Management: Guidance Pack (5 volumes). SKAT, St. Gallen, Switzerland. <http://www.worldbank.org/urban/>

- solid_wm
/erm/CWG%20folder/Guidance%20Pack%20TOC.pdf •
- [10] Cointreau-Levine, Sandra (1994). Private Sector Participation in Municipal Solid Waste Services in Developing Countries: Volume 1. The Formal Sector. UNDP/UNCHS/World Bank Urban Management Programmers
[.http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000009265_3970128111924](http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000009265_3970128111924)
 - [11] Akolkar, A.B (2005), "Status of Solid Waste management in India: Implementation status of Municipal Solid Waste (Management and Handling)Rules,2000", New Delhi, Central Pollution Control Board.
 - [12] All India Institute of Local Self Government, (2000), "Manual on Solid Waste Management", Mumbai,
 - [13] CPHEEO (2000),"Manual on Municipal Solid Waste Management" Ministry of Urban Development, Government of India, New Delhi
 - [14] Akolkar, A.B., "Status of Solid Waste Management in India Implementation Status of Municipal Solid Wastes," Management and Handling Rules 2000 Central Pollution Control Board, New Delhi, 2005.
 - [15] Anon, "Solid Waste Management - The Namakkal Experience," Development Alternatives, New Delhi, Vol. 15 No. 6, 2005.
 - [16] Chouhan B.M and B.K Reddy "Bio-energy scenario in India, "Journal IREDA News, Vol. 7(1), pp. 20-27, 1996.
 - [17] Dhande A.D., Ingle S. T, Attarde S. B. and Wagh N.D., "Eco friendly approach of urban solid waste management - A Case Study of Jalgaon city Maharastra," Journal of EnvironBiols, Vol. 26 (4), pp. 747-752, 2005.
 - [18] Jha A.K., Singh S. K., Singh J.P. & Gupta P.K., "Sustainable municipal solid waste management in low income group of cities: a review," Journal of Tropical Ecology, Vol. 52(1), pp. 123-131, 2011.
 - [19] Jha, M.K., Sondhi. O.A.K., Pansare, M., "Solid waste management – a case study," Indian Journal of Environmental Protection, Vol. 23 (10), pp. 1153–1160, 2003
 - [20] Kumar J.S., Subbaiah K.V. and Rao P.V.V.P., "Waste to Energy: A Case Study of Eluru, A.P, India," International Journal of Environmental Science and Development, Vol. 1, No. 3, pp. 238-243, 2010