

Preparation of Anaerobic Compost

Pankaj Kumar and Ankitand Dipika Mal

School of Agriculture, Domain of Horticulture, Lovely Professional University,
Phagwara, Punjab-144411

ARTICLE ID: 36

Introduction

Worldwide Composting is the major practice toward organic farming. Typically, the term "composting" refers to in-vessel or out-of-vessel operations where oxygen is added through mixing of air to speed up decomposition which can be done with or without the presence of oxygen known aerobic or anaerobic composting respectively. The anaerobic microbes is used in the anaerobic composting which helps in the breakdown of organic compounds by utilizing Nitrogen, phosphorus and other nutrients like aerobic composting and develop intermediate compounds like hydrogen sulphide, organic acids, methane and other compounds. There are four steps which are take place during the process of anaerobic decomposition viz. hydrolysis, acidogenesis, acetogenesis and methanogenesis. There are major factors affecting of anaerobic composting which can be followed as: Temperature is a major limiting factor in the process of anaerobic composting. The temperature which is considered optimum for the growth of microbes is 35°C. Temperatures above 37°C cause the digestion process to take longer and slow down the production of biogas. Substrate is directly influence the process of decomposition and also affects the production of Methane gas. pH is also the major factor. The optimum pH for the anaerobic composting is 6.8-7.2.

Material Required

The raw material is required for the preparation of anaerobic compost is Dry grass, green chopped grass, and dry leaves, saw dust, well decomposed compost and cattle dung slurry.

Step wise Procedure of Anaerobic Composting

A bed is prepared with the help of wooden sticks at the suitable site. About 15cm layer of dry grass is laid on the bed and a uniform layer of green chopped grass is laid on the dry grass. After that another layer of dry leaves are laid. In next step, a layer of saw dust is laid with a sprinkle of water over it uniformly. A thin layer of well decomposed compost is

spread over the top of the heap. Old compost serves as an inoculum for the material's decomposition. After that, a thin layer of cattle dung slurry is spread. Then again a layer of chopped grass, dry leaves and cattle dung slurry is laid over the heap and covered with dry grass and plastic sheet. The heap is left undisturbed for a month. After a month turning is done and again reformed. The compost is ready in another month for application in field.



Plate No. 01
Preparation of Bed



Plate No. 02
Layer of Dry grass

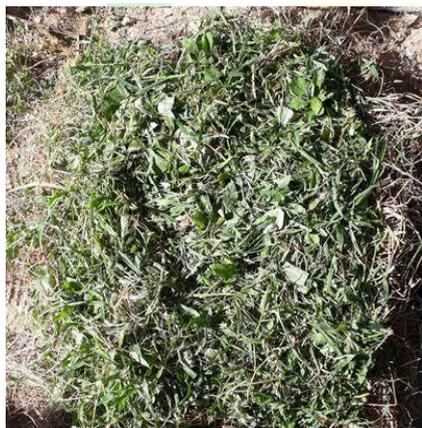


Plate No. 03
Layer of Green Chopped grass



Plate No. 04
Layer of Dry Leaves



Plate No. 05
Layer of Saw dust



Plate No. 06
Layer of decomposed compost



Plate No. 08
Layer of Green grass and dung



Plate No. 07
Layer of Cattle dung slurry



Plate No. 08
Covering of heap with Dry grass



Plate No. 09
Covering of heap with Plastic Sheet



Plate No. 10
Final Product

Problems and challenges in anaerobic composting

Although the fact that anaerobic digestion has been used for to handle organic waste, but still there are some issues and challenges that come with it. First issue is with the quality and selection of the feedstock that is using during composting which ultimately makes a direct influence on the end product of composting. And second is the Air/odors emitted from the heap of the compost urges the environment and their surroundings. And there are also difficulties in the establishment of the parameters of the maturity of compost.

Summery and conclusion

Anaerobic composting has important impact on environment via management of the waste material in the absence of oxygen. Composting is the labor intensive process but the new technology makes the process easy in less duration of time. Government has to promote the composting by giving subsidies, grants and loan to the farmers for the facilities of composting. This step may ensure the organic farming, sustainability and employment generation.