

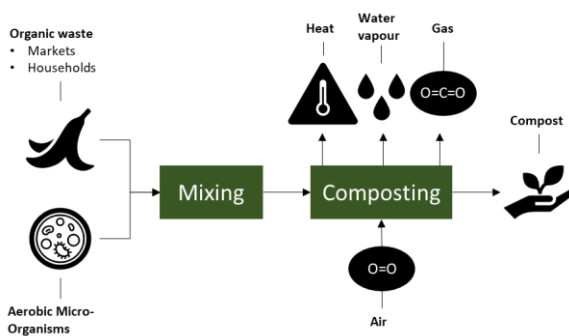


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Composting

Introduction

Composting is the conversion of organic waste (green waste, biowaste, wood, etc.) into valuable earth with the help of microorganisms under aerobic conditions (aerobic degradation). It is a process for treating solid organic wastes to reintroduce the organic substances back into the natural cycle.



Flowsheet of composting inputs and outputs

Process

Composting is the controlled biological decomposition of organic material. It involves a succession of different microorganisms decomposing organic materials and converting them into a biologically stable product with no harmful effects on plants when used as a soil supplement. It is a monitored and controlled process to maintain aerobic conditions. It includes a high-temperature phase (e.g., above 55°C) that reduces or eliminates pathogens and weed seeds (see Figure 2).

Overview

Input products

Source separated organic waste

Output products

Compost

Waste generation in Iraq

approx. 60 % of MSW is organic

Current management in Iraq

Landfilling

Technical characteristics

large space requirement | mechanical and biological process | manual or automatic turning and aeration possible

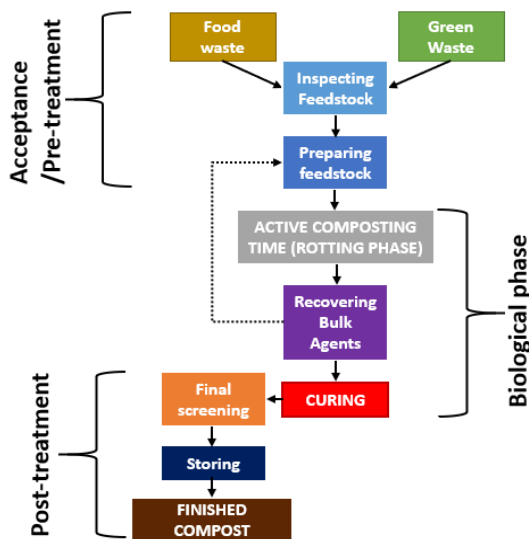
Useful links and literature

1. <http://www.fao.org/3/y5104e/y5104e05.htm#bm05>
2. http://compost.css.cornell.edu/MSW_FactSheets/msw.fs4.html
3. <http://www.acrplus.org/images/project/SCOW/Handbook-for-compost-marketing.pdf>

Start-up examples

1. [Compost Baladi](#)
2. [Ciclo organico](#)
3. [Compost now](#)
4. [Detroit dirt](#)

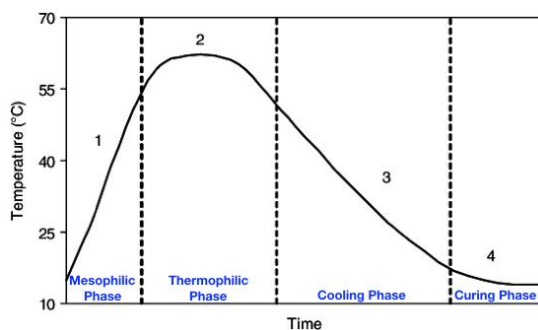
Composting



Main process steps in a composting facility

The key process variables for controlling the composting process include:

- the initial feedstock mix,
- the pile moisture,
- the pile aeration,
- the pile shape & size,
- the pile temperature and
- the compost retention time.



Curing phases of composting

Compost goes through three distinct thermal phases: the initiation phase mesophilic (or initial activation phase), the thermophilic phase, and the maturation phase (mesophilic again).

Industrial solutions

On an industrial scale in-vessel dynamic biological treatment is applied which combines turning with negative forced aeration and moisture control in a fully automated process.

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The aerobic process takes place within an enclosed reactor. An auger bridge crane turns the biomass according to a scheme controlled by computer.



In vessel composting

Start-up case study

Composting can take place at many levels – backyard, neighborhood, community, and regional – and in urban, suburban, and rural areas.

Large-scale centralized facilities can serve wide geographic areas and divert significant quantities of organic materials from disposal. Composting locally at the neighborhood or community-level yields many other benefits: social inclusion and empowerment, greener neighborhoods, improved local soils, less truck traffic hauling garbage, more local jobs, and increased composting know-how and skills within the local workforce.

When composting is small-scale and locally based, community participation and education can flourish. In addition, community-scale operations can move from concept to operation in a relatively short time frame. And community composting can build critical support for and participation in local farming initiatives.



What community composting looks like

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