



## COMPOSTING AS A MEAN TO RECOVERY OF WASTE WOOD

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**Abstract.** The Aim Of This Study Was To Evaluate Composting As An Alternative Waste Recovery As Chips, Shavings And Sawdust, And Evaluate Their Effects On The Factors That Influence The Composting Process When Performed In Biological Reactors. The Composting Process Was Conducted In A Mechanical Equipment Developed At The Laboratory Of Machining And Automation - LMA, Campus Itapeva, Brazil, Comprising A Food Chopper, A Moisture Extractor And A Dehumidifier That Has Function To Remove Excess Moisture The Material To Be Composted, And A Reactor Which Has The Function Of Making The Composting Itself.

For This Study Were Collected From Waste Organic Matter Such As Fruits And Vegetables In Open Markets, And Were Mixed With Sawdust. The Compound Was Obtained In 11 Days Time Considered Short Compared With The Most Usual Method Such As By Turning Piles (60 To 90 Days). Composting Shows A Viable Alternative To The Use Of Waste Wood. With The Addition Of Sawdust Organic Waste Is Organic Fertilizer Possible To Obtain A Well-Balanced, Capable Of Providing Good Growth And Development Needed To Plants.

**Keywords:** Waste, Composting, Closed System.

### 1. INTRODUCTION

The large volume of waste generated by wood processing industries is a problem existing in almost all Brazilian sawmills. Although modern companies include in their activities the environmental management and use of their waste, many sawmills, especially small ones, are still unprepared for the proper disposal of their waste.

The addition of organic matter in soils originated from industrial activities can help in the recovery of the soil and its fertility is a promising way to recycle these materials.

The objective of this study was to evaluate composting as an alternative waste recovery as chips, shavings and sawdust, and evaluate their effects on the factors influencing the composting process when performed in biological reactors.

### 2. METHODOLOGY AND RESULTS

The composting process was conducted in a mechanical equipment developed at the Laboratory of Machining and Automation - LMA, Campus Itapeva comprising a crusher food, moisture and an extractor that has a dehumidifier function to remove excess moisture from the material be composted, and a reactor that has the function of performing the composting itself. For this study were collected waste organic matter such as fruits and vegetables in open, and were mixed with sawdust. During the active stage of degradation, the equipment was monitored and assessed daily and recorded the frequency of tillage, temperature, moisture content, and pH of the compound. Figure 1 shows the equipment used. The research is ongoing and currently the equipment is automated so that the reactor will cause aeration of the compound as a function of the temperature and humidity set.

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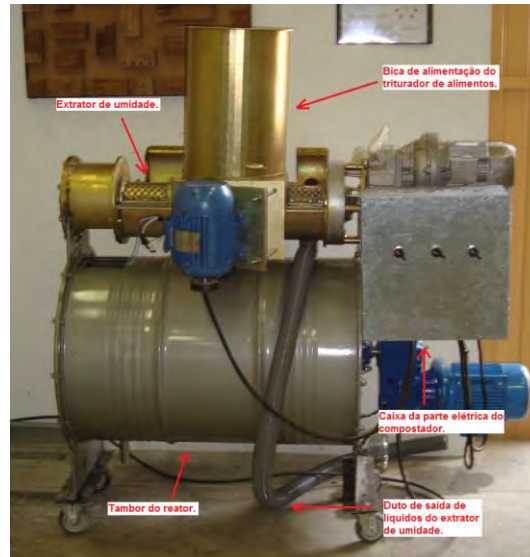


Figure 1: Equipment designed for carrying out composting.

The compound was obtained in 11 days time which is short compared with the most usual method such as by tumbling ridges (60 to 90 days).

**Moisture:** Moisture content found on the seventh day and eleventh day composting were 64% and 63% respectively. There was no significant loss of moisture, a fact explained by the phase in which it is the process of composting.

**Temperature:** The temperature has an influence on the process within a range of approximately 24 hours after the mixing of the residues which can be observed with the increase in temperature of the medium.

**pH:** The pH value found for the compound was 6.3. For a compound to be marketed Brazilian legislation establishes a minimum pH of 6.0, with a tolerance of up to 5.43.

**Color and Odor:** There was a perceived generation of unpleasant odor. After two days the compound already had a darker.

### 3. ACKNOWLEDGEMENTS

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