

# **EVALUATING THE SUITABILITY OF LEAVES OF DIFFERENT SPECIES IN THE PRODUCTION OF VERMICASTING**

**EP No:** 49/2004-05; **Research centre:** Harur Modern Nursery Centre,

**Range:** Dharmapuri Modern Nursery Range, Modern Nursery Division, Dharmapuri;

**Scheme:** JA Research

## **Introduction:**

Vermicasting, or vermicomposting, is a sustainable method of converting organic waste into nutrient-rich compost using earthworms. The quality and efficiency of vermicasting depend on the type of organic material used, with leaves from different plant species playing a crucial role in determining the nutrient composition of the final product. Leaves vary in their chemical composition, including carbon-to-nitrogen ratio, lignin content, and microbial activity, all of which influence the decomposition process and the quality of vermicast. Some species, such as leguminous plants, provide nitrogen-rich material that accelerates decomposition, while others with high lignin content may slow down the process. Understanding the suitability of different leaf species for vermicasting can help optimize composting techniques and improve soil fertility.

This study aimed to evaluate the suitability of different plant leaves for vermicasting production, assess their cost-effectiveness, and determine the best-performing species for maximum yield. The experiment was conducted at the Modern Nursery Centre, Harur, under the Modern Nursery Division, Dharmapuri, during 2004-2005 (EP No. 49/2004-05). The objective was to analyze the impact of different leaf species on vermicasting productivity.

## **Objectives:**

The study aimed to:

1. Compare the efficiency of vermicasting produced from different leaves. through bio-assay.
2. Identify the most suitable leaf species for vermicasting production.

## Materials and Methods:

### Materials:

The experiment was conducted using six different feeding treatments, each filled in separate tubs. The feeding materials tested under various treatments were:

- **T1:** Vegetable waste from the market (100 kg) + FYM (100 kg)
- **T2:** *Styloscabra* leaves (100 kg) + FYM (100 kg)
- **T3:** *Jatropha curcas* leaves (100 kg) + FYM (100 kg)
- **T4:** *Minnipayaru* leaves (100 kg) + FYM (100 kg)
- **T5:** Combination of the above leaves (25 kg each) + FYM (100 kg)
- **T6 (Control):** Pressmud (100 kg) + Bagasse (100 kg) + FYM (100 kg)

Each tub was inserted with 1000 earthworms after the decomposition of organic matter. The feeding materials were monitored for vermicasting yield and the same was recorded.

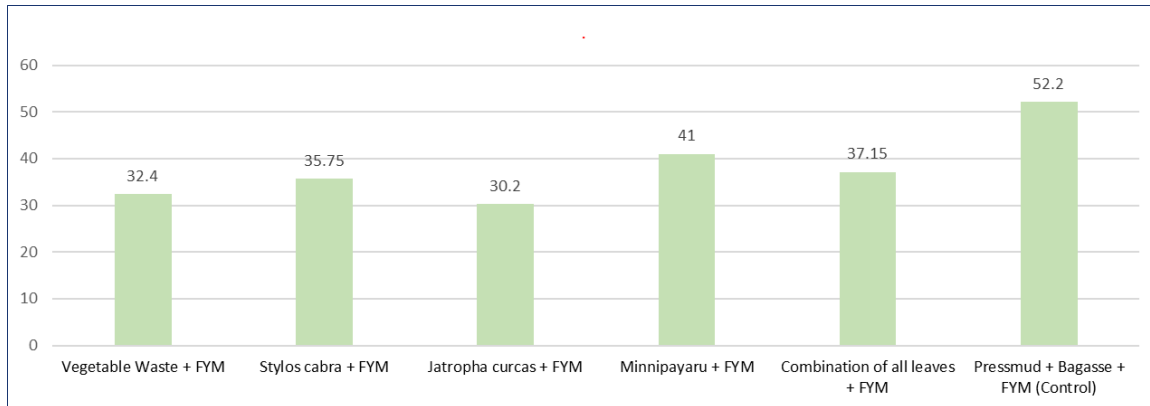
### Methods:

The total vermicasting yield was recorded separately for each treatment and totalled for analyzing the comparative performance of different leaf based feed materials.

### Results and Discussion:

The study revealed variations in vermicasting production across different leaf species. The results are summarized below:

Treatment	Vermicasting Production (kg)
Vegetable Waste + FYM	32.40
<i>Styloscabra</i> + FYM	35.75
<i>Jatropha curcas</i> + FYM	30.20
<i>Minnipayaru</i> + FYM	41.00
Combination of all leaves + FYM	37.15
Pressmud + Bagasse + FYM (Control)	52.20



Among the tested treatments, the combination of Pressmud, Bagasse, and FYM (Control) demonstrated the highest vermicasting production (52.20 kg), followed by *Minnipayaru* leaves + FYM (41.00 kg). The lowest yield was observed with *Jatropha curcas* leaves + FYM (30.20 kg). All leaves were found suitable for vermicasting production. However, *Minnipayaru* leaves combined with FYM provided the highest yield among leaf-based treatments.

### Recommendations:

Based on the overall analysis, Minnipayaru leaves + FYM is recommended as the most suitable combination for vermicasting production among the leaf-based treatments. While the control (Pressmud + Bagasse + FYM) yielded the highest vermicasting production, *Minnipayaru* leaves proved to be the most efficient organic alternative among the treatments for leaf based vermicasting production.