



## STUDY ON HOUSEHOLD KITCHEN WASTE MANAGEMENT IN URBAN AREAS

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### ABSTRACT:

Household waste management is an issue not to be ignored. In the wake of rapidly depleting natural resources and the health hazard caused by the huge amount of waste produced, recovery and reuse have become inevitable in the present scenario. In the present study, the kitchen waste was collected daily for one month and spread it in a old cooler tank and kept for 2 months. To keep it moist water was sprinkled on the top of the tank. After 2 months the manure was ready. The soil testing was done in Agriculture College, Nagpur. The analysis showed that standard pH value, nitrogen content and moisture holding capacity of kitchen waste manure was as good as readymade vermicompost and normal soil. Thus by using this household kitchen waste manure the big problem of waste management can be solved. It will also be helpful in keeping environment healthy. We can save our ecosystem and healthy by managing our kitchen waste.

**Keywords:** Kitchen waste, Manure, Ecosystem

### INTRODUCTION:

Household waste management is an issue not to be ignored. In the wake of rapidly depleting natural resources and the health hazards caused by the huge amount of wastes produced, recovery and reuse have become inevitable in the present scenario. The synthetic pathways of nature are overloaded. Another important point to note is that the nature recycling periods are very long compared with the human life span and the society is interested in recycling on a time scale which is comparable





with an individual's lifetime. It is clear that new methods of waste reclamation and reuse must be developed.

Waste is a by-product of human activity and is generally assumed to be useless remains, having no value in its present state. This lack of value can be related to the mixed and unknown composition of the waste, as it contains the same raw materials found in useful products and resources.

Waste management is the collection, transport, processing, recycling or disposal of waste materials usually once produced by human activity in an effort to reduce their effect on human health. A sub-focus in recent decades has been to reduce waste materials' effect on the natural world and the environment and to recover resources for them.

The waste hierarchy – 1. Reduce 2. Reuse 3. Recycle classifies waste management strategies according to their desirability. The waste hierarchy has taken many forms over the past decades but the basic concept of waste remains the corner stone of most waste minimization strategies. The aim of the waste hierarchy is to extract the maximum practical benefit from product and to generate the minimum amount of waste.

To manage this tremendous volume of waste, thoughtful practices of Reduce-Reuse-Recycle need to be urgently applied.

**Reduce:** Lowering waste generation by application of efficient housekeeping methods and changing wasteful habits and lifestyles.

**Reuse:** This is a fine area between avoiding waste and recycling already used materials. A creative way to support reuse of materials is to make them available to those who can use them.





**Recycle:** Recycle kitchen waste by composting to produce a valuable soil conditioner reprocess or recycle waste materials into another usable forms displaces the need for new materials in production of consumable goods and gains some useful benefits from waste. For eg. most organic material can be broken down through decomposition to form a rich soil like materials, compost which can be used to enrich soil or as a cover material on disturbed land.

### **Kitchen Waste:**

Kitchen waste or food waste or garbage is any form of biodegradable waste that was originally intended for consumption. It typically consists of vegetable scraps, meat scraps and other discards from the kitchen.

### **Recycling Kitchen Waste:**

Everyday, we throw a kitchen waste such as banana peels, carrot peels, and left over into the trashcan. These kitchen wastes are full of nutrients that end up landfills to be never re-used again or at least in our lifestyle. However our yard can always use more nutrients, so why not recycle our kitchen waste into our yard or vegetable garden.

Composting is a natural process. Organic materials like vegetable scraps are broken down by micro-organisms forming a rich soil like substances called compost or humus. The first thing is to remember that kitchen waste will eventually smell very bad and attracts insects so quick and simple solution is to bury our kitchen waste in our yard.

Composting of organic wastes has been practiced for a long time wherein biodegradable materials undergo decomposition and the end





product is a material rich in nutrients called as organic manure or farmyard manure. Decomposition is the natural process of biological degradation of composting is the process of sanitary disposal and reclamation of organic material is termed as composting.

The disposal of urban wastes in Indian cities is becoming a more and more formidable task. The outbreaks of plague epidemic in the city of Surat has brought into focus the poor state of sanitation and urban garbage and sewage disposal methods in the urban areas in India.

### **MATERIAL AND METHOD:**

Soil is generally evaluated on fertility and texture. Fertility is a combination of essential nutrients of a pH that makes these nutrients available to the plants. Texture refers to the size of the soil particles and their cohesiveness.

### **Nutrients:**

The three primary nutrients used by plant are nitrogen, phosphorous and potassium. Nitrogen is largely responsible for healthy leaf and stem growth. Phosphorous is very important for root growth. Potassium is needed for overall plant health.

### **pH:**

A lot is made of soil pH. pH is a measure of soil acidity and alkalinity. The scale goes from 1.0 to 14.0 with 7.0 being neutral. The lower the number goes from 7.0, the more acidic the soil. The higher they go above 7.0 the mere alkaline.

### **Texture:**

It refers to the size of the soil particles. Sandy soil have very large particles. Water, air, plant, roots can move freely in sandy soils. At the other end of spectrum is clay. Clay particles are so small they pack





together tightly and leave little room for water air or roots. An easy test for soil texture is to make a ball of damp manure.

According to Shinde (2007) a survey on kitchen waste recycling was conducted. Most of the respondents used kitchen waste i.e. vegetable peeling, leftover food, etc. for preparing compost manure in their home. Majority of the respondents were aware of the kitchen waste recycling.

Jogdane (1997) conducted a study on effect of different layouts and nitrogen levels on growth and yield of soyabean and the results indicated that from different levels of nitrogen studied, it was found all the yield contributing characters were found to be significantly increased from 0 Kg N/ha to 45 kg N/ha.

According to a study conducted by Dr. Julian Parfitt in 2002, 17% of household waste is made up of kitchen waste i.e. nearly one fifth of all the rubbish that a household produces.

### **OBJECTIVE:**

The objective of the study was -

- 1) To study the preparation of kitchen waste manure and time required for its preparation.
- 2) To study the awareness regarding recycling on kitchen waste.

### **RESEARCH METHOD:**

The experimental procedure of the present study was carried out as under.

Sir Albert Howard, a Government Agronomist developed the method of composting called as Indore method. His method calls for three parts garden clipping to one part kitchen waste arranged in layers and mixed periodically.





#### Preparation of Manure:-

Method of preparation of manure from kitchen waste was done by following steps.

- A cooler tank measuring 3x5 ft. having holes on all directions to have a good oxygen flow was used.
- Kitchen waste i.e. vegetable peels, fruit scraps, egg shells, tea power etc. weighing nearly  $\frac{1}{2}$  - 1 kg. was collected in a bucket till the end of the day.
- Kitchen waste was added to the tank having one thin layer of soil and one layer of kitchen waste layering was repeated til tank was full. This procedure took one month.
- The tank was covered with sacs.
- To keep it moist waster was sprinkled on the top of the tank alternate days as it was prepared in the month of May-2010.
- Kitchen waste manure was ready for use within 60 days.

#### FINDING AND DISCUSSION:

The finding of the present study has been presented under following heads.

**Table-1**  
**pH Value of Soil**

Type of Soil	pH of Soil
Normal	7.2
Kitchen Waste Manure	7.0

pH is a measure of soil acidity and alkalinity. The scale goes from 1.0 to 14.0 with 7.0 being neutral. The lower the number goes from 7.0 the more acidic the soil.





Table 1 can be said that the pH of kitchen waste manure is absolutely neutral. It is a good sign of healthy soil.

**Table-2**

**Nitrogen Content in Soil**

Type of Soil	Nitrogen
Normal	420
Kitchen Waste Manure	987

Nitrogen is essential part of soil fertility. It is largely responsible for healthy leaf and stem growth. The content of nitrogen in normal soil is 420 followed by 987 in kitchen waste manure. It is proved that kitchen waste manure is beneficial for proper growth of plants.

**Table-3**

**Moisture Content of Soil**

Type of Soil	Moisture
Normal	2.35
Kitchen Waste Manure	3.30

The moisture holding capacity is the important characteristics of the soil. The growth and fertility depends mostly on moisture holding capacity of the soil. It is seen from table-3 that the moisture holding capacity of kitchen waste manure is 3.30 which is higher than 2.35 in normal soil.

**Table-4**

**Potash Content in Soil**

Type of Soil	Potash
Normal	0.60
Kitchen Waste Manure	1.41





Among three primary nutrients used by plants, potash is one of the important nutrients which is needed for overall plant health. It is seen from table-4 that potash content in normal soil is 0.60 followed by 1.47 in kitchen waste manure which is definitely useful for growth of plants.

### **CONCLUSION:**

- The problem of disposal of kitchen waste can be solved by recycling and converting it into manure.
- The kitchen waste manure can be used to grow vegetables in a kitchen garden.
- Use of this manure for farming is known as organic farming. Organic farming is eco-friendly and also enhances the quality of soil.
- The technology of utilizing household kitchen waste for preparation of manure needs to be popularized among the community. By doing so we can save our environment from pollution.

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