GENERATING ORGANIC MANURE (COMPOST TEA) BY KITCHEN WASTE

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ABSTRACT

There is an urgent need to standardize compost tea production method using kitchen waste from CARE Group of Institutions hostel and application rates as far as possible to increase their effectiveness, avoid adverse effects and decrease human and environmental potential hazards. Most of the evidence on their effectiveness in plant growth enhancement or disease suppression is anecdotal. There have been few well-designed experimental trials or scientific reports that assess their effectiveness or focus on finding optimal production methods or application rates. There are also very few reports on possible mechanisms by which they promote plant growth or suppress plant diseases. Intensive use of chemical fertilizer in agriculture increases the crop production but at the same time it causes negative impact on land, air, water and on environment health Concerns regarding soil degradation and agricultural sustainability have kindle interest in assessment of soil quality. Soil quality refers to capacity of soil to accept, store and recycle nutrients and water so that economic yields or obtain without deterioration of environmental quality.

INTRODUCTION

1.1ORGANIC MANURES

The crop removes large quantity of plant nutrients from soil, particularly the removal of NPK nutrients at the present level of crop production has been estimated at 125kg/ha/annum whereas the annual addition is not more than 75kg resulting in depletions of the nutrients reserve of soil. The excessive reliance on chemical fertilizers and the negligence shown to the conservation and use of organic sources of nutrients have not only caused the exhaustion of soil of its nutrients reserves but also resulted in soil health problems not conducive to achieving consistent increase in agricultural production. Moreover, Indian soils are poor in organic matter and in major plant nutrients.

1.2 TYPES OF ORGANIC MANURE

1.2.1 Farm Yard Manure

These are commonly used organic manure that is readily available and includes cattle dung as well as excreta of other animals. It is an important agricultural by-product. Its major advantages are:

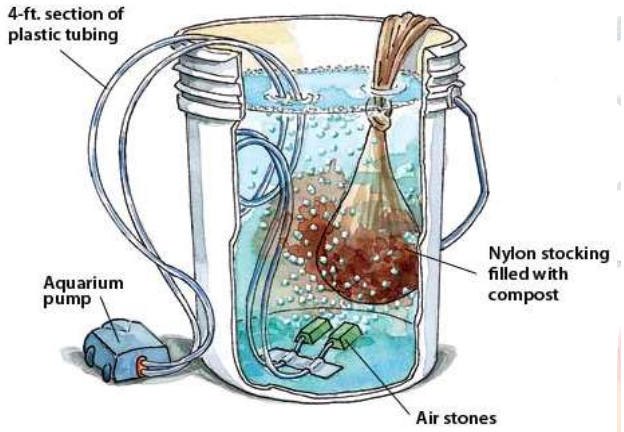
a. Ability to improve the soil, tilth and aeration.
b. Increases the water holding capacity of soil.
c. Stimulate activity of micro-organism.

1.2.2 Green Manuring

Green manure refers to fresh matter added to the soil largely for supplying the nutrient contained in the bio mass. Leguminous plants are largely used as green manure due to their symbiotic N fixing capacity.. Any plant cannot be used as a green manure and practical farmi

2.1 MATERIALS USED

- Vegetable waste
- Saw dust
- Filter bag
- Aerator



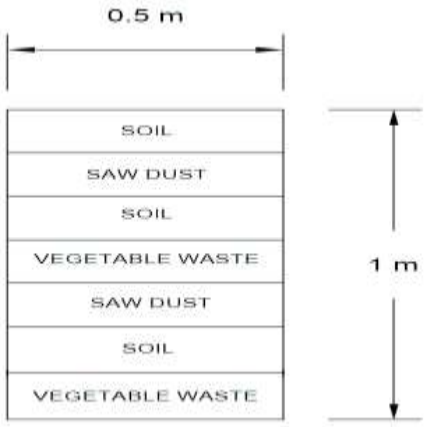


Fig. 2.1 Aeration setup **Fig. 2.2 Vegetable Waste Composting Setup**

Table 2.1 Instruments Used to Determine the Soil Characteristics

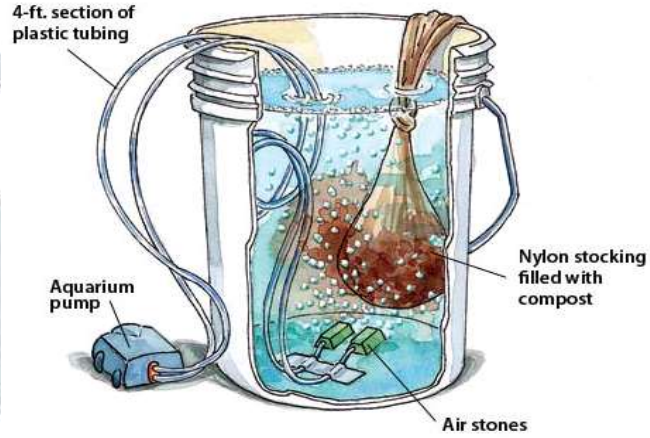
S. No.	Parameter	Instrument Used
1	pH	pH strips
2	Odour	Physiological sense
3	Colour	Visual
4	B.O.D	B.O.D Incubator
5	Sodium	Flame photometer
6	Potassium	Flame photometer
7	Calcium	Flame photometer

METHODOLOGY

Product/ Service: Generating Compost tea as a pesticide

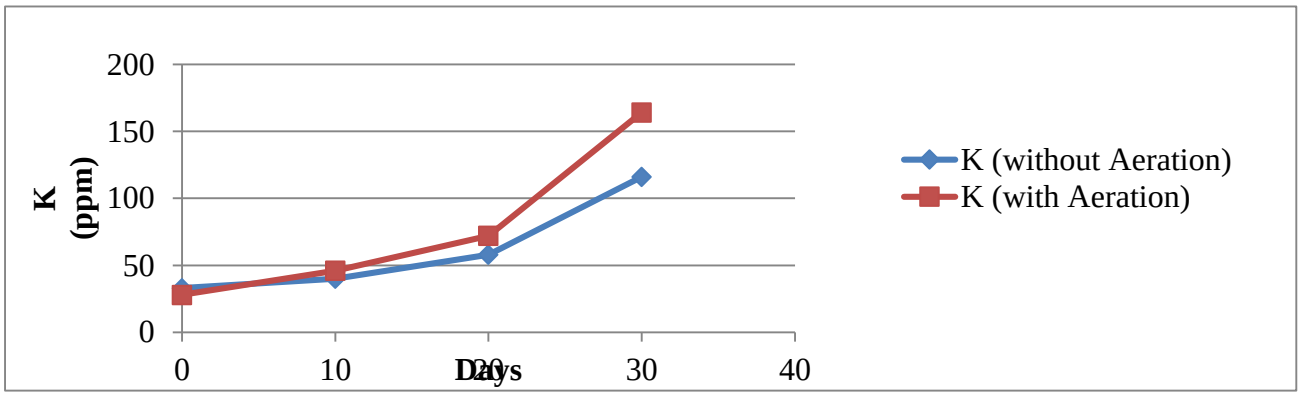
STEP 1

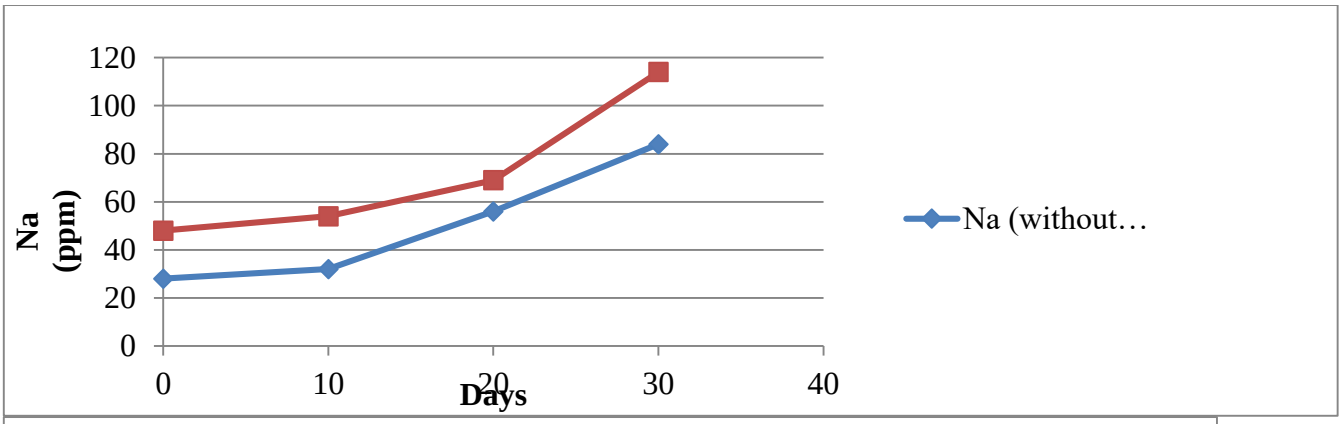
STEP 2

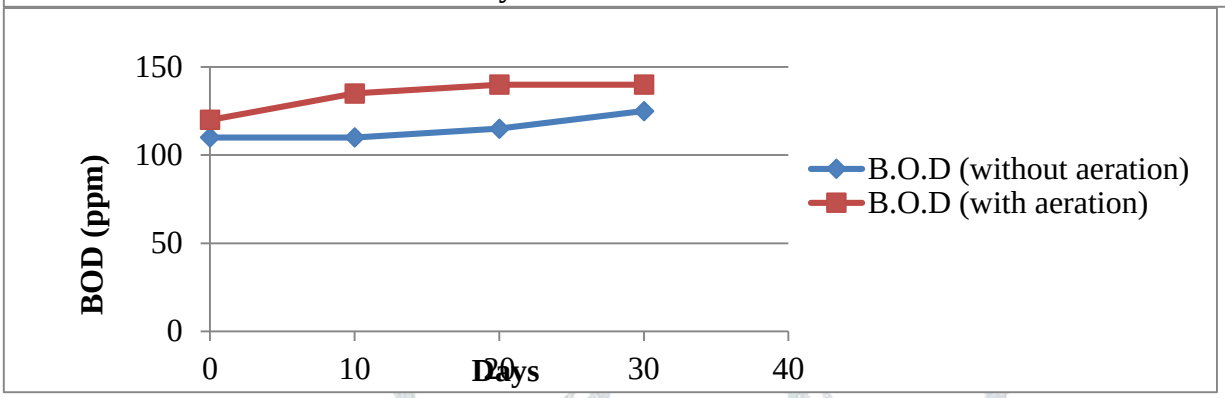


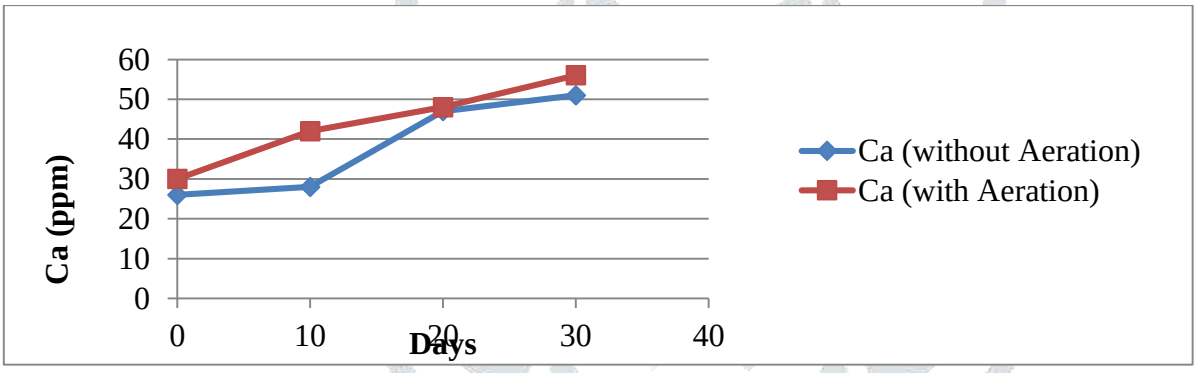
STEP 3

EFFECT OF K, NA, CA, BOD CONTENT IN COMPOST TEA WITH VARIOUS DAYS:









RESULT AND DISCUSSION

Compost is an excellent product resulting from the ingestion and digestion of organic waste generated from the kitchen. This organic fertilizer is determined physical and physiochemical in the laboratory by the manual of chemical analysis techniques such as sodium, potassium, nitrogen, calcium, carbon. Compost increases the permeability and retention of soil moisture which favours the reduction of water consumption by crops.

Table 3.1Analysed Compost Tea Parameters Without Aeration:

S.No.	Parameters	Compost tea parameter values with different days			
		0th day	10th day	20th day	30th day
1	Colour	Light brown	Light brown	Brown	Dark Brown
2	pH	9.8	9.8	9.7	9.6
3	Na	28 ppm	32ppm	56 ppm	84 ppm
4	K	33 ppm	40ppm	58 ppm	116 ppm

5	Ca	26 ppm	28 ppm	47 ppm	51 ppm
6	BOD	110 ppm	110 ppm	115 ppm	125 ppm

This table shows that the compost tea parameters in different days in the absence of aeration.

Table 3.2 Analyzed Compost Tea Parameters with Aeration

S.No.	Parameters	Compost tea parameter values with different days			
		0th day	**10th day**	**20th day**	**30th day**
1	Colour	Light Brown	Light Brown	Brown	Dark Brown
2	pH	9.6	9.6	9.6	9.2
3	Na	48ppm	54 ppm	69 ppm	114 ppm
4	K	28 ppm	46 ppm	72 ppm	164 ppm
5	Ca	30 ppm	42 ppm	48 ppm	56 ppm
6	BOD	120 ppm	135 ppm	140 ppm	140 ppm

This table shows that the compost tea parameters in different days in the presence of aeration. To increase the chlorine content, compost tea is exposed to aeration

Table 3.3Comparision with Ariyamangalam Dump Yard Parameters

S.No.	Parameters	Ariyamangalam Dump Yard Parameters
1	Colour	Dark Brown
2	pH	10
3	Na	0.5ppm
4	K	0.9 ppm
5	Ca	0.7 ppm
6	BOD	90 ppm

CONCLUSION

There is an urgent need to standardize compost tea production method using kitchen waste from K.Ramakrishnan College Group of Institutions and application rates as far as possible to increase their effectiveness, avoid adverse effects and decrease human and environmental potential hazards. Most of the evidence on their effectiveness in plant growth enhancement or disease suppression is anecdotal. There have been few well-designed experimental trials or scientific reports that assess their effectiveness or focus on finding optimal production methods or application rates. The characteristics of compost parameters are increasing day by day. By using this organic manure as fertilizer for agriculture will increase the crop productivity and yield. In the presence of aeration, the chlorine content in the compost tea will be increased. This compost tea is a chemical free fertilizer which will not affect the soil fertility and it is an eco-friendly fertilizer. Using saw dust in the composting technique will increase the carbon content in the compost tea. We obtained the results from the compost tea parameters without aeration and with aerations are pH -9.6, Na-66%, ca-49%, K-71%, BOD-12% and pH -9.2 , Na-57 , ca-46% , K-83% , BOD-14% respectively. The nutrients level

increased with increasing the composting day. These parameters will help the improvement of crop productivity and as well as soil fertility.

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