

PRODUCTION OF ORGANIC FERTILIZER FROM SOLID WASTES

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ABSTRACT

with the increase in synthetic fertilizer and bio-fertilizer prices use to day by day life, the need for development of economically attractive fertilizer has increased. Production of organic fertilizer from all waste solid who has degradation in soil is one such raw materials or alternative. The production of organic fertilizer from solid waste will not only boost farm households' income but also serve as a reliable source of organic fertilizer for restoring agricultural solid that have been severely depleted of nutrients and reducing the environmental pollution brought on by improper waste disposal. The project involves setting up of a laboratory scale production unit for organic fertilizer conversion from solid waste, collected from different sources. Tea waste, egg shell, banana peel, onion peel and algae. Making organic fertilizer at home from biodegradable garbage is the goal of this project. These wastes disturb the environment. Composting, applying compost to agricultural land, key elements in composting, the composting process, and the stages of composting are all covered in the study's evaluation of the literature. Composting has been utilised as a method of reintroducing organic fertilizer matter to the soil to enhance soil fertility and structure.

INTRODUCTION OF SOLID ORGANIC FERTILIZER

Food wastes could be considered pure streams of garbage, and they pose a significant environmental burden due to their high energy content, smell emanation, vermin attraction, poisonous gas emission, groundwater pollution, and the need to simultaneously produce energy and stable waste. The physical and chemical properties of the substrate, including particle size and composition, are the main determining factor in the treatment of food waste. Environmental factors have an impact on how each component of food waste degrades, according to Sun. Protein, cellulose, and carbohydrates each have their own ideal pH ranges and

retention times for breakdown. In order to maintain a clean and healthy environment, food wastes must be collected from homes, businesses, and other establishments.

A soil improvement made from natural sources that ensures, at the very least, the minimal percentages of nitrogen, phosphate, and potash is known as an "organic fertilizer." Almost any organic substance can be used as fertilizer; however, the concentration of plant nutrients they contain and the pace at which they are released for plant use vary widely among materials. The macronutrient's nitrogen, phosphorus, and potassium are utilized by plants in the largest amounts out of the 16 essential plant nutrients. The phrase "complete fertilizer" describes a substance that has all three of these nutrients. The most challenging soil imbalance in organic farming is low phosphate levels. Rock phosphate is a frequent supply of phosphate in organic gardening, but it is largely insoluble in soils above a pH of 6.5.

RAW MATERIAL

Tea waste powder.

Egg shell

Algae

Banana peel

Onion peel

EXPERIMENTAL WORK

When we combine tea waste and egg shell both waste (In presence of algae) then we obtain good properties as compared to older one. this mixture contain tannic acid and other protein which give more element to plant then for growth of plant is occur easily.

In a our main project is a combination of tea waste, egg shell and algae.

COMBINATION OF TEA WASTE , EGG SHELL IN PRESENCE OF ALGAE.**1. TEA WASTE PROPERTY:**

Polythenols, antioxidants, catechism, flavones, cellulose, amino acid, no soluble proteins, caffeine, fibber, sugars, lignin, zinc, and tannic acid.

2. EGG SHELL PROPERTY:

Magnesium carbonate, calcium phosphate, organic matter, and calcium carbonate

3. ALGAE PROPERTY:

In algae presence potassium, phosphorus, eukaryotic organism. In a water algae presence a plankton.

Synthesis of this three material to have a contain a high amount of a good property. We have make a first experiment to do in a laboratory level. That first take a beaker and add into a 50 gm of soil. Then add into a 40 gm of tea waste of powder. And add more 30 gm of soil then make a layer of 40 gm of egg shell powder. And add more 50 gm of a soil into a beaker. Then add a 40 ml of algae with water.

This all process have done that after stable down for more then 15 days and after mix it well proper then again add some water and again stable down for one week. After you can apply in a plant, and measure to plant condition.

RESULT & DISCUSSION

The control soil's pH was 7, and it was very slightly reduced to demonstrating a negligible change. Nitrate losses are a result of elevated Ph. Even if there is a modest pH fall, it can be interpreted as an indication that nitrate levels have been restored during the composting process.

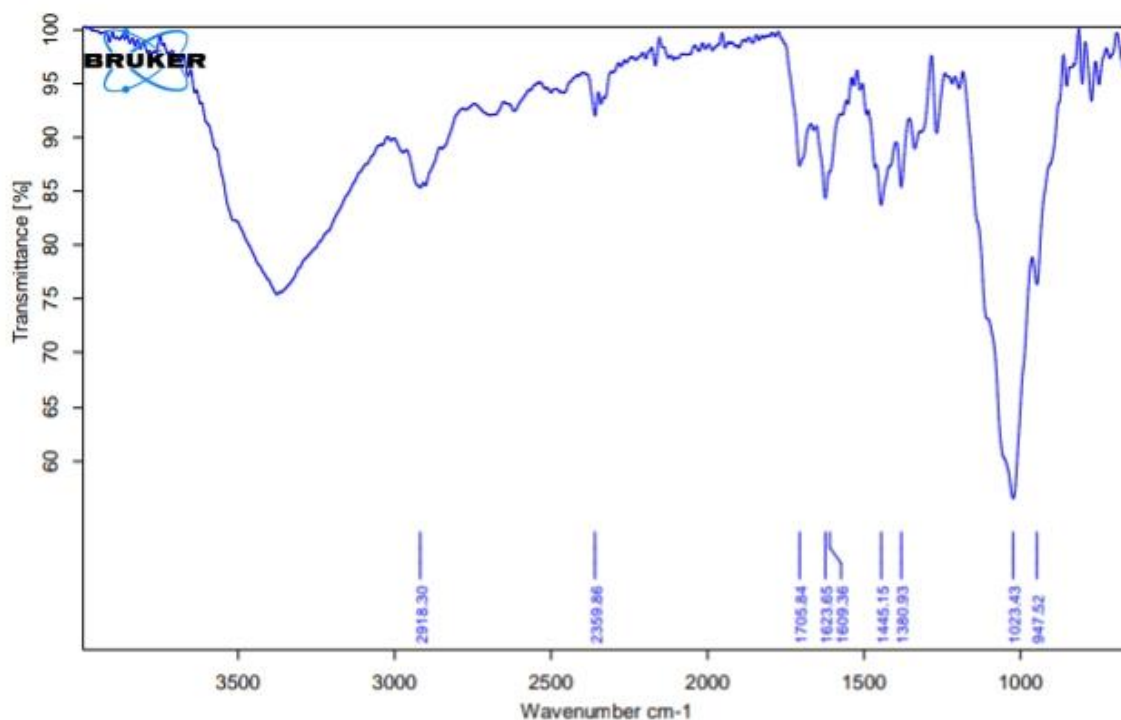
Conductivity differences in non-saline soils are principally influenced by soil texture, moisture content, and CEC. The results of this investigation suggest higher conductivity. Increased free ions may be a sign that more nutrients are available to the plants.

physic-Chemical Analysis:

Parameters	control	compost
pH	7	6.8
Cnductivity	0.540 ms	7.80 ms
chloride	0.70%	1.10%
Total phosphorus	0.03%	1.20%
Avail.phosphorus	0.02%	0.05%
Calcium	1%	1.40%
Magnesium	0.26%	0.58%
sulphate	0.05%	0.50%

Table-1

IR Spectroscopy Graph



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sample form

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CONCULSION

In general, organic fertilisers are preferable to synthetic ones for the ecology. Compost or animal dung are two examples of organic fertilisers that are made directly from plants or animals. Compared to synthetic fertilisers, they often have lower quantities of nutrients (such as nitrogen and phosphorus). Many of the nutrients in organic fertiliser must first be broken down by decomposers before they can be utilised by plants. This slows the rate at which these nutrients are released into the environment and enables the soil to hold onto them for longer periods of time, improving soil quality. By giving food to a range of decomposers, which, as you have learnt, are essential to matter recycling in ecosystems, it also promotes biodiversity in the soil. Additionally, organic fertiliser supports soil structure maintenance, increases soil erosion resistance, and promotes water infiltration. In these ways, organic fertilisers can support a balanced cycle of nutrients and water in the ecosystem.

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