

# Fertilizer from Paddy Husk

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**Abstract** - In the present situation of Indian agriculture the chemical fertilizer have a major share in supplying the nutrients for crop. In the terai zone soil effect texture is light and area receives 300mm rainfall per annum which is quite higher than the normal rainfall due this demand higher yielding crops were produced the use of mineral fertilizer is hazardous effect of the environment with sustainability. Instead of using chemical fertilizer we can use the naturally occurring environmental friendly fertilizers. In our project we use the paddy husk (rice hulls) to use as a fertilizer. The paddy husk with the biological name *Oryza sativa* has several minerals, they are 50% cellulose, 25-30% lignin, and 15-20% silica. We are going to burn with coconut coir and we are making it to come to black colour. And then we are going to cool it down. Now we can use it once in 15 days.

**Index words** - Crops, Bio Fertilizer, Paddy husk, Nutrients, Agricultural land, Chemicals, Natural Fertilizer

## 1. INTRODUCTION

A chemical fertilizer is defined as any inorganic material of wholly or partially synthetic origin that is added to the soil to sustain plant growth. Chemical fertilizers are produced synthetically from inorganic materials. Since they are prepared from inorganic materials artificially, they may have some harmful acids, which stunt the growth of microorganisms found in the soil helpful for plant growth naturally. They're rich in the three essential nutrients needed for plant growth. Some examples of chemical fertilizers are ammonium sulphate, ammonium phosphate, ammonium nitrate, urea, ammonium chloride and the like. So that we are tend to the bio-fertilizers, which are eco-friendly, and won't harm our nature. So we prefer organic fertilizers. Organic fertilizers are substances that are derived from the remains or by products of organisms. Organic fertilizers depend upon the microorganisms found in soil to break them down and release the essential nutrients. Organic nutrients are rich in phosphorous, nitrogen, and potassium, but in unequal proportions. Examples of organic fertilizers are cottonseed meal, blood meal, fish emulsion, and manure and sewage sludge. In our project we use paddy husk as a fertilizer, which contains 50% cellulose, 25-30% lignin, and 15-20% silica. The fertilizer will help us for the plant growth. The main objective of this project is to use paddy husk as a fertilizer. To Conserve environment and natural resources and re-establishing ecological balance. To encourage sustainable agriculture, and improve soil fertility and also to conserve flora and fauna. To eradicate land pollution caused by chemical fertilizers and toxic residues.

## 2. LITERATURE REVIEW

“A range of agricultural residues, all dry wastes, for example, sorghum straw and rice straw, dry leaves of crops and trees, pigeonpea stalks, groundnut husk, soybean residues, weed plants can be converted into vermicompost. In addition, animal manures, dairy and poultry wastes, food industry wastes, municipal solid wastes, biogas sludge and bagasse from sugarcane factories also serve as good raw materials for vermicomposting. [Nagavallema, K P et al “Vermicomposting: Recycling Wastes into Valuable Organic Fertilizer”]

[Alexander S. Glover et al] has invented an invention to produce fertilizer. The first aspect of this invention is an essentially dry fertilizer composition comprising a blend of animal waste, rock fines, optionally supplemental plant nutrients, optionally soil conditioners, optionally agents to improve color, odor, flow, and other physical properties. The second aspect of the present invention is the process for preparing the fertilizer of the first aspect comprising the steps of:

a) blending dewatered animal waste with fines, optionally supplemental plant nutrients, optionally soil conditioners, and optionally agents to improve color, odor, flow, and other physical properties to form a uniform, amorphous blend;

b) optionally forming the blend into pellets;

c) heating the blend, amorphous or as pellets, at a temperature and for a period of time, sufficient to destroy residual pathogens and dry it to a stable moisture level.

[Pedro Costa Campos Filho et al] Several scientific publications report that cocoa pod husks can be used as biofertilizer, as it contains vital compounds and stimulates growth of *Theobroma cocoa* and of other plants.

### 3. MATERIALS AND METHODS

#### 3.1 Materials:

Paddy Husk, Coconut Coir, Charcoal, Nitrogen Confirmatory Test

#### 3.2 Methodology:

First take the paddy husk and the coconut coir. Burn them together. Stir it well so as to get the sample mixed well. Burn it till the sample turns into black colour. Let them cool it. For cooling add some water. After it has been cooled it is ready for use. Use the fertilizer with appropriate amount of water and start to spray it over the plants.

### 4. RESULT AND DISCUSSION

First, we have got this idea due to the chemical fertilizer used in cultivating land, which leads to harmful effects for lives taking that crop. So that we came up with an idea of making fertilizer. We make assure that the fertilizer we are preparing should be eco-friendly and non-toxic in nature, so that it won't harm the lives. So we take the paddy husk (outer layer of paddy) as a fertilizer. To study our fertilizer sample we have seeded 3 cowpea (*vigna unguiculata*) and mustache (*vicia faba*) seeds in a 3 different pots. The first pot contains our fertilizer, the second pot contains the chemical fertilizer and the third pot is without fertilizer.

We have observed the plant for 20 days and we came out with a good result that our fertilizer has an approximately equal efficiency on the plant growth comparing to the plant which is grown in chemical fertilizer. We can observe that soil used to plant is taken from our University. So that it contains less nutrients comparing to agricultural lands, if it is used in agricultural land its efficiency will increase because the land itself contains nutrients so that our fertilizer's effect will be more on agricultural land. And also we have in a small scale, if it is taken to large scale its efficiency will be high. On seeing the above two points we can say that this fertilizer can be used instead of using chemical fertilizer in the agricultural land. We have tested our fertilizer and done some fertilizer characteristic studies: The three main macro nutrients: Nitrogen (N): leaf growth

Phosphorous (P): Development of roots, flowers, seeds, fruit.

Potassium (K): Strong stem growth, movement of water in plants, promotion of flowering and fruiting.

Three secondary macronutrients:

Calcium (Ca), Magnesium

(Mg) and Sulphur (S)

### 5. CONCLUSION

Organic fertilizers are substances that are derived from the remains or by products of organisms. Organic fertilizers depend upon the microorganisms found in soil to break them down and release the essential nutrients. Organic nutrients are rich in phosphorous, nitrogen, and

potassium, but in unequal proportions. Examples of organic fertilizers are cottonseed meal, blood meal, fish emulsion, and manure and sewage sludge. To encourage sustainable agriculture, and improve soil fertility and also to conserve flora and fauna we use paddy husk as a fertilizer. If we use the fertilizer in the large scale agricultural land, we have better efficiency than the chemical fertilizer.

## 6. REFERENCES

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