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Preparation of Fertilizer by Mixing Local Wood ash and Chicken Feces

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Abstract

The samples of wood ash and chicken feces are obtained from the local area, both of these are used as a fertilizer from the long time back in the history of mankind. Many scientific studies can be seen from different journal. In the mean time, the composition of different wood ash and chicken feces are different in different places. The application of of only one of these two samples cause a headache to the gardener or farmer because one of these is alkaline and the other one is acidic that's why if we use only one the cultivating field will faced a problem in their growth. If we mixed them, they might be neutralised and are supposed to form the basic nutrients of NPK.

Keyword : Wood ash, Chickemn feces, Fertilizers, NPK.

1. Introduction

Wood ash and chicken feces contain valuable amount of plant nutrients. But, when applied alone, they are not sufficient to provide all types of nutrients for the healthy growth of plants. And moreover, whole of wood ash and chicken feces obtained from the source does not necessarily provide plant's requirements [1]. Only a little portion is consumed by plant, major portion rather contribute to the environmental pollution. It is therefore important to separate nutrients that are soluble in water from the bulk of the source. So that plant would directly absorp them without leaving unusable remnants that would act as environmental pollutants.It is also necessary to combine these two manures for improvement of the quality of fertilizer. Wood ash and chicken feces are available almost every where[2]. Even those people who are below poverty line can also avail of its nutrient contents very easily. And moreover, if treated wisefully it is comparable to industrially prepared fertilizer that cause huge expenses.

2. Experiment and Method:

The procedure for making the reguired fertilizers are as follows:

2.1 Wood ash is mixed with appropriete amount of water and is boiled with constant stirring. After it has cooled down insoluble part are separated by filtration

2.2 Chicken feces is mixed with water. Insoluble part is separated as done in the previous step (But here, the mixture is not heated so as to avoid major loss of ammonium gas)

2.3 The filtrate obtained through the above steps are mixed in closed container. Since this step involve acid-base reaction, formation of salt, evolution of heat and gas happen[3]. In this step neutralisation happens in the mixture and the mixed fertilizer obtained will neither be acidic nor base

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2.4 The reaction mixture is allowed to stand for some hours. Some insoluble chemical settle down

2.5 The water soluble portion is separated and little quantity of juice extracted from banana tree was added (Here enrichment of mixed fertilizer with nitrate and potassium takes place).

3. Result and Discussion:

Wood ash contains calcium carbonates ($CaCO_3$) but in some studies found calcium Oxide, some experiment obtained 12% of iron Oxide but some experiment did not found, It was very clear that it depends on the age, type/ class and environment of the wood stock as well as the ash which forms an alkaline medium with water.That's why, when we used as fertilizer alone, it may be harmful to different plants that are more likely to grow in acidic soil. And moreover, it is not able to provide all essential elements to the growing plants. On the other hand, chicken feces contain 13 essential nutrients which include Nitrogen(N), Phosphorous(P), Potassium(K), Calcium(C) , Magnesium (Mg),Sulfur (S), Manganese (Mn), Copper(Cu), Zinc (Zn), Chlorine(Cl), Boron(B), Iron (Fe), Molybdenum(Mo) , all of these are for plant that are not available in wood ash and also it is acidic to some extend. So that, by mixing these two manures in a definite proportion we can get fertilizer that can be applied to every plant in every condition of soil. The aim of this experiment is to prepare home-made fertilizer that are excellence for growing plants and can be easily obtained with lower price.

The water soluble part obtained in the above experiment is mixed with some amount of water (Here, the amount of added water depends on the quality/fertility of the soil where it is to be applied) the mixed fertilizer is then poured to soil near roots of plants as shown in figure 1 and 2, here the main aim is to produce the basic nutrients of the plant which is nothing but the N,P,K.

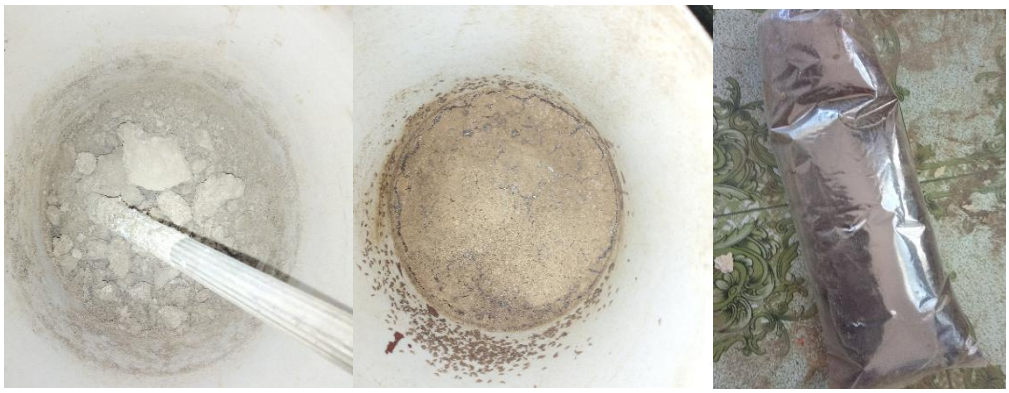

Fig 1 Dry compact particle after mixing

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Fig 2 Mixing of the dry powder with water and the flower which is with the fertilizer.

From this experiment, theobservation can be summerized as : (a) Plant leaves become dark and broader (b) The wide of trunk increased and bulging out at the nodes (c) Root becomes thick and enlarged.

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