

Nitrogen In Organic Wastes Applied To Soils



Mineralization of carbon, nitrogen, phosphorus and sulphur from different organic wastes in silty clay loam soils

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Abstract: Mineralization of carbon, nitrogen, phosphorus and sulphur was studied by incubating soil samples for 90 days at 30 °C temperature with four different organic materials viz. Press mud, sugarcane trash, paper mill bagasse and pine needle. The results showed that the carbon mineralization in soil was significantly higher from sugarcane trash followed by press mud as compared to control. The cumulative percent of carbon mineralization increased with incubation period and maximum mineralization was recorded at 90 DOI (days after incubation). The maximum cumulative percent N-mineralization (16.88%) in soil was shown by paper mill bagasse followed by sugarcane trash and pine needle. The percent N-mineralization from all added organic amendments increased incubation period up to 45 days of incubation DOI (days after incubation) after then it gradually declined, while the pine needles showed maximum cumulative P-mineralization in soil followed by sugarcane trash while minimum was recorded from press mud. The paper mill bagasse showed highest cumulative S-mineralization in soil followed by sugarcane trash. Irrespective of organic wastes, cumulative S-mineralization significantly increased after 15 days of incubation up to 45 days later on it showed declined trend. Among the organic wastes, sugarcane trash showed maximum C-mineralization in soil exhibited fast decomposition in comparison to other wastes. So, it can be used for composting. The paper mill bagasse showed more N and S mineralization while maximum mineralization of P was found in pine needle. The press mud and sugarcane trash showed potential for short duration enriched compost.

Keywords: Mineralization, Paper mill bagasse, Press mud, Pine needle, Sugarcane trash

INTRODUCTION

The modern day intensive crop cultivation requires the use of chemical fertilizers, which are expensive in developing countries. Therefore, the current trend is to explore the possibility of supplementing chemical fertilizers with organic ones, particularly the recycling of organic wastes through composting. India has a vast resource of organic wastes with nutrient potential of about 6 million tonnes of nitrogen, phosphorus and potassium. About 2 million tonnes of press mud is being produced annually from sugar factories (Gaur *et al.*, 1990). Sundra (2002) indicated that press mud produced in a sugar mill is about 4 per cent of cane crushed. That is, a 2500 TCD mill produces about 100 tonnes of press mud per day and in a crushing season of 150 days the total quantity of press mud produced by such a mill is approximately 15000 tonnes. Pal (1995) reported that the Pine (*Pinus roxburghii*) is a dominant species in U.P. hills (presently Uttaranchal State) and occupies about 30 per cent of the total forest area. Most of these organic wastes are either burnt or

used as fillers due to slow rate of decomposition. Sundra (2002) reported that sugarcane produces huge quantity of foliage, about 40 per cent of total biomass. On an average, the amount of sugarcane trash produced about 15 to 20 t ha⁻¹. However, quantity varies with variety and crop growth. The trash contains on an average 0.35% N, 0.13% P₂O₅ and 0.65% K₂O. That is for every tonne of sugarcane trash, nutrient availability is 3.5 kg N, 1.3 kg P₂O₅ and 6.5 kg K₂O. Thus, from a hectare of sugar cane crop, around 50 kg N, 20 kg P₂O₅ and 100 kg K₂O can be recovered from trash alone.

The use of these organic substances in agriculture is very low because they have low quantity of plant nutrients and also the rate of decomposing is very slow. For the proper utilization of these materials in agriculture, it is necessary to convert them in good quality compost. The use of organic waste in the amendment of agricultural soils can be beneficial for crops, and at the same time, provide an efficient and cost-effective method for its disposal. Many authors have reported that different types of organic waste can improve

Organic wastes are traditionally applied to land to recover their fertilizer value, but the microbial turnover of such organic matter in soil is often out of phase with .Buy Nitrogen in Organic Wastes Applied to Soils (International Solid Waste Professional Library) by Jens Aage Hansen, Kaj Henriksen (ISBN:).bodybuildinghumangrowthhormone.com: Nitrogen in Organic Wastes: Applied to Soils (International Solid Waste Professional Library) (:): Author Unknown: Books.Book Review: NITROGEN IN ORGANIC WASTES APPLIED TO SOILS. Jens Aa. Hansen and Kaj Henriksen, eds. Published by Academic Press, Harcourt Brace.Reports and reviews BOOK REVIEW: NITROGEN IN ORGANIC WASTES APPLIED TO SOILS. Jens Aa. Hansen and Kaj Henriksen, eds. Published by.nitrogen in organic wastes applied to soils international solid waste professional library. Golden Resource Book. DOC GUIDE ID Golden Resource.Nitrogen in organic wastes applied to soils / edited by Jens Aa. Organic wastes are traditionally applied to land to recover their fertilizer value, but the microbial.organic wastes are traditionally applied to land to recover their fertilizer value but the microbial turnover of such organic matter in soil is often out of phase with.Ebook Nitrogen In Organic Wastes Applied To Soils International Solid Waste. Professional Library currently available at bodybuildinghumangrowthhormone.com for.Nitrogen uptake by ryegrass from organic wastes applied to a sandy loam soil Sandy-textured Mediterranean soils are invariably depleted in organic matter.Download citation Nitrogen uptake by r Abstract Sandy-textured Mediterranean soils are invariably depleted in organic matter and supply.wastes applied to a Cambic Arenosol in pots growing ryegrass. The results showed that the adding organic wastes to the soil, total nitrogen (N), organic matter.Municipal solid waste compost (MSWC) can enhance soil organic matter and crop The MSWC (C:N) was applied in one year only to a Galestown sand .Mineralization of Nitrogen in Soils Amended with Organic Wastes . used in the incubation experiments to study the mineralization of N. The second portion was .Estimating mineralisation of organic nitrogen from biosolids and other organic wastes applied to soils in subtropical Australia. Guixin Pu A D, Mike Bell B, Glenn.Carbon/nitrogen ratio as a major factor for predicting the effects of organic The effects of the rate of organic waste application on soil bacterial community characteristics varied with the types of organic wastes applied.

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