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Effect of distillery effluent-based pressmud compost alone and in combination with inorganic fertilizer on growth and productivity of basmati rice (*Oryza sativa* L.)

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ABSTRACT
A field experiment was conducted during *kharif* 2000 and 2001 to study the influence of distillery effluent based pressmud compost at different quantity alone and in combination with inorganic fertilizer on growth and productivity of Basmati Rice. Application of pressmud at 3 t/ha in combination with 25% of the recommended dose of NPK nutrients resulted the highest grain yield of 51.65 q /ha which however was comparable with alone application of six ton /ha of pressmud and 100% of recommended dose of inorganic fertilizers (NPK).

Key words : Rice, Distillery effluent, Pressmud, Grain yield.

INTRODUCTION

Sustainable production of rice can be assured through integration of organic and inorganic sources of plant nutrients (Modgal *et.al*.1995). Unjudicious use of inorganic fertilizer has becoming unsafe to human beings and our soil health. Addition of organic sources in combination with inorganic could help in improving soil health and reducing cost of fertilizer material and increasing nutrient use efficiency. Huge quantity of distilleries waste effluents containing considerable amount of plant nutrient is being disposed off at various parts of the country and polluting our rivers, ponds and soils, could be utilized in combination with other sources of plant nutrients . In view of their proper utilization as organic source of supplying plant nutrients to rice crop alone and in combination with inorganic fertilizer, the present investigation was conducted at Seed Production Unit, Indian Agricultural Research Institute, New Delhi to study the effect of distillery effluent press mud on the growth and productivity of semi dwarf variety of basmati rice and optimization of their doses.

MATERIALS AND METHODS

A field experiment was conducted at the Research farm of Seed Production Unit, Indian Agricultural Research Institute, New Delhi during *kharif* season of 2000 and 2001 and the soil chemical analysis was carried out at the Division of Environmental Science, IARI, New Delhi. The experiment was laid out in randomized block design with four replication comprising six treatments of different amount of distillery effluent based pressmud compost alone (1.5, 3, & 6 ton / ha) and in combination with different proportion of recommended dose of NPK (1.5 ton + 50% NPK and 3 ton +25%NPK) along with recommended dose of NPK. The recommended dose of NPK (120:60:60 kg/ha) used in this experiment was treated as control. The cultivar Pusa Basmati-1 was transplanted on 15, July 2000 and 12, July 2001 with proper package of practices. Random soil samples were collected before the transplanting of seedlings. The soil of the experimental field was sandy loam in soil texture. Other soil characteristics are presented in table 1.

The physico-chemical property of the distillery effluent

Table 1 : Physico –Chemical properties of the experimental field .

S.N.	Determination	values	Method	Reference
1	PH(1:2,soil:water)	8.00	Potentiometric	Jackson (1973)
2	Electrical Conductivity (dSm^{-1})	0.37	Conductometric	Jackson (1973)
3	Available Nitrogen (kg/ha)	251.0	Mineralisable nitrozen method	Subbiah & Asija (1956)
4	Available Phosphorus (kg/ha)	47.4	Extraction: Olsen´s reagent Estimation: Ascorbic Acid method	Watanable and Olsen (1965)
5	Available Potash (kg/ha)	3.30	Ammonium Acetate method	Hanway and Heidel (1952)
6	Organic Carbon (kg/ha)	0.30	Walkey and Black method	Walkey, A and Black, I .A (1934)
7	Soil Texture	Sandy loam		

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