



Effect of spentwash application on yield, yield attributes and quality of turmeric var. Erode local

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ABSTRACT

A field experiment was conducted in Research and Development Farm at M/s Sakthi Sugars Limited, Appakudal, Erode District, Tamil Nadu in the year 2006-2007 to find out the effect of spentwash application on yield and quality of turmeric variety Erode Local. The results revealed that among the doses of spentwash, application of 1.0 lakh litres ha⁻¹ along with the recommended dose of NPK (S₅) or NP alone (S₇) being comparable among themselves. Among the methods of spentwash application, the application of spentwash at 90th DAP registered higher fresh rhizome yield to the tune of 6.1% over the application DSW before planting. The percentage yield increase being 63.8%. Among the treatments, S₇ (Application of spentwash @ 1.0 lakh litres ha⁻¹ along with NP) recorded the highest B: C ratio in M₁ (4.38), while S₅ (Application of spentwash @ 1.0 lakh litres ha⁻¹ along with NPK) recorded the highest (4.62) in M₂ and the quality parameters like curcumin and oleoresin content was higher in the same treatments

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INTRODUCTION

Industries produce larger amounts of waste waters and the problems associated with their disposal has increased significantly worldwide. Effort to minimize the production of hazardous wastes and to remediate the existing accumulated wastes has become one of the most environmental challenges that the world face today. Effluent application to land may have greater impact on the physico chemical properties of the soil. The chemical present in the effluents may destroy fauna and flora and thereby destroying aquatic life. In Tamil Nadu, there are about 35 sugar factories and 16 distilleries with a total installed capacity of 2.4 lakhs kilolitres of alcohol. However, for every liters of alcohol production 10-15 liters of waste water is generated which poses a serious disposal problem (Baskar *et al.*, 2004). The distillery industrial waste water is non toxic, biodegradable, purely of plant origin and contains large quantities of soluble organic matter and plant nutrients, which may be utilized

by the plants for their growth and yield. However, the only problem with distillery effluent is its high BOD, COD and salt content being observed as non ecofriendly (Rajukkannu and Manickam, 1997) and because of which disposal is a problem for sugarcane growing countries where distilleries has recently expanded (Jadhav *et al.*, 2005).

Spentwash is a dark colored, acidic liquid having high BOD (40,000 to 80,000 mg L⁻¹) and consisting primarily of biodegradable organics and some inorganic constituents. Spentwash is a rich source of organic matter and nutrients like nitrogen, phosphorus, potassium, calcium and sulfur. In addition, it contains considerable amounts of micronutrients such as iron, zinc, copper, manganese, boron and molybdenum. Every cubic meter of distillery spentwash contains 1.0 kg of N, 0.2 kg of phosphorus oxide and 10 kg of potassium oxide. Most of these nutrients are in soluble forms and are easily available to plants. Suspended and dissolved organic matter is a source of

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