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RESEARCH ARTICLE

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Feasicbility studies of reusing of industrial waste water for irrigation

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ABSTRACT

This paper throws light on the results of experimentation carriedout to evaluate the feasibility of reusing industrial effluents and combination thereof for irrigation to grow root crop radish. The parameters namely germination percentage, leaf numbers and plant height were considered for study. The impact of sugar mill and distillery effluents and their diluted combination with sewage, along with control irrigation (water) on the parameters selected are discussed in this paper. It was observed that industrial effluent from sugar mill and distilleries and their diluted combination with sewage con be productively reused to grow radish. TDS and organic conteuts of waste water had significant influence on yield and growth.

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Key words : Industrial efflents, Germination percentage, Leaf number, Plant height, Radish

INTRODUCTION

The stringent implementation of zero discharge concepts for industrial wastewater by authorities, shortage of conventional water sources for irrigation, increase in population and thereby abnormal increase in food demand resulted in disposal of industrial effluents on land for irrigation. Many industries especially food and allied industries like sugar mill and distilleries, the wastewaters of which are rich in organic and nutrient contents were found to be amicable for use as irrigation water.

However, one has to evaluate the beneficial effects of using such wastewaters for irrigation on various components of ecosystem, before suggesting the use of such wastewater for irrigation. Many researchers to date have carriedout studies covering these aspects. Baruah and Das, 1998; Patel *et al.*,2003; Singh *et al.*, 2003; Velu *et al.*,1999; Rekha Thakre *et al.*, 2003; and many more]. However, the problems and solutions are site, crop and effluent specific and there are still many problems worthy of investigation. An attempt has been made in this paper to throw light on impact of reusing industrial wastewaters on germination percentage and growth parameters of root crop radish.

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MATERIALS AND METHODS

Effluents collected from nearby (Davangere, Karnataka) sugar mill and distillery were used for experimentation. The gravely soil (classified as per the guidelines given in SP 36 Part-II) collected from nearby agricultural fields was used for experimentation. Pot experiments were conducted circular pot made of RCC. The soil sample and effluent were analyzed as per standard methods APHA, 1991. The seeds of radish were collected from recognized agricultural outlets and ware used for study. The yield and growth parameters monitored include; plant height and leaf numbers per plant. The following wastewater combinations were tried.

Irrigation with borewell water (control) – T_1
Irrigation with sugar mill wastewater (SMWW) – T_2
Irrigation with distillery wastewater (DWW) – T_3
Irrigation with SMWW + sewage (1:1) – T_4