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EMERGING TRENDS IN BIOCHEMISTRY VOLUME I

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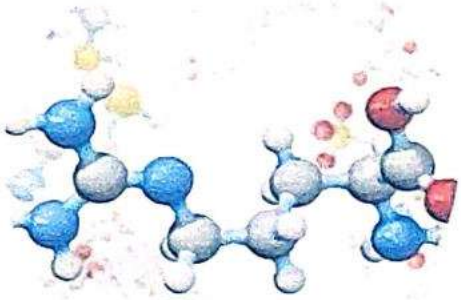

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WASTE MANAGEMENT: EFFECT OF DISTILLERY EFFLUENT ON MORPHOGICAL PARAMETERS OF CROP PLANTS

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ABSTRACT

In the present work was aimed at analyzing the effect of distillery effluent on morphological parameters. Maximum percentage of germination was found in lower effluent concentration, and it was found to be reduced as the concentration of the effluent increased. The root and shoot length, fresh and dry weight, vigour index and tolerance index, was maximum in lower effluent concentration and it was significantly decreased in higher effluent concentrations, when compared to control. Seeds treated with lower effluent concentration did not show phytotoxicity, however higher effluent concentration treatments showed toxic effects on seeds. Seed germination and seedling growth were hindered by higher effluent concentration. If the effluent is diluted to optimum level, it can be used to irrigate agricultural fields.

KEYWORDS: Distillery effluent, seed germination, seedling growth.

INTRODUCTION

Waste Management is one of the most important environmental problems faced by the world, now a day's emphasis is laid on waste minimization and revenue generation through product recovery. Pollution prevention focuses on preventing the generation of wastes, while waste minimization refers to reducing the volume or toxicity of hazardous wastes by water recycling and reuse (Goel). Different industries generate variety of waste water pollutants. Characteristics of waste water and pollutants levels significantly vary from industry to industry (Kuntal *et al.*, 2004).

Distillery industry is one of the major Argo-based industries in India that plays a major role in Environment Pollution. Central Pollution Control Board (CPCB) of India has listed around 17 high polluting industries among which distilleries are one (Uppal2004). There are about 330 distilleries in India with an installed capacity of 3500 million liters (L) of alcohol production per annum. About12- 15 L of wastewater is produced per L of alcohol production. In our country per annum approximately 40 billion liters of effluent is generated from 330 distilleries Chonker*et al.*, (2000), AIDA (2004) and Hati *et al.*, (2007). In Karnataka there are 39 distilleries