RESEARCH ARTICLE | *International Journal of Plant Sciences,* (January to June, 2010) Vol. 5 Issue 1 : 106-110

Seed imbibed effect of sugarcane industrial effluent on germination percentage and seedling growth of *Triticum aestivum* cv. (PBW-226 AND LOK-1)

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Accepted : September, 2009

SUMMARY

The seed imbibed effect of different concentration of sugarcane industrial effluent (*i.e.* 10% to 100% v/v) on germination percentage and seedling growth of *Triticum aestivum* cvs. (PBW-226 AND LOK-1) had been assessed. In present findings all doses of the effluent show promotion on germination percentage of *Triticum aestivum* cv. LOK-1, while no specific effect of doses is found on germination percentage of *Triticum aestivum* cv.PBW-226. Higher doses show promotary effects on seedling growth of *Triticum aestivum* cv. PBW-226 and inhibitory effects on *Triticum aestivum* cv. LOK-1.

Key words : Sugarcane industrial effluent, Germination %, Seedling growth, *Triticum aestivum*

Establishment of more and more industries resulted in the generation of waste in huge quantities, which also may cause a serious threat to the quality of the environment in near future.The water pollution is a major global problem as large amount of waste water or effluent discharged by industries reached to water bodies.The industries significant from water pollution point of view are sugar industries, ditillaries, oil refineries, fertilizer units, steel plants, texti,e mills, chemical industries,paper and pulp industries and metal works industries (Manivasakam 1987).

The main sourse for waste water in sugar a sugar mill are mill house waste, condenser waste water, boiler house waste, floor washing and filter cloth washing if filter is used (Shastry,1990).The physiochemical properties of sugar mill waste water dischargeare are pH 5.5-7.5, Temperature 250C-350C, Suspended solid 300-1200mg , BOD 300-1200mg/,COD 300-1200mg/l,oil and grease 10-50mg/l,total nitrogen 10-40mg/l.The sugar mills waste are also concentrated with a number of inorganic substances (Anderson and Nilson, 1976).

The sugar mill waste contain a no. of inorganic and organic pollutants. These pollutants changed chemical and physical properties of soil, water and air (Chakrabarthy 1964).

Singh *et.al*.(1984) studied the pollutinary effects of sugar mill and distillery effluent on seed germination and seedling growth of three varieties of rice. The result showed that cent percent germination and best seedling growth occurred in 10% effluent concentration and there after a progressive decline in germination percentage, speed of germination index, seedling height and seedling biomass has been found. *O.sativa* L.var.Cavery tolerated the polluted effect much better than *O.sativa* var.Jaya and *O.sativa* L.var.Ratna. Bahadur and Sharma (1990) studied the effect of industrial effluent in relation to seed germination and seedling growth on a variety of wheat. Goel and Kulkarni (1994) studied the effect of sugar factory waste on germination of gram seed (*Cicer arietinum* L.) Kumar Rajesh (1995) noted the effct of sugar mill effluent on seed germination and sedling growth of *Cicer arietinum* cv.NP 58. The effect of various concentration of sugar mill effluent carried on seed germination and seedling growth of *Cicer arietinum* cv.NP58 was presented. The result shows that there was significant increase and decrease in the lower and higher concentration of sugar mill effluent.

In view of the above literature further to understand the nature of sugar mill effluent seeds of *Triticum aestivum* cvs. PBW-226 and LOK-1 were imbibed in different concentrations of sugarcane industrial effluent and effect of such treatment was studied on seed germination and seedling growth.

MATERIALS AND METHODS

The seeds of uniform size, shape, colour and weight of *Triticum aestivum* cvs. (PBW-226 and LOK-1) as far as possible were selected, surface sterilized with 0.1% Hgcl2 solution, thoroughly washed with distilled water and kept in solutions of different concentrations (from 10% to 100%) of sugarcane industrial effluent separately for imbibition period. Seeds simultaneously kept in distilled water constituted the control. After requisite imbition they were transferred to petridishes having distilled water

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