

A REVIEW :

Impact of effluents from different industries on growth of plants

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Due to explosion of population, change in attitude of life and development of high degree of scientific researches have yielded rapid growth of industrialization to fulfill the human needs in the last two decades of twentieth century. This phenomenon has generated laterally most serious problem concerned with human health and other welfare. Albeit water consumption in the industries has third rank, but many industries are generating effluent not only of high amount but they contain high level of organic components which act as suitable media for growth and multiplication of both virulent and avirulent micro-organisms. They are concerned in reducing oxygen level resulting adverse effect on aquatic biota. Pathogenic organisms present in the effluent may cause epidemics if surface water is contaminated with these effluents. Besides this, several industries are concerned with such type of products having high toxicity level in the effluent to existence of chemical or heavy metal salts. Even after proper treatment, effluent should not be discharged in an aquatic system or near by recreation point in order to control the outbreak of any kind of epidemic. But as in our conditions where maximum number of cities and industries do not possess adequate treatment plants, it is customary to discharge untreated raw sewage either in aquatic reservoir or a land surface. Since this raw sewage contains high amount of organic components and even treated effluent also possess certain amount of organic components, both may serve the need of nutritional requirement to the plants as a fertilizer. Therefore, in order to find out alternative suitable means of safer sewage disposal as well as minimizing the investment in agricultural cost, various studies have reported that waste discharged from industries

is capable of inhibiting seed germination and seedling growth.

Chemical industry:

The effect of chemical industry effluent was studied by Swaminathan *et al.* (1989) on germination, plants growth, foliage and chlorophyll content, flowering and fruiting in case of *Hibiscus esculentus* L. They reported that in 5% effluent, germination, seedling development, plants growth, foliage and chlorophyll content increased where as flowering and fruiting days were observed to be reduced. Kumar *et al.* (1990) studied the effect of chemical industry effluent on germination, root-shoot length, dry matter accumulation, crop productivity in *Cyamopsis tetragonoloba* L. and it was observed that at 5%, 10% and 15% concentrations, there was increase in crop productivity, root and shoot length and dry matter accumulation. However, at higher concentrations of effluents (25%) growth retardation was observed and no seed germination was observed on cent per cent effluent.

Dairy effluent:

The impact of dairy effluents on germination, seedling growth and pigment content in *Phaseolus aureus* were studied by Kumar *et al.* (1990). It was seen that with the increase in effluent concentration, there was decrease in seed germination, seedling growth and pigment content. Prasanna *et al.* (1997) also found similar results in case of *Phaseolus aureus* and *Phaseolus mungo*. Kulkarni and Dharwadkar (1998) studied the effect of dairy effluents on germination and biomass in wheat and it was seen that with increase in dilutions, rate of germination increased. Gautam and Bishnoi (1990) studied the effect of dairy effluents on germination