EFFICACY OF MICROALGAE IN TREATMENT OF SUGAR MILL EFFLUENT

RAMESH. B and *Dr. M. ARUNA
Hydrobiology and Algal Biotechnology Laboratory,
Department of Botany, Telangana University, Dichpally Nizamabad (T.S), INDIA
***Email: drarunatu@gmail.com**

ABSTRACT

Phycoremediation is a cheaper and environmentally friendlier alternative for biological degradation of industrial effluents. An alga is promising factor for purification of waste water containing heavy metals. Pollution is a common problem in almost all industrial areas and Nizamabad district is one among the polluted districts and “hot spots" in Telangana state. The objective of the present work is to evaluate the efficiency of algae for removal of heavy metals from sugar mill effluent

The discharge of sugar mill effluents into the environment creates serious adverse effects by altering the normal physiochemical properties of soil and water. The wastewater from sugar factories readily provides a source of soluble food which is an ideal substrate for the bacterial growth. Being rich in carbohydrates, they disturb the normal microbial growth thereby causing oxygen depletion. The rich organic matter favours the growth of various microorganisms and depletes oxygen by rapid respiration and oxidation which is recognized to degrade the pollutant

As a part of study, effluent samples were collected from a highly polluted region of Gayathri Sugars Pvt. Ltd. situated at Adloor, Yellareddy village, Sadashivanagar mandal of Nizamabad district in Telangana for analysis of physico-chemical and biological parameters. Gayatri Sugars Pvt. Ltd. is taken as choice of study because it is seasonal in nature and operates for 120 to180 days only in a year. Large amount of waste is generated during the manufacture of sugar from suspended solids, organic matters, effluent, sludge, press mud and biogases.

The samples were collected in sterilized bottles during crushing season, from out flowing region of industrial area. Collected samples were analyzed for Physicochemical and biological parameters of raw effluents using standard analytical procedures recommended by *American Public Health Association (APHA).* Effluent samples were analyzed and determined on the basis of 18 important parameters-pH, Total dissolved Solids, Chemical oxygen demand, Biological oxygen demand, Chlorides, Sulphates, Oil & Grease, Electrical conductivity, Calcium, Magnesium, Nitrates, Colour, Lead , Copper, Zinc, Iron and Temperature. The average values of the samples for all the eighteen parameters were compared to the corresponding standard curves provided by the *National Sanitation Foundation (NSF) (Brown et al., 1970*).

In the present experimental work BGA and green algae like *Spirulina, Anabaena, Lyngbya, Oscillatoria Chlorella, Scenedesmus, Spirogyra, Cladophora* and *Oedogonium* were employed in removal of heavy metals from industrial effluent. The results obtained would be presented in full length paper.