Abstract

Urbanization and industrial development has originated environmental related problems. Various anthropogenic activities responsible for the alteration in the quality of surrounding environment. The use of water for various purposes includes domestic, agricultural and an industry has been increased in our life. The water is important vital abiotic factor of environment exists in various forms such as rain, snow, ice and fog naturally. The fresh water resources are very precious for the life on our planet. The heavy industrialization and urbanization caused rapid degradation of water quality affected the large quantity of water. With advancement in technology and increased industrialization natural resources get polluting and affected the biotic and abiotic factor including human being. The pollution of water is the major question brought about by physical, chemical and biological through natural processes or due to anthropogenic activities like sewage disposal, industrial effluents, excess use chemical fertilizers and pesticides. All these sources of pollution threatened environmental health of all water habitat worldwide. So, it becomes very essential that superiority of water should be assessed at usual time interval.

In Solapur city textile industries are important and mainly largest industrial sectors. It has affected on environment as it is used large quantity of water for the process in textile industry such as fiber washing, dying, bleaching, printing and washing of finished products, hence it produce huge quantity of effluents.

The present study was carried out to analyze the physico-chemical parameters and heavy metals from sewage water because the sewage water is used for agriculture purpose and pored directly in to Sina river. Considering this aspect the present topic or problem has been selected for the analysis of sewage water from Solapur city. In present study the physic chemical parameters were analyzed seasonally as well as heavy metals were analyzed seasonally. The physic-chemical parameters such as temperature, pH, turbidity, electrical conductivity, total solids, bicarbonates, dissolved oxygen, free carbon dioxide, alkalinity, chlorides, calcium, sodium, sulphates, phosphates, total dissolved solids, hardness, BOD, COD, and heavy metals such as zinc, magnesium, potassium, iron, copper, manganese, boron etc.by using Atomic
Absorption Spectrophotometer (AAS) from sewage water samples. The physic chemical parameters and heavy metals were analyzed seasonally during year 2013-2014. Seasonal variation at four different sampling stations of nala were observed. The results revealed that the all parameters were above the permissible limit and it contains high level of heavy metals.

Present study under consideration shows that the pollution of Sina river caused due to untreated sewage water disposal from Solapur city. Same situations with different cities in country happens which are highly polluted many rivers or almost all rivers. There is absence of any type of water treatment plants for sewage water. Through this study we wanted to highlight burning situations created due to sewage discharged and further need of control, regular monitoring and before discharged into the water bodies.

Shows that waste water treatment plants are very necessary for the sewage water, industrial waste water otherwise these untreated waste water polluted the ground water bodies which is very dangerous for the all flora and fauna of the surrounded area. Due to the sewage water there are different types of pathogens like different types of bacteria, viruses etc. which causes different types of diseases from animal excreta. Some infectious parasites, viruses, bacteria etc. are created water born diseases. Some classes of pollutants are organic and inorganic chemicals like acids, toxic metals, pesticides, detergents which produced from sewage and agricultural wastes causing death of aquatic organisms. Sediments also cause different types of harmful effects on aquatic organisms and disrupt the rate of photosynthesis.

In present study overall decrease in the level of physic chemical parameter observed from monsoon to summer. The maximum level of physic chemical parameters recorded during monsoon followed by winter and then in summer. Fluctuation expects total solid and sulphate in overall observed physic chemical parameters decreased toward the downstream. Expect total solid temperature and pH showed moderate fluctuation. In present study heavy metals such as magnesium, copper, zinc, iron, boron, and manganese were analyzed. The overall increase in heavy metals observed downstream during all three season namely monsoon, winter and summer. High range
of heavy metal was recorded at station S4 near Telgaon about 20 km from Solapur city during monsoon season low level of heavy metal was recorded. Histopathological changes due to exposer to the various concentration of sewage water for 96 hours were carried out. The organ such as gills, liver and kidney were collected for histopathological study after 96 hours exposer. In present study the treatment of sewage water showed sever damage to all three organs. Present study was carried out from Solapur city sewage nala. This is the only source of sewage disposal and industrial effluents.

The sewage water from Solapur city and its toxicity on histopathological changes and survival of fresh water fish *Tilapia mossambica* were studied. Sewage water are very harmful that fishes cannot survive for more than 1 to 2 hours in 100% sewage water even in diluted water also fishes were showed the changes in their behavior. Due to the development in industrial status and increase in population, relatively increases in anthropogenic activities of human were polluted water. Increase in waste water and solid waste are responsible for the change in environment. The waste which are generated by industries, municipal etc. were disposed directly in to river and polluted the river respectively which is affected on the human health and aquatic organisms directly or indirectly.