



**Assesment Of Physio-Chemical Parameters from Sewage
Effluents Nala Form Solapur City, Dist. Solapur
(MS)”**

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Abstract –

Sewage and Industrial waste contain large amount of organic and inorganic chemicals, arised from urban cities. In most urban ,rural communities in the developing countries uses most of the available sources of water for domestic purpose. In present study sewage effluent was assessed to understand levels of contaminants discharged from Solapur city in to the Sina river. For present study 03 sampling stations were selected. The Physicochemical parameters and heavy metals such as Zink, Manganese, Magnesium and Boron were considered for the assessment form sewage effluents from 3 selected sites. It was observed that the levels of heavy metals increased toward downstream station wise before meeting to the Sina river.

Key word – Contaminants, Industrial wastes, heavy metal. Sewage, Physicochemical parameters

Introduction:

Disposal of untreated waste into the environment can cause oxygen depletion as a result of microbial decomposition of organic matter, destructing the marine ecosystem, and also, affect the quality of water, making it unsafe for drinking and can lead to diseases such as dysentery, cholera and typhoid Ajibuah (2013), From available water one third water is used for agricultural, domestic purpose and industrial use, as result they cause pollution of natural water. High microbial is result in acidic pH, for microbial activity responsible factor is sewage waste, domestic waste which is rich in nitrogen and carbon. Phosphate are come from the industrial waste, fertilizers and pesticides used in fields, washing, cleaning activities and bathing also release phosphate, Alghobar (2015). Paul et.al.(2012) reported value of phosphate ranges between 3.91 to 10.45 mg/lit nitrite is essential nutrient but high concentration of phosphate and nitrite show quick growth or death of plants . Heavy metals are natural constituent of environment; large quantities of heavy metals are added in aquatic ecosystem due to domestic sewage industrial effluent and run off from crop fields., Higler(2012), .Kumar(2007). The growing problems of pollution of river ecosystem have necessitated the monitoring of water quality. Ravindra

(2003). Due to rapid development in agriculture, urbanization, industrial activities river water contamination with hazards waste and wastewater becoming common phenomenon. Ali(2012).

Material and method –

The current study was conducted in industrial waste and sewage nala from Solapur city, Nala runs throughout city. City nala passes Akkalkot road MIDC, in that area most of industrial waste is drained into sewage nala without any treatment. This water is used for cattle washing

and for agricultural purposes, for analysis three stations were selected. samples were collected in 2lit plastic containers, different physical ,chemical parameters analyzed like Temperature, pH,chemical Oxygen Demand, Biological Oxygen Demand, Heavy metals like Zink, Manganese, Boron . Temperature of sewage water measured by mercury thermometer at site, pH also measured at site with pH meter. Biological oxygen demand was analyzed by subtracting the value of final concentration of dissolved oxygen from initial concentration of dissolved oxygen. Vandana Magarde et.al. (2009), chemical oxygen demand was analyzed by Dichromate reflux method.

Result and Discussion:

Table No. 1 : Levels of Physicochemical parameters and Heavy Metals from Sewage fluent from Solapur City.

Physical Parameters And Heavy Metals	Site-1	Site-2	Site-3
Temp.	28.5	27.8	29.3
pH	7.1	7.5	7.4
BOD (mg/lit)	98	132	306
COD (mg/lit)	428	624	860
Phosphate (mg/lit)	5.35	9.31	17.45
Magnesium (mg/lit)	75.30	82.11	99.7
Zink (mg/lit)	.030	0.29	0.30
Manganese (mg/lit)	11.5	10.2	9.3
Boron(mg/lit)	0.29	0.38	0.51

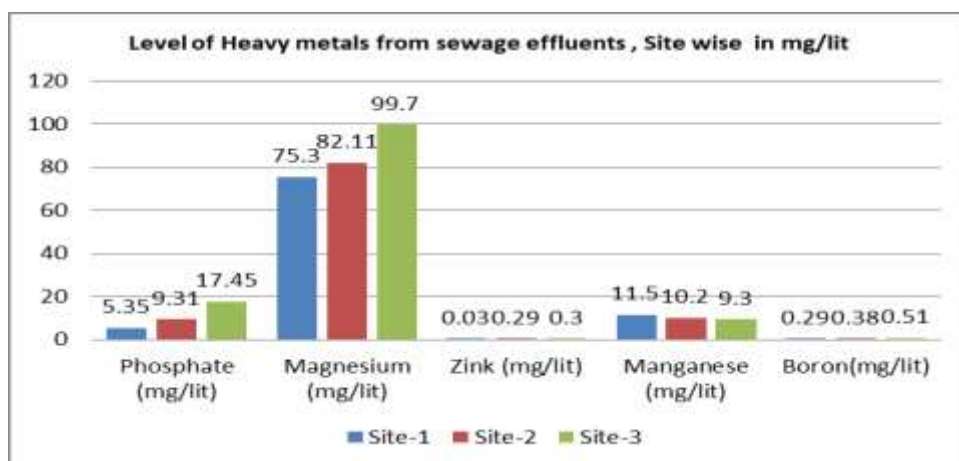


Fig. No1 Level of heavy metals Station wise

Increase and decrease of water temperature depend upon atmospheric temperature. Temperature may affect aquatic ecosystem. Temperature ranged between 27.8 to 29.3°C maximum temperature was recorded at 'site 3'. High pH is related with high Photosynthetic activity and high rate of photosynthesis can be related to higher concentration of plant nutrient and it indicate pollution of Aquatic ecosystem 'Bajpai, et.al. (2001) in present study pH range between 7 to 7.4. High COD could be credited to an increase in contamination of organic and inorganic substances and also organic pollutants entering in sewage through industrial effluents. Subin and Husnan (2004). Similarly chemical oxygen demand range between 428 to 860 mg/lit which is above the permissible limit. Alkalinity of water is caused by phosphate. Phosphate level range between 5 to 17.45 mg/lit. the content of calcium and magnesium increased due to addition of effluents from textile industries located in Solapur city.

The effluents of industries contain heavy metals some of them are carcinogenic, can cause adverse effect on aquatic life and humans also. Boron is essential for growth of plants but if level of boron increased it inhibit the formation of fruits in some citrus plants. Excess amount of boron affect on the starch formation from sugar and also affect on the formation of complexes in carbohydrates. It reduces the root cell division, lower photosynthetic rate and decreased lignin and suberin levels in plants. Excess level of Zink can restricted plant growth. High level of manganese can cause problems of nervous system, headache. .increased heavy metals in water could increase suspended solid concentration, in present study sewage water showed high level of heavy metals like copper, boron, zink etc. Conclusion – In present study all parameters are reported above the permissible limit. In sewage different pollutants added from industries, domestic waste, agricultural waste due to this river sine get polluted because this sewage water poured in to Sina river without any treatment , which can cause health problems.

References -

1. Ali, J. (2012). An Assessment of the Water Quality of Ogunpa River Ibadan, Nigeria.

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M.Sc. Dissertation. University of Ibadan, Ibadan, Nigeria, Pp. 32 – 41.

2. Ayeni, J.F.N. (2014). Salinity, Dissolved Oxygen, pH and Surface Water Temperature

Conditions in Nkoro River, Niger Delta, Nigeria. *Advance Journal of Food Science and*

Technology, 2(1): 36 – 40

3. Higler, L. W. G. (2012). Fresh Surface Water Biology and Biodiversity of River Systems,

ALTERRA, Wageningen, the Netherlands. *Encyclopedia of Life Support Systems (EOLSS)*, pp. 233 – 242

4. Hussain, J., Hussain, I. and Arif, M. (2004). Characterization Of Textile Waste Water, J.

Incl. Pol. Cont. 20(1): 137-144.

5. Kumar, N.A. (2007). View on Freshwater Environment. *Journal of Ecology, Environment and Conservation*,3(3):386-393.

6. Ravindra,D.B. (2003). Surface Water (Lakes) Quality Assessment in Nagpur City (India)

based on Water Quality index (WQI). *Journal of Chemical Society*,

7. Ajibuah B. J, Terdoo F. (2013). Pattern and Disposal Methods of Municipal Waste

Generation in Kaduna Metropolis of Kaduna State, Nigeria. *International Journal of*

Education and Research, 1, 1- 14

8. Alghobar, M. A., & Suresha, S. (2015). Evaluation of Nutrients and Trace Metals and

Their Enrichment Factors in Soil and Sugarcane Crop Irrigated with Wastewater. *Journal*

of Geoscience and Environment Protection, 03, 46–56.

9. Magarde Vandana, Iqbal Panis SA, Iqbal N. Environmental Impact Assessment of

Industrial Effluents on Water Quality of Betwa River Discharged From Mandideep

Industrial Area in M.P., Current World Environment, 2009; 4(2):327 -334