https://doi.org/10.31426/ijamsr.2018.1.9.923

IJAMSR

International Journal of Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

Comparative Studies on the Water Quality Parameters of the Industrial Areas around Tanuku

Dr M. Sridevi[1], Dr N. Aruna Kumari[2]

[1] Dept. of. Chemistry, S.K.S.D. Mahila Kalasala UG, PG (A), Tanuku, W.G (Dt) A.P., India.
[2] Dept. of. Engineering Chemistry Dr.B.R.Ambedkar University, Srikakulam, A.P., India

Email: sridevimotupalli2013@gmail.com

DR M. SRIDEVI

DR N. ARUNA KUMARI

Keywords: *Water, Sample, Analytic, Quality, Vendra, Illindraparru etc.*

A B S T R A C T

A Physico – Chemical study of the drinking water reservoirs in Vendra village with Delta Paper mill and Illindraparru village with Wanburry Pvt Ltd. in West Godavari district near Tanuku has been carried out to examine the suitability of water for drinking purposes. Water samples were collected from two sampling stations of each village and analyzed for the water quality parameters such as pH, total dissolved solids, total hardness, sulphate, Dissolved Oxygen (DO), Chemical Oxygen Demand (COD) to know the present status of the water bodies. The concentrations of investigating parameters in the water samples were within the permissible limits of the World Health Organization drinking water quality guidelines. The value of COD was found in the range little higher than the maximum permissible limits as prescribed by WHO standards (1993).

Citation: *M. Sridevi, N. Aruna Kumari (2018). Comparative Studies on the Water Quality Parameters of the Industrial Areas around Tanuku. International Journal of Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281 Vol 1, Issue 9, November, 2018, #Art.923, pp 94-98*

https://doi.org/10.31426/ijamsr.2018.1.9.923

IJAMSR

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

Introduction

Water is one of the important natural resources which are responsible for life on Earth and development could not have been possible without water. Further, all cultures of the world evolved around rivers, but unplanned development along the rivers as well as in the catchment areas, discharge of effluents into rivers leading to severe depletion of water quality and aquatic life. The examination of water is therefore necessary to assess its quality, which helps in planning the water quality management and helps to find out whether water is suitable for drinking, if not to choose the most effective treatment strategy, to determine the extent of pollution and to suggest possible remedies. Primary assessment of water pollution level in the natural environment has therefore been of great concern to the scientists, environmentalists and engineers as it also helps in assessing adverse effects on human beings and environment[1, 2,3].

Study Area

A Physico – chemical study of the drinking water reservoirs in Vendra village with Delta Paper mill and Illindraparru village with Wanburry Pvt Ltd. In West Godavari district near Tanuku has been carried out to examine the suitability of water for drinking purposes.

Experimental

The proposed experimental work was purely analytical done according to the procedure recommended in NEERI guidelines[4] for ambient water quality. The physical, chemical characteristics of drinking water of selected area were evaluated. The sampling was done with the place that is near to paper mill located in Vendra. All the collected samples are immediately preserved in dark, sterile boxes and processed for following different analysis.

- **Temperature:** Temperature was measured with the thermometer immersed directly in the water body, after a period of time sufficient to permit constant reading.
- **Color:** color is measured by visual comparison method.
- **Turbidity:** It is determined by UV-Visible spectrophotometer
- **Conductance:** Conductance is the measure of salinity and measured by conductometer
- **pH:** pH value of water sample is determined by pH meter using standard buffer solution of pH 10

https://doi.org/10.31426/ijamsr.2018.1.9.923

IJAMSR

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

- **Total dissolved solids:** The total dissolved solids of water was determined by evaporation method
- **Total Hardness:** The hardness of water was determined by using standard methods
- **Total Alkalinity:** total alkalinity is analyzed as per the prescribed method with a standard hydrochloric acid solution.
- **Sulphate:** Determined by EDTA method
- **Chloride:** Determined by Mohr's method
- **Dissolved Oxygen (DO):** The water sample was collected and Dissolved Oxygen was analyzed as per the Wrinkler's method.
- **Chemical Oxygen Demand:** COD was determined by potassium dichromate open reflex method

Results and Discussion

The various physical and chemical parameters determined for the water samples were given in Table 1 and 2 respectively.

Table: 1 Physical Parameters

S.No.	Parameters	Units	Valueof Parameter in Vendra	Value of Parameter in Illindraprru
1.	Temperature	^{0}C	20	21
2.	Colour	…..	Colourless	Colourless
3.	Turbidity	NSTU	Nil	Nil
4.	Conductivity	mS/cm	Nil	Nil
5.	TDS	Mg/L	0.02	0.03

Table: 2 Chemical Parameters

S.No.	Parameters	Units	Value of Parameter in Vendra	Value of Parameter in Illindraparru
1.	PH	……	8.4	6.8
2.	Hardness	ppm	296	296
3.	Alkalinity	Mg/lt	296	296
4.	Sulphate	Mg/lt	0.041	0.081
5.	DO	ppm	2.4	2.8

https://doi.org/10.31426/ijamsr.2018.1.9.923

IJAMSR

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

Physical Parameters

The temperature of the water sample is recorded as 20^0C and 21^0C in Vendra and Illindraparru respectively, as it was winter season. The water samples are found to be colorless indicating purity of water. Conductance of water samples is very low. Total suspended solids (TSS) and total dissolved solids (TDS) were found low, so the water is soft.

Chemical Parameters

Water which has a pH value of more than 9 or less than 4.5 becomes unsuitable for use[5]. In the present study pH of water is found to be 8.4 in Vendra and 6.8 in Illindraparru. Total alkalinity is found within permissible limits. Presence of carbonates and bicarbonates gives hardness to water, which causes health problems[6,] in the present water samples hardness is very very low. Generally unpolluted water contains low concentration of chloride, but here in our study it also contains a little bit chloride concentration in both the samples, it may be due to purification methods employed by the village people. Sulphate concentration is within the permissible limit.

Rapid increase in algae leads to the depletion of DO[7]. It is observed from the experimental data that DO level is very high, COD ranges in the permissible limits further low concentration of BOD indicates less toxicity[8].

Conclusion

The results of the study indicated that Vendra and Illindraparru village's drinking water is pure and safe for drinking purpose with slight differences in their quality parameter values. But it requires proper monitoring and environmental management plans to control further release of effluents and to avoid the dumping of waste into water resources as it deteriorate the water quality. We should give awareness to people about the need for protecting the water reservoir from pollution.

Acknowledgment

The author grateful to the Principal, Management and PG students of S. K. S. D. Mahila Kalasala, Tanuku for their co-operation, encouragement and for providing necessary laboratory facilities.

https://doi.org/10.31426/ijamsr.2018.1.9.923

IJAMSR

International Journal of Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

References

1) S. Pattanaik; M.Das; D K Pattanaik; K K Rout; R B Panda. AJCER, **2012**, 5(1-2), 44-50.
2) A Vyas; D D Mishra; A Bajpai; S Dixit; N Verma, *Asian Journal of Experimental Sciences*,**2006**, 20 (2), 289-296.
3) C Prashar; S Dixit; R.Shrivastava, *Asian Journal of Experimental Sciences*,**2006**, 20 (2), 297-302.
4) NEERI, Manual of water pollution and control,**1991**,1.9.
5) R D Pawar; G P Waghulade; A K Patil. AJCER, **2012**, 5 (1-2), 71-73.
6) A K De. Environmental Chemistry, 4th Edition, New Age International Publishers, New Delhi, **2002**, pp. 245-252.
7) S S Suthara. *Poll. Res.* **2005**, 24(3), 695-698.
8) ICMR, Manual of standards of quality for drinking water supplies. Special report series, **1975**, No.44, 2nd edition.