



WWJMRD 2022; 8(10): 1-4
www.wwjmr.com
International Journal
Peer Reviewed Journal
Refereed Journal
Indexed Journal
Impact Factor SJIF 2017:
5.182 2018: 5.51, (ISI) 2020-
2021: 1.361
E-ISSN: 2454-6615

Sangeeta Banjare
D. L. S. P. G. College Bilaspur
(C.G.), India.

A. L. S. Chandel
Govt. E. R. R. Science P.G.
College Bilaspur (C. G.), India.

Assessment of river water quality affected by industrial effluent and water in relation with human health

Sangeeta Banjare, A. L. S. Chandel

Abstract

Industrial discharges affect physical and chemical characteristics of river water quality and these changes are created harmful impact on living organism, bad impact of human health and environmental biodiversity. Human nature is like water. It takes the shape of its container. [Wallace Stevens]. Pure water is the world's first and foremost medicine. A river cuts through a rock not because of its power but because of its persistence. Rivers do not drink their own water tress don't eat their own fruits. The salt seasons the soup in order to have its purpose fulfilled live for others.[1] Industries are also doing work for others take a good hope just like this, but sometimes do not forget, that area innocent peoples feeling for their land and everyday life. Fly ash dumping zone people face many problems. Water samples were collected from different places located Korba and Janjgir – Champa River area looking green and beautiful view, site 2 odor is not good. The parameter such as Odor, turbidity, Temperature, alkalinity, acidity, DO, COD have been studied using standard protocol APHA. Pre sampling on spot testing have been done on the different site, volumetric analysis done for different parameter.

Keywords: Temperature, alkalinity, DO, COD, fly ash etc.

Introduction

Water is the reason of our birth; it is the healer, the destroyer and the final consumer. If we drink water humans, animals, all living organism contain huge relation with water. In medicinal field drinking two glasses of water in the morning helps activate internal organs, before a meal will help in digestion, before taking bath helps prevent high blood pressure, before sleeping help prevent strokes or heart attacks.

Several regions of the urban and coastal belt in India have been declared hot spot due to transport of effluent affected surface waters from urban areas to coastal areas. While air can be accounted for globally, water is national. Next to air water is the important constituent of life-support system. Water is most important natural resource. We depend on river water for irrigation, industry, domestic needs shipping and for sanitation and disposal of waste. Most of our water bodies as lakes, streams, ponds, sea, river, and oceans have become polluted due to industrial growth, urbanization and other man-made problems. Many rivers of our country receive heavy flux of sewage, industrial effluents domestic waste, and agricultural wastes etc. which contain substances varying from simple nutrient to highly toxic chemicals. In our country all the fourteen major rivers have become polluted Ganga, Godavari, Gomati, Narmada, and Yamuna all are facing pollution problems.[1] Water is not only essential to sustain life, but to support ecosystem, economic development, community well-being and cultural values. Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generation to meet their own needs. [WECD 1987]

Water is universal solvent and water is never pure it contains useful and harmful both things, "If there is magic on this planet, it is contained in water" (loren eiseley). Earths provide enough to satisfy everyone need but not everyone greed. Save environment to save If the river water temperature raises the DO level decreases. A minimum water requirement will be

Correspondence:
Sangeeta Banjare
D. L. S. P. G. College Bilaspur
(C.G.), India.

guaranteed to all human to maintain human health. Sufficient water will be guaranteed to restore and maintain the health of ecosystem. Specific amounts will vary depending on climatic and other condition. Setting these amounts will require flexible and dynamic management. Water quality will be maintained to meet certain minimum standards. These standards will vary depending on location and how the water is to be used. Human actions will not impair the long-term renewability of freshwater stocks and flows. Data on water resources availability, use and quality will be collected and made accessible to all parties. Institutional mechanisms will be set up to prevent and resolve conflicts over water. Water plans and decision-making will be democratic, ensuring representation of all affected parties and fostering direct participation of affected interests. [2]

These criteria and goals are the result of considerable dialogue and analysis with academic, governmental and non-governmental interests working on regional, national and international water problems.[2] Energy is an important input for development. It aims at human welfare covering households, agriculture, transport and industrial complexes. Like other natural resources, energy resources are also renewable as well as non-renewable. Renewable energy resources are mostly biomass-based and are available in unlimited amount in nature since these can be renewed over relatively short period of time. Non-renewable energy resources are available in limited amount and develop over a longer period of time. [3]

Materials and Method

Sampling site designated like river upstream to downstream, also select canal area. The selected area for this analysis was Korba and Janjgir - Champa district both are falls under the hot temperate climate zone and hence the district experiences hot and dry. Korba district is rural area and they have natural forest, and tree planted by the people who works in that area. Janjgir-Champa district is Education area but not properly developed. Waste water collect from different sites where the upstream s¹, releasing effluents s², and downstream s³, before confluence Mahanadi s⁴ and after confluence Mahanadi s⁵ in two consecutive months. The sampling sites were designated as s¹, s², s³, s⁴, s⁵, samples were collected with the help of

clean plastic container well cleaned with nonionic detergent rinsed three times with tap water and finally washed with deionized water. Prior to usage while collecting samples contamination of the samples was avoided with any foreign material collected samples were brought to laboratory and stored. Some parameter Temperature, pH, TDS are tested on spot by thermometer and pocket pH meter, TDS meter, post sampling physicochemical parameter are temperature, alkalinity, DO, COD, in the water were analyzed according to APHA(1995) and Trivedi and Goels (1986).[5]

Result and discussion

Odor

In sampling site 1 river area odor in found odorless, site 2 is canal area odor is found not good, site three and site 4 also contain some smell site 5 and site 6 is found odorless. Water quality is good when we found odorless and good for health.

Turbidity

In rainy season allots of dissolved solids are enter the river water and site 1 is found slightly turbid, site 2, site 3, and site 4 are turbid, site 5 and 6 are slightly turbid.

Temperature

Temperature is basically important for the effect on chemical reaction, reaction rate, aquatic life and the suitability of water for beneficial uses. The temperature value observed were 29.7 °C at s1 and 35.4 °C at s2.0 and 36.6 °C at s2.1 and 35.3°C at s3 and 26.8°C at s4 and 26.6°C at s5. Temperature of wastewater is coming because of addition of warm water from industrial activities. Increase temperature can cause change in the species of fish crabs frogs and other water living organism and face thermal shock that can existing in receiving body

Alkalinity

Alkaline water has a higher pH level than regular drinking water. Because of this, some advocates of alkaline water believe it can neutralize the acid. Unless you have a kidney disease, alkaline water doesn't pose any serious health risks. The high pH could make your skin dry and itchy or cause an upset stomach, but that's about all. Just because it's safe, though, doesn't mean it does anything for you.

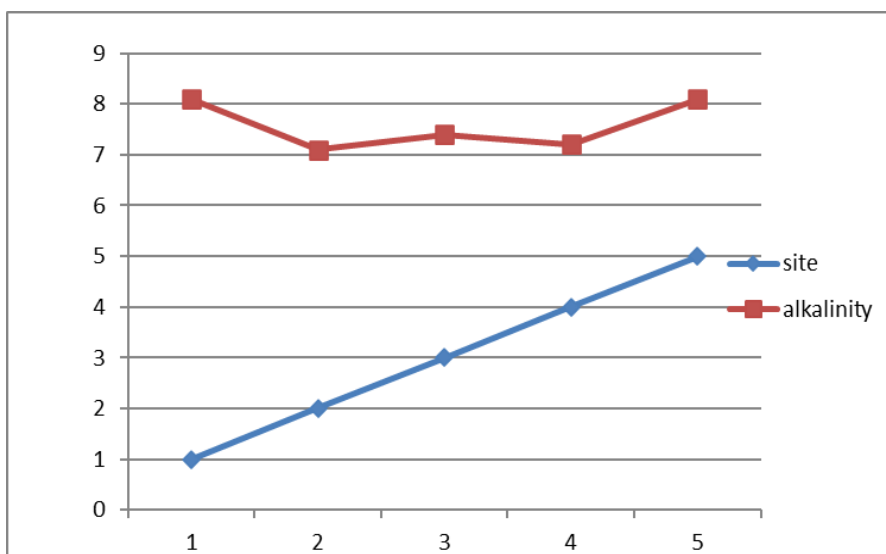


Fig. 1: alkalinity of water in site 1, 2, 3, 4, 5.

Acidity

Site 2, 3, and 4 pH value is 0.4 % higher than 7. pH is a measure of how acidic/basic water is. The range goes from

0 to 14, with 7 being neutral. pHs of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base. Site1, site 5, and site 6 are found greater than 7 pH value.

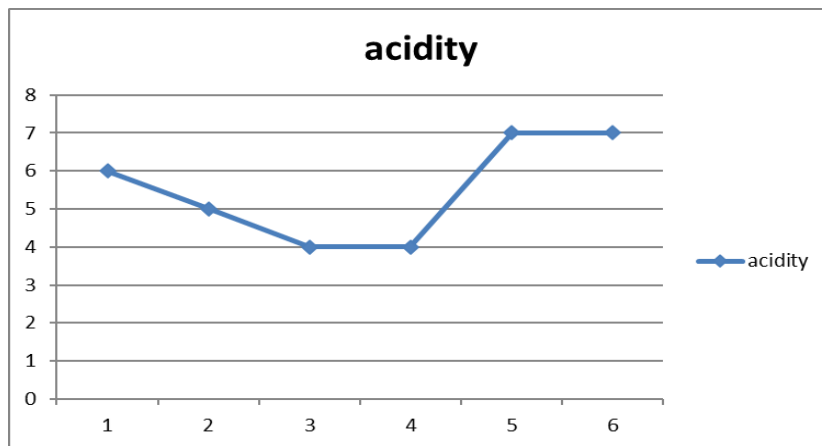


Fig. 2: Acidity of water in site 1, 2, 3, 4, 5.

DO

In site1 DO level is good, site 2, 3, 4, DO level is less than site 2 and site 5 and 6 DO level is good. When dissolved oxygen becomes too low, fish and other aquatic organisms

cannot survive. The colder water is the more oxygen it can hold. As the water becomes warmer, less oxygen can be dissolved in the water.

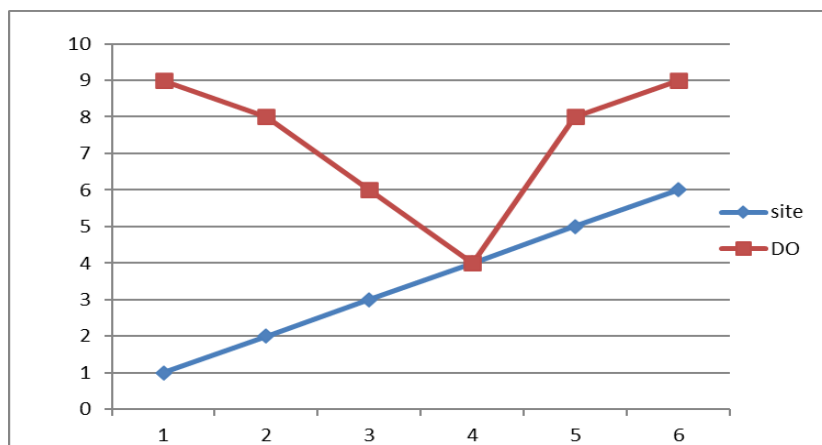


Fig.3: DO of water on different sites

COD

Chemical oxygen demand is the amount of oxygen needed to oxidize the organic matter present in water. Chemical oxygen demand testing is used to determine the amount of

oxidation that will occur and the amount of organic matter in a water sample. Chemical oxygen demand testing is also used to determine the amount of inorganic chemicals in a sample.

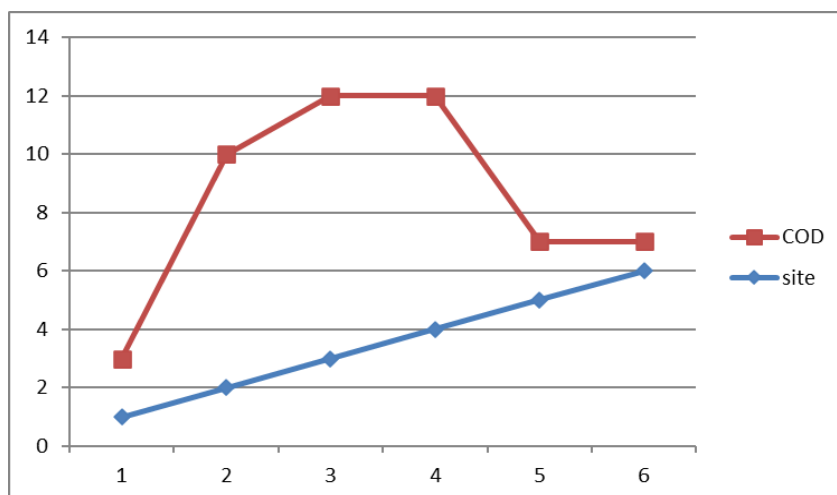


Fig. 4: COD of water on different sites

Fly ash

In korba area people suffer pollution problem of flyash , oxides have due to its small size and light it has potential to get airborne and pollute the environment. The oxides of iron and aluminium present on the surface of the flyash particles attract toxic trace elements, such as Sb, As, Be, Cd, Pb, Hg, Se, V and they are found to be concentrated largely on the surface of flyash.[5] They also affect that area crops, and land. In village raliya is critical condition.

Conclusion

Allots of great reason to drink water and great relation between humans, plants living organism, water has no fat, no calories, no carbs, no sugar good for weight loss, lowers our risk of a heart attack, when being dehydrated can sap our energy and make us feel tired, headache cure, healthy skin, digestive problems, cancer risk, cleaning etc. the aim of the present study is to impure water and poor sanitation are linked to transmission of diseases. Industries are very important for sustainable development and energy generation they providing jobs for people facilitate the nation, if they manage urban, industrial and agricultural waste water for safety of human health, wild life because river water uses by wild animals, and that area people health risk. When industry give jobs, their social impacts are very good, and they take land cut forest the environmental impact is not good. Analysis of river water in industrial area is very essential.

Acknowledge

I acknowledge my sincere thanks and gratitude to my supervisor Dr. A. L S. Chandel for his support and guidelines; I would like to express my sincere thanks to Dr. S. R. Kamlesh for providing all the facility.

References

1. P. D. Gupta Environmental and ecology.
2. B. K. Sharma Environmental chemistry.
3. A. K. Dey. Environmental chemistry.
4. Pandey D. P. Dwibedi A and Singha A. K. [1989]: Physico-chemical characterstics of ganga sediments at Shuklagajjamau U. P.: a Preliminary report journal Recent Adv. Appl. Sci. 545-549.
5. Joshi, B. D. Pathak, J. K. Singh, Y. N., Bist, R. C. S. and joshi, P.C., [1983] on the Physico-chemical characterstics of river Bhagirathi in the uplands of Garhwal Himalayas, Himalayan J. Env.Zool.4 (1), 64-75.
6. B.K. Sharma, Instruments and chemical analysis.
7. Bhatnagar instruments and chemical analysis for analytical chemistry.