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Physicochemical study of Hasdeo River and industrial effluent and their impact on environment

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Abstract
Water occupies a central position in the life of organism; Industries are showing the development of country, industrial effluents a wide variety of both inorganic and organic pollutants present in effluents from industries.[1] People grow plants in their house without knowing their exotic nature or which give more oxygen good properties like Tulsi good for us and we plant in pots, Kadamb a tree planted in outside are river area more water stored in soil in that place Krishna like more, good for us when we face dry water crises desert area, jamun, palas, ber, tendu, sisir these are very good: some trees are take more water from soil like nilgiri. If the people want to celebrate are want to heal, they go out garden or forest, need to plant the old times like holy plants for increases' the flora and fauna. Water samples were collected from different places located Korba and Janjgir - Champa. The parameter such as Odor Temperature, pH, acidity, and alkalinity, TDS, and COD has been studied using standard protocol APHA. Pre sampling on spot testing have been done on the different site.

Keywords: Temperature. pH, TDS, DO, COD etc.

Introduction
Environment is everyone responsibility now a days people want to create a world where the environment doesn't need protecting, people doing many things like plantation aware other people to plant a tree and some people also taking care of planted tree by year and year in old days in our country king was give order to make ponds in villages, that time these things are very good. A minimum water requirement will be guaranteed to all human to maintain health. Sufficient water will be guaranteed to restore and maintain the health of ecosystem. Specific amounts will vary depending on climatic and other conditions. Setting these amounts will require flexible and dynamic management. Water quality will be maintained to meet contain minimum standards. These standards will vary depending on location and how the water is to be used. Human action will not impair the long-term responsibility of freshwater stock and flows.[2] Data on water resources availability, use and quality will be collected and made accessible to all parties. The climate is characterized by extremes of temperature, severe drought accompanied by high wind velocity, low relative humidity evaporation for more than rainfall and too scanty a rainfall to support any appreciable vegetation. Personally, people tried to make small changes to help residue waste, people could do more, they really need to try to get into recycling but we are trying life is about balance. In the period people doing nurture the nature so that everyone can have a better future and safe environment. The sky, the mountain, the tree, the animal, insects, reptiles, frog, jugnu give us a delight in and for themselves. In rainy season everything nature rain makes alive; people add greenery to environment to make it fresh and alive. In our villages farmers pray to make it fresh alive farmers pray for rain and farming allots of grain show the respect and love for earth and earth return the love, in the form of foods and this cycle is connected our heart with nature and the holy element which give us allots of energy to be alive and make us happy and healthy.[3]
Human activity may increase the incidence of disease in wild species. The extent of the disease increases when animals are confined to a nature reserve rather than being able to disperse over a large area. Also, animals are more prone to infection when they are under

stress. Animal held captivity are also more prone to higher level of disease. Increasing human population has escalated the used, natural resources, consumption of resources such as land, food, water, air, fossil fuel and minerals. Waste products as a result of consumption such as air and water pollutants toxic materials and greenhouse gas. In this covid 19 period people doing the same things what is that is follow the purkhas rule roka - chheka for saving everything successfully, planted tree for future children in villages and they are successful. Some people also doing for family planning for controlling population people also love the nature, if people don't have land to planted a plant so that's why they use pots for care and show the loving heart of God who present in somewhere inside of us.[4]

Some Human nature is too greedy but in nature nothing is perfect and everything is perfect. When a kid first time put their leg on the earth and earth also touch first, never forget not that the earth delights to feel your bare feet and the winds long to play with your hair, God created everything perfect give pure water. How beautiful engineering all trees, mountain, animals, foods, insects, men women's best creation of God look deep into nature and then we will understand everything better.

Materials and Method

Firstly, we select the area for study, 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. Waste water collect from different sites where the upstream s_1, releasing effluents s_2, and downstream s_3, before confluence Mahanadi s_4 and after confluence Mahanadi s_5. The sampling sites were designated as s_1, $s_{2.0}$, $s_{2.1}$ s_3, s_4, s_5, 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, instrumental and volumetric analysis using for lab analysis, post sampling physicochemical parameter are temperature, pH, conductivity acidity, alkalinity TDS, DO, COD, in the water were analyzed according to APHA (1995) and Trivedi and Goels (1986).[5]

Result and discussion

Odor

In sampling site1 were observed odorless and site 2.0 and 2.1 odor is not good and s3 and s4 s5 were observed odorless.

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 ^{0}C at s_1 and 35.4 ^{0}C at $s_{2.0}$ and 36.6 ^{0}C at $s_{2.1}$ and 36.6 ^{0}C at s_3 and 35.3^{0}C at s_4 and 35.1^{0}C at s_5. 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. High Temperature decreases DO level.

pH

pH is the measurement of intensity of acidity and alkalinity and measures the concentration of hydrogen ion in water. The pH determination is important objective in treatment of waste. Variation in pH values of effluent can affect the rate of biological reaction and survival of various microorganisms. The pH value observed were 8.1 at s_1 and 8.1 at $s_{2.0}$ and 7.4 at $s_{2.1}$ and 7.4 at s_3 and 8.1 at s_4 and 8.6 at s_5 and 7.6 at s6. Higher pH values were recorded at s_1 and s5 however these values were recorded at $s_{2.0}$ and $s_{2.1}$ these values are in permissible limits. High or low pH values in water have been reported to affect aquatic life and alter toxicity of other pollutant in one form or the other (DWAF, 1996).

TDS

The solid contained in the filtrate that passes through a filter with a normal pore size of 2 micrometer are less is classified as dissolved solids. The TDS value were observed in 0.49mg/l at s_1 and 0.55 mg/l at $s_{2.0}$ and 0.57mg/l at $s_{2.1}$ and 0.56 mg/l at s_3 and 1.18mg/l at s_4 and 1. 25 mg/l at s_5. The size of colloidal particle in waste water is typically in the range from 0.01to 1.0 micrometer the average value of TDS was 10775.

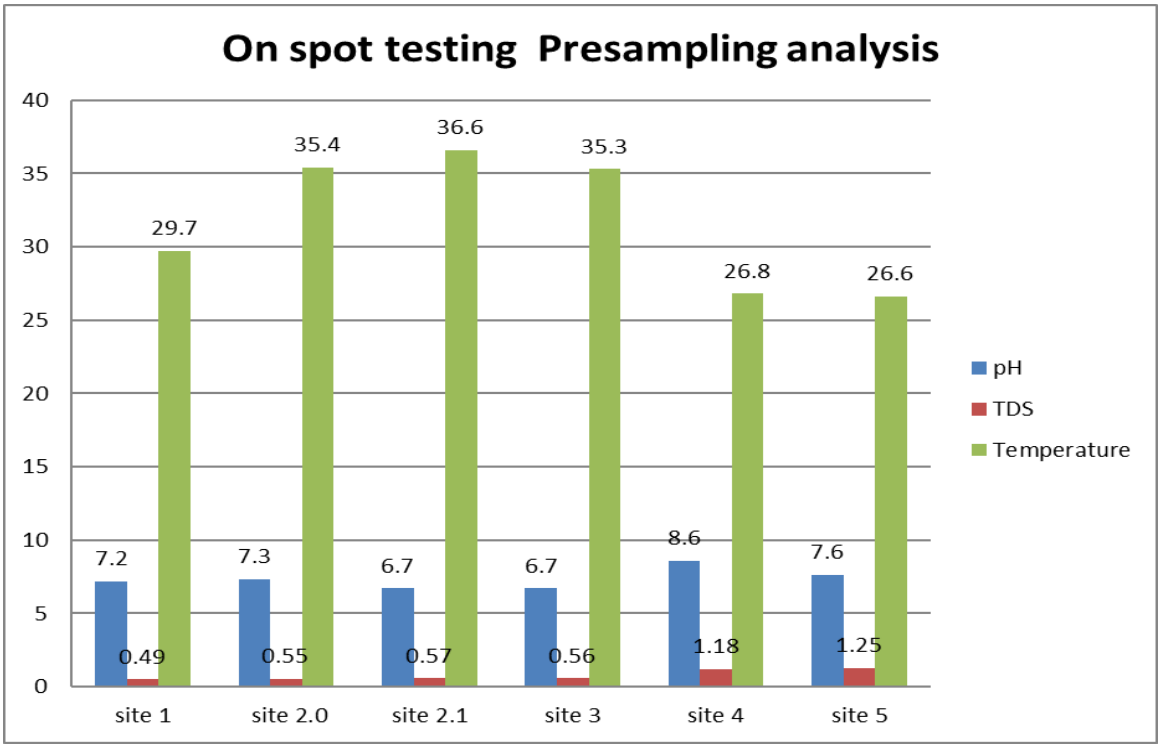

Fig. 1:

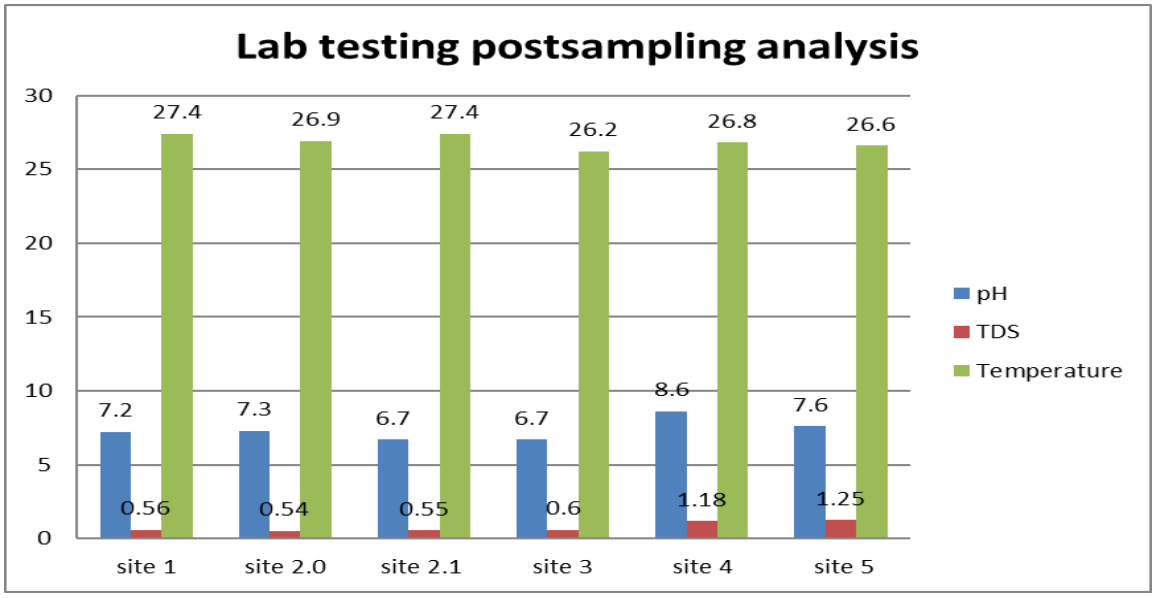

Fig. 2:

Conductivity

Electrical conductivity is a measure of total dissolved minerals of water change in or unusual ratio of conductivity. The electric conductivity of water is a measure of the ability of a solution to conduct on electric current. The conductivity of the water is one of the important parameters used to determine the suitability of water for irrigation. It is useful indicator for salinity or total salt content of waste water.

Acidity

Acidity of the water is its capacity to neutralize a strong base. The acidic or basic nature of the water sample depends upon its source which condition the water sample is acidic in nature due to the dissolved CO2 or due to the presence of organic acids. Acidic water refers to pH range less than 7, s_1 and s_2.0 greater than 7 and $s_{2.1}$ $s_3$is 7.4 and s_4 and s_5 increases pH value.

Total Alkalinity

Alkalinity is a measure of the ability to neutralize acids to the equivalence point of carbonate and bicarbonate alkalinity is closely related to the acid neutralizing capacity of a solution. The total alkalinity value was observed in 83 mg/l at s_1 and 55mg/l at $s_{2.0}$ $s_{2.1\ and}$ 81mg/l at s_3 and 82 mg/l at s_4 and 566 mg/l at s_5.

TS

Waste water contains variety of solid materials total solids are determined as residue left after evaporate.

Total suspended solid (TSS): -
Total suspended solids play an important role in waste water treatment TSS test results are routinely to acsess the performances of of conventional treatment processes and need for effluent filtration in reuse application. TSS are the samples under suspension and remains in water sample in present study value showed in the charts.

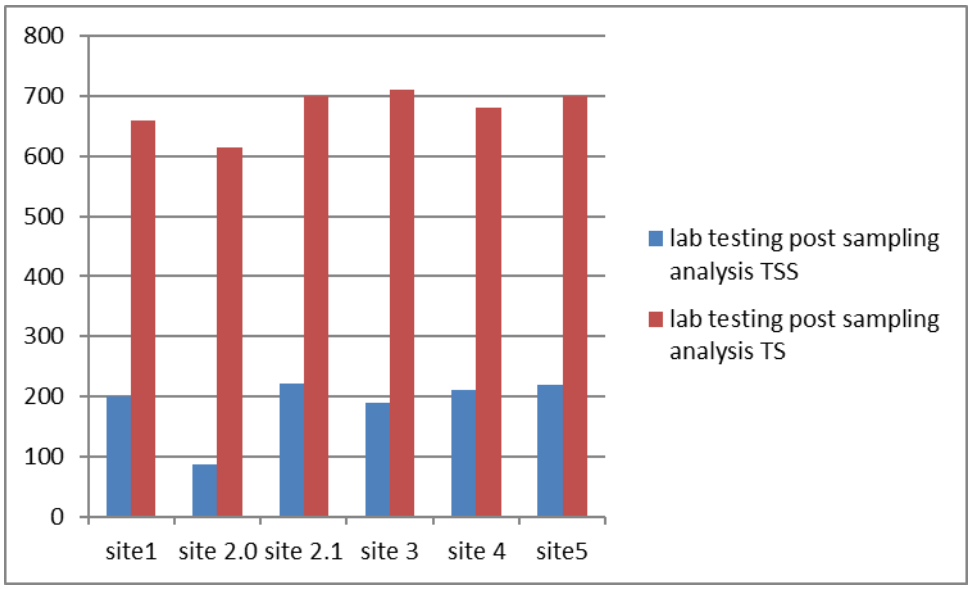

Fig. 3:

Chemical oxygen demand (COD):-
It is the amount of oxygen required by organic matter for its oxidation by strong COD substance in water. The COD is a test which is used to measure pollution of domestic and industrial waste. The waste is measure in terms of equality of oxygen required for oxidation of organic matter to produce CO_2 and water. In s_1 COD value is less than $s_{2.0}$ and $s_{2.1}$. [6]

Conclusion
Industries have their management system they maintain everything. In today's people aware about their health. When industrial effluents enter the river water they disturbed water quality, and make some changes their physical and chemical properties which is not good for human health. Industries social impact is very nice and good, they provide allots of jobs, opening school good work for education, medical facility, residence etc.in rainy season in that area green and have natural forest and they planted plant but that area is temperate and hot. Other human activities are also creating threats. That area people used the river water for bath and many domestic purposes, analysis of water is very essential.

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