



Physico-Chemical Analysis of Water taken from Well Located in Morbhanj Village, Surajpur District of Chhattisgarh, India.

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Abstract:-

Water is a fluid substance that conducts biological chemical phenomena. Life needs chemical reactions to obtain energy, grow and get rid of waste. Water can be used for direct and indirect purposes. Like bathing, drinking and cooking, agriculture, industry are included. Therefore it is necessary to test the water. Because different types of chemical elements are present in the water found in the earth, if this chemical element is in a certain quantity then it is beneficial for us and trees, plants and other living beings, but the deficiency or excess of these chemical elements is harmful for our trees. It is harmful to plants and other living beings. That's why in our research we took water samples from well of Morbhanj Village, Surajpur district of Chhattisgarh. and We will study water quality parameters including pH, total alkalinity, total hardness, Turbidity, Chloride, Nitrate, Ca, Mg, Fe, Fluoride of the samples collected from research area. Will try to reach a conclusion

Keywords: Water source, Morbhanj, Conductivity, pH-value, Physical properties, Chemical properties etc.

Introduction: -

In our research, we have taken water sample from a well located in Morbhanj village, from where water keeps coming up continuously. The people here use this water for drinking and farming. Local residents believe about this place that God resides at this place. Water source Morbhanj is 11 Km away from Ambikapur, the headquarter of Surguja division and the distance of this place is 353 Km from Raipur, the capital of Chhattisgarh. and Geographical location position of the this research area is at 23.1436°N Latitude and 83.1057° E longitude and no research has been done here.



- **Conductivity :-** Conductivity is a measure of water's capability to pass electrical flow. This ability is directly related to the concentration of ions in the water[1]. These conductive ions come from dissolved salts and inorganic materials such as alkalis, chlorides, sulfides and carbonate compounds [2]. Compounds that dissolve into ions are also known as electrolytes [3]. The more ions that are present, the higher the conductivity of water.
- **pH-value :-** pH is a determined value based on a defined scale, similar to temperature. This means that pH of water is not a physical parameter that can be measured as a concentration or in a quantity.[4],[5]. 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. pH is really a measure of the relative amount of free hydrogen and hydroxyl ions in the water. Water that has more free hydrogen ions is acidic, whereas water that has more free hydroxyl ions is basic. Since pH can be affected by chemicals in the water, pH is an important indicator of water that is changing chemically. The pH of water determines the solubility (amount that can be dissolved in the water) and biological availability (amount that can be utilized by aquatic life) of chemical constituents such as nutrients (phosphorus, nitrogen, and carbon) and heavy metals (lead, copper, cadmium, etc.). For example, in addition to affecting how much and what form of [phosphorus](#) is most abundant in the water, pH also determines whether aquatic life can use it. In the case of heavy metals, the degree to which they are soluble determines their toxicity. Metals tend to be more toxic

at lower pH because they are more soluble[6].

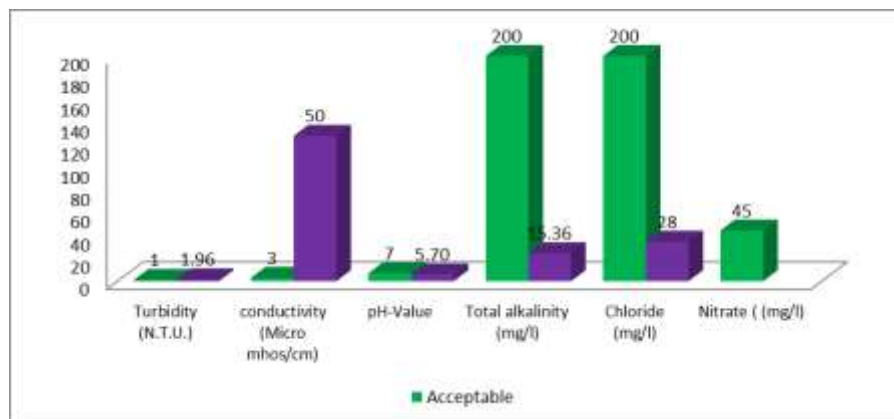
Material & Methods:-

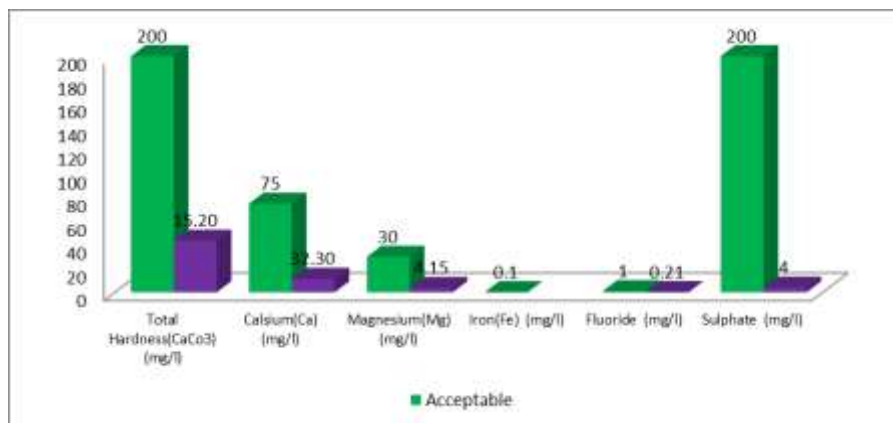
We are using experimental Method as Methodology in this research, Our research area from where water is continuously coming out automatically. The place from where the source of water is located is at Morbhanj Village in Surjpur district. During our research, we went to this water source and measured the temperature of the water where we got the temperature of water is normal. And we took a sample of the water coming out of the source in a bottle. The physico-chemical properties of the samples taken were studied. In which we studied the presence and quantity of Turbidity, Conductivity, pH value, Chloride, Nitrate, Calcium, carbonate, Magnesium, Iron, Fluoride, Sulphate etc. which are as follows-

Physio-chemical properties	Unit	Acceptable	Water from Morbhanj
Conductivity	Micro mhos/cm	3	50
pH-Value	pH Scale	7	5.7
Total alkalinity	mg/l	200	15.36
Chloride	mg/l	200	28.00
Nitrate	mg/l	45	
Total Hardness(CaCo ₃)	mg/l	200	15.20
Calcium(Ca)	mg/l	75	32.30
Magnesium(Mg)	mg/l	30	4.15
Iron(Fe)	mg/l	0.1	N.D.
Fluoride	mg/l	1	0.21
Sulphate	mg/l	200	4.00
Turbidity	N.T.U.	1	1.96
Colour	Pt. Cobalt Scale	5.0	5.0

Result & Discussion :-

The turbidity of the water coming out of the well located in Morbhanj village is slightly more than normal. So the water coming out here is clean, the conductivity of the water found here is much higher than that of distilled water, the pH-value is much lower than normal, so the water here will be acidic. The amount of chloride, nitrate, Calcium carbonate and calcium is also much less than normal. Iron is absent. Similarly, the amount of Fluoride and Sulphate is also less than normal.





Conclusion:-

The conductivity of the well water source found in Morbhanj Village is more than the conductivity of distilled water, which means that its water may be ionic. The pH-value of the water found here is less than 7, so the water would be acidic nature. Nitrate was not found in the source of water available in wall of Morbhanj Village. That means there are no Nitrates in the water here. The amount of iron found did not found in this water.

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