REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: Revised: Accepted:

Assessement Of Physico-Chemical Properties Of Machkund Pond Water Of Dholpur City (Rajasthan) During Winter Season.

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ABSTRACT:- The water is perhaps the most previous natural resource after air. Though the surface of earth is mostly consists of water only a small part of it is usable. The water can be defined as the chemical, physical, biological characteristics of water .This study is give us the valuable information for the properties of water quality parameters like pH, TDS, Colour, TSS, Chlorides etc. here we collected two different sides samples from Machkund pond water. Then we analyze these two samples in the lab. We check the water quality and pH, temperature, colour, taste, electrical conductivity (EC), Total alkalinity (TA), Total hardness (TH), Total dissolved solids (TDS), Total suspended solids (TSS), Chlorides, dissolved oxygen (DO), Biological oxygen demand (BOD) , free co2. After the testing we found the water is good for human beings for his health and other things.

Introduction:- All plants and animals need water to survive. There can be no life on earth without water. Because 60 percent of our body weight is made up of water. Our bodies use water in all the cells, organs, and tissues, to help regulate body temperature and maintain other bodily functions. Because our bodily functions. Because our bodies lose of water through breathing, sweating, and digestion, it's crucial to rehydrate and replace water by drinking fluids and eating foods that contain water. Water is one of the most important of all natural resources known on earth. It is important to all living organisms, most ecological systems, human health, food production and economic development. The safety of drinking water is important for the health. The safety of drinking water is affected by various contaminants which included chemical and microbiological. Such contaminants cause serious health problems. Due to these contaminants quality of the drinking water becomes poor. Sometimes such poor quality water causes many diseases in the humans so that quality of the water must be tasted for both the chemical as well as for the microbial contaminants. During the study it was found that maximum number of physical and chemical parameter were within the desirable limit, as suggested by WHO(1971) and BIS(1991).The objective of the present research is to provide information on the physicochemical characteristics & detailed ecological studies of potable water and lake water (Habitat) in order to discuss it's suitability for human consumption. Physicochemical and biochemical aspects of the water have been investigated to assess detailed ecological studies of potable water and Lake water (Habitat) in order to discuss it's suitability for human consumption.

II. STUDY SITES

Sampling sites:- water sample were collected from two different areas which are as follows:
1 Shiv mandir water sample
2 Gurudwara water sample

III. METHOD AND MATERIALS

Parameters	Methods
Temperature	Thermometer
pH	pH Meter
Colour	Visualization Method
Taste	Feel Method
Conductivity	EI Digital Conductivity Meter (NDC 736)
Total Alkalinity	Neutralization's method
Total Hardness	Complex-metric titration method
Total Dissolved Oxygen	Evaporation's method
Dissolved Oxygen	Dilution & Winkler's method
Biological Oxygen Demand	Dilution & Winkler's method
Chloride ion	Mohr's method

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IV. RESULT

Table 1: Physico-Chemical Study of Water in Dholpur City

S.NO	Properties	Shiv Mandir Sample-1	Gurudwara Sample-2
1	**Temperature**	**10 °C**	**10 °C**
2	**pH**	**Alkali**	**Alkali**
3	**Colour**	**Light-green**	**Colourless**
4	**Conductivity**	**Good conductor**	**Good conductor**
5	**Total alkalinity**	**850**	**493**
6	**Total hardness**	**500**	**400**
7	**Total dissolved solid**	**200**	**200**
8	**Total suspended solid**	**3,400**	**2400**
9	**Dissolved oxygen**	**6.24**	**6.56**
10	**Biological oxygen demand**	**4.56**	**5.98**
11	**Chloride**	**0.502**	**0.401**
12	**Free CO2**	**47.3**	**25.3**

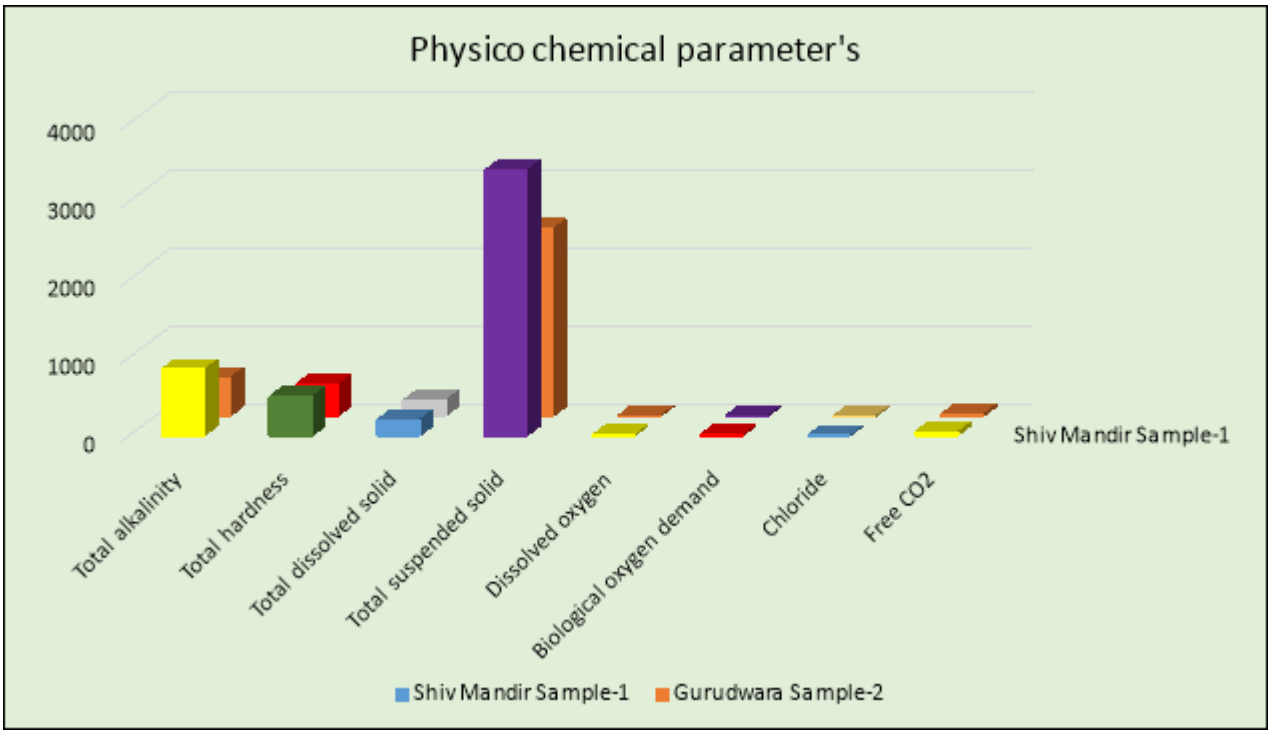

Fig 1: Physico-Chemical Study of Water in Dholpur City

V. DISCUSSION

Tempreature:-ShivMandir Sample and Gurudwara samples temperature are equal. Water temperature is critical because it is an important quality in environmental parameters. It is important to measure water temperature. By doing so, we can see the characteristics of water such as the chemical, biological, and physical properties of the water, as well as the possible health effects.

pH:- All two of water sample was found alkali due to the presence of some alkali salts in the water sample like hydroxide ion.

Conductivity:- Mostly all two samples are good conductor. Maximum conductivity was found in Gurudwara water sample(19.17) because of the presence of higher concentration of ions, come from dissolved salts and inorganic materials such as alkalis, chlorides and sulfides. Minimum conductivity was found in Shivmandir water sample(17.4) because reverse osmosis technology dissolved impurities (salts and organics) so due to the presence of lower concentration of ions Shivmandir water sample shows minimum conductivity.

Total Alkalinity:- Maximum alkalinity was found (850 mg/l) in Shivmandir water sample because of the presence of alkali salts such as Calcium Carbonate or other compounds which are from industries and transportation. Minimum alkalinity was found (493 mg/l) in Gurudwara water sample. Because of lower quantity of alkali salts.
Total Hardness:- The maximum hardness was found (500 mg/l) in Shivmandir water sample because the hardness in water is caused by dissolved Calcium and to a lesser extent, Magnesium ions. The minimum hardness was found (400mg/l) in Gurudwara water sample because the reverse osmosis technology dissolved all the impurities and purify the water so the lower presence of calcium & magnesium ion it has minimum hardness.

TDS:- Shiv mandir and Gururdwara water sample (200 mg/l) TDS is equal. Because of potassium, calcium & sodium presence in higher quantity these ions have little or no short-term effects, but toxic ions (lead arsenic, cadmium, nitrate and others) may also dissolved in the water.

TSS:-The maximum quantity of TSS was found (3,200 mg/l) in the Shivmandir water sample TSS could be anything that floats or "suspends" in water, including sand, sediment, and plankton. When certain water sources are contaminated with decaying plants or animals, the organic particles released into the water are usually suspended solids. The minimum quantity of TSS was found in the Gurudwara water sample (2400 mg/l).

DO:- The maximum quantity of DO was found (6.56 mg/l) in Gurudwara water sample because the sample of Gurudwara water is in the touch of open atmosphere. So the oxygen dissolved in the Shivmandir water directly. The minimum quantity of DO was found (6.24 mg/l) in Shivmandir water sample because the Shivmandir water is not in the touch of open atmosphere. So Shivmandir water does not have maximum quantity of DO as much as Gurudwara water have.

BOD:- The maximum quantity of BOD was found (5.98 mg/l)in the Gurudwara water sample because the Gurudwara in the touch of open atmosphere. The Gurudwara water have sufficient oxygen is available, aerobic biological decomposition by microorganisms will continue unit all waste is consumed. The Minimum quantity of BOD ions was found (4.56 mg/l) in the Shivmandir water sample. Because of Shivmandir water have not sufficient oxygen.

Chloride:- The maximum quantity of chloride ions was found (0.502 mg/l) in the Shivmandir water sample because Shivmandir water is in the touch of open atmosphere. So it has many impurities and salts such as sodium chloride. So it have maximum chloride ions. The minimum quantity of chloride ions was found (0.401 mg/l) in Gurudwara water sample. In the reverse osmosis technology, dissolved all the impurities and salts, and purify the water. So the Gurudwara water has minimum quantity of chloride ions.

Free CO_2:- The maximum quantity of Free CO_2 was found in the Shiv mandir water sample (47.3 mg/l) because Shiv mandir water is in the touch of open atmosphere. So it is present in water in the form of a dissolved gas. So it have maximum Free CO_2. One of the biggest concerns about sparkling water his its effect on teeth, as your enamel is directly exposed to acid. The minimum quantity of free CO_2 was in Gurudwara water sample (25.3 mg/l).

VI. CONCLUSION

Evaluating drinking water quality using the water parameters and esthetic characteristics has a profound significance for human health. Esthetic parameters such as colour, odour, and taste were evaluated using households' understanding of the water quality.

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