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STUDY OF HARMFUL ELEMENTS PRESENT IN DRINKING WATER OBTAINED FROM TRIBUTARY RIVERS OF INDORE REGION

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Abstract

The city was founded along the banks of the Kanh River by the Holkar dynasty. It was an outcome of the Mandsaur. Peace Treaty signed between the East India Company and Maharaja Malhar Rao Holkar in 1818," informs Kishore Kodwani, a social activist in Indore who is working for the purification of the Kanh.We can find pictures of people bathing in the Kanh water up to the decade of the 50s. Religious rituals were regularly performed alongside the river.The problem began in the 60s and the 70s. It was the time when Indore witnessed a rapid wave of industrialisation[1],[2,4]. The water obtained from various resources such as underground (Well water, Boar well water), surface water (rivers, ponds, lakes, marine water) and canals of tribal area of Madhya Pradesh, having excess amount of organic and inorganic components, which are hazardous to human being and animals[1].

Key words: The River Bauxite, fluorine ligands Interference, metallurgy, purification, electrovalent, synthesis, Interference, metallurgy, purification, electrovalent, synthesis

Introduction

Few cared for the burden of the waste that this development produced. It eventually went into the rivers, as the infrastructure remained underdeveloped. Like the size of the city, the volume of the sewage disposed into the Kahn river is only increasing with time."In the name of infrastructure, we built the ring road, several bypasses, new colonies, parks and The Bus Rapid Transit System (BRTS) or Ahilya Path. However, the waste management was left to the Kahn river. The very river that was the reason for the foundation of the city is now throttled by its growth[5]One of world's largest religious gatherings-SimhasthaKumbha- is held after every 12 years on the banks of the Kshipra at Ujjain. Reduced to a black nallah for the non-rainy part of the year, the Kahn river is the biggest source of contamination for the shipra. An overwhelming majority of industrial waste is dumped into its 21-kilometre stretch that flows through the urban areas. Saraswati, a tributary that emanates from the same mountain, joins the Kanh at Indore[1,2].

The data released by the Indore Municipal Corporation estimate the daily volume of sewage from Indore at around 270 million liters per day (MLD).The combined total capacity of the existing sewage treatment plants is not more than 90 MLD. In other words, approximately 190 MLD of untreated sewage is added each day to the Kahn river, which eventually pours into the Shipra. The city of Ujjain gets its water supply from the same polluted river.

Materials and Methods

The sewage is not the only problem afflicting the Kahn river. The mindless encroachment of its catchment area and 33 slum colonies have swallowed a great part of the river. Its flow has greatly reduced because of the illegal constructions cropping in Kahn's catchment area. The human waste produced from the slum colonies also flows into the Kahn river. Besides, illegal colonies have mushroomed along the banks of the river. As a result, the river has changed

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course at some locations. People have erected retaining walls on others, further restricting its natural flow[6].

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Table for experimental parameters

Parameters	Values obtained
pH pH - Neutral water has a pH of 7, acidic solutions have values between 0-6 and alkaline solutions have values between 8-14	6.63 without turbidity 6.73 with turbidity
Alkalinity Alkalinity is a measure of the buffering capacity of water, or the capacity of the water to neutralise acids and resist pH change.	Between 80 to 100 mg/L as $CaCO_3$.
Turbidity is a measure of the cloudiness or haziness in water caused by suspended solids (eg sediment, algae). Turbidity is expressed in Nephelometric Turbidity Units (NTU) and is measured using a relationship of light reflected from a given sample.	Highly turbid

Survey of Literature

Fluoride and other Elements

The features of this organic fraction, which occupies the size range generally defined as colloidal (> 1 nm to < 0.4 µm), are the ability to complex or sorb other chemical species from solution, the ability to serve as reducing reagents in chemical reactions, and the ability to either enhance or retard photochemical reactions occurring in solution. Out of Hazardous component Fluoride is one of them. Fluoride has interferingproperty i.e. it interferes in any type of analysis. Interfering radicals are tartrate, fluoride, borate, phosphate, oxalate; they are also known as anionic radicals. They are usually used to form a complex with 3rd group elements. Aluminium, Chromium and Iron are the basic radicals of this third group and it is well known fact that radical fluorination is a type of fluorination reaction, complementary to nucleophilic and electrophonic approaches. Fluoride has an inherent property to interfere in any type of analysis. Most of the water bodies viz. rivers, ponds canals of tribal area of Madhya Pradesh, having excess amount of fluoride. Previous studies and researches show that this excess fluoride affected the human health by causing several diseases[8].

Conclusion

All facts of this paper reveal that for the researchers, there is a new criteria focusing on the hazardous organic and inorganic components present in kanh and other tributary river water

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and it's important to remove interference of excess fluoride during enormous industrial processes such as manufacturing, purification, synthesis and metallurgy etc. and all the component whether the organic or inorganic in nature are hazardous in nature that will cause ill effect on health of living beings, are prior to treat or remove. The results obtained from the observations will be of interest of analysts and researchers as well.

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