

Studies and Investigation on Water Quality of Villages Close to Miraj City with Reference to Flouride Concentration and Pathogenic Bacteria

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ABSTRACT:

Now a days water pollution is one of the serious problem in all over world. Life cannot exist without water for today process water is essential water covers about 2/3 part of the surface i.e. 97.02% most of E it is salty for use only 2.151. of the world's available water is not salty. Rain water is purposed by water. We are using water for domestic purpose industrial purpose & source of electronic wealth and creator of beautiful environment.

1. INTRODUCTION

Water is the nature's most precious and most wonderful gift to human kind. Indian Philosophy treats water as one of the five fundamental constituents of the universe The Panchmahabhutas – Air, Water, The Sun, The Sky and The Earth.

Water as we know is the most essential commodity for the existence of any life in any form. The use of water by plants, animals and man is universal. As a matter of fact, every living soul requires water for its survival. This is an essential requirement of life, health and sanitation. Man can live without food for about two months but he can hardly survive for three to four days without water. From the religious point of view, we Indians believe, that the God of Water called Varun who controls monsoon. The failure of monsoon causes many disasters such as an epidemic, a famine, etc.

Water is the most abundant and undoubtedly the most useful of all the hundreds of thousands of compounds known to man.

Water is very widely distributed compound in our environment. It covers about 75% of the earth's surface in the form of lakes, rivers oceans, etc. the human body contains about 70% of water by mass. All types of fruits and vegetables contain ever higher percentage of water. Milk contains about 87% of water while tomatoes and cucumbers contain about 95% of water it is indeed, an essential ingredient of animal and plant life. No about, water is the most precious of all fluids, in many respects. Water is our principal cleansing agent. It is one of our most important aids in seeding up chemical action. It is a basic material needed by almost all industries. Water plays an important role in generation of hydro - electric power, system power, in recreation, in transportation, in agriculture, in engineering and industrial fields, in manufacture of essential commodities, viz. steels, rayon, paper, textiles, etc. as a coolant in power plants, as a solvent in chemical and pharmaceutical industries, for air conditioning, drinking, bathing, washing etc. Hence one may conclude that life on the earth would be totally impossible, if water is absent. The statement has been made very aptly indeed, that the chemistry of our world is the chemistry of water.

In the present research, we want to focus on water and water pollution of Krishna River in Sangli district and impact of water pollution on community and Agricultural industry.

We all are aware of the fact that the essential requirements of life are air, water and food.

Next to air, the most important requirements of life are organisms, plants and animals. Man needs water for drinking, cooking, washing, bathing and numerous other domestic, agricultural and industrial purposes. If total demand for water is calculated it comes to 1,000 to 5,000 cmo per day per capital.

As Man uses water, he pollutes it inevitably and when the water returns to the open bodies, it contaminates natural water and causes water pollution. Every large river in the world is now no more than an open sewer. A very little attention was paid to this problem as water happens to be a renewable resource, globally most abundant, and is constantly recycled though natural distillation, via solar evaporation, cloud formation and raining.

As long as the human population was small and communities were scattered over large area of land, the waste disposal created no problems. It was left to the nature dispose it by assimilation in the surrounding land and air but with the increasing population especially on the banks of water bodies, the soiled water called sewage, was channelized to streams and river. At the beginning this mode of disposal was considered to be quite suitable. But with rapid urbanization and industrialization the natural water has been polluted to such as extent that they have become unsuitable as the sources of water supply. The common approach solution of pollution is dilution has turned to be a curse to human life. The times have approached and it has become obligatory to move away the waste water from streams and rivers and to divert them to land where these have to be tried as the valuable resources.

ORIGIN ON RESEARCH PROBLEM

Following aspect are concentrated to rise said research

1. Water is an elixir of human and house hold animals
2. Present college is situated in such a location that students mostly come from nearby villages.
3. Maximum economy of selected area is totally depended on agricultural field Thus the present problem has direct relevance and application to nearby villages.

INTERDISCIPLINARY RELEVANCE

The subject of water quality with reference to fluoride concentration itself is having interdisciplinary relevance. It covers Microbiology for pathogenesis, Zoology toxicity of fluoride in the term of fluorosis for man and animal, Botany for agricultural use of water. Geology for ground water. Environmental science for their arbitration. Chemistry for the availability of fluoride and other factors. Hydrology for their approaches. This study is relevant to the above stated subject which can use the findings of the project.

EXPERIMENTAL WORK

SAMPLE – SANGLI.

Sr. No.	Parameter	Result
1.	Colour	Colourless
2.	Odor	Odorless
3.	pH	7.2
4.	T.S. mg/lit	1760 mg/lit
5.	TDS mg/lit	1400 mg/lit
6.	TSS mg/lit	1080 mg/lit

7.	DO	7.90 mg/lit
8.	Total Hardness	970 ppm
9.	COD	1200 mg/ml
10.	BOD	940 mg/ml
11.	Fluorides	0.147 mg/L ⁻¹

The water sample is colourless and odorless. It has pH – 7.9. the water sample has total solids are 1760 mg/lit., Total Dissolve Solids present are 640 mg/lit and Total Suspended Solids are 1080 mg/lit with dissolved Oxygen 7.90 mg/lit. This water is highly polluted and it dangerous for survival of all living things.

SAMPLE – MIRAJ.

Sr. No.	Parameter	Result
1.	Colour	Colourless
2.	Odor	Odorless
3.	pH	7.6
4.	T.S. mg/lit	1760 mg/lit
5.	TDS mg/lit	1350 mg/lit
6.	TSS mg/lit	1080 mg/lit
7.	DO	7.90 mg/lit
8.	Total Hardness	965 ppm
9.	COD	1150 mg/ml
10.	BOD	830 mg/ml
11.	Fluorides	0.122 mg/L ⁻¹

The water sample is colourless and odorless. It has pH – 7.9. the water sample has total solids are 1760 mg/lit., Total Dissolve Solids present are 640 mg/lit and Total Suspended Solids are 1080 mg/lit with dissolved Oxygen 7.90 mg/lit. This water is highly polluted and it dangerous for survival of all living things.

SIGNIFICANCE OF THE STUDY

No more work was carried out on water quality in this area and especially on fluoride concentration hence the study is centralized in said area. It is still concentrated to villages and present community. The present study reaches following aspects regarding with the fluoride concentration and quality of water regards to the drinking purpose.

1. To check the bacterial pathogenicity of drinking water
2. Estimates of fluoride are important to prevent excessive fluoride intake and the resulting to prevent dental and skeletal fluorosis.
3. The fluoride database is critical to dietary fluoride intake assessments supporting grant work for the National Institute of Dental and Craniofacial Research.
4. Results will assist future research concerning fluoride intake.
5. Water may be used by the community.
6. Develop a database of information in regards to Water Quality.

Thus, the study will provide fluoride and other including microbiological features can talk about the water quality and can give recommendations for sustainable use of water.

OBJECTIVES

With all objectives work is forwarded and reaches the status of water and the objective are

1. Survey of selected area
2. Pick out villages for research.
3. Assessments of water on community and vis - a -vis.
4. To know the water quality of water
 - a. Microbiological analysis.
 - b. Chemical analysis including fluoride
5. To observe the seasonal appearance for microbiological and chemical analysis with respect to fluoride concentration. (If possible.)
6. Record the percentage of total fluoride assessment. 7. To determine suitability of other chemical parameters.
8. To reveal proper ways on investigation.

METHODOLOGY

The researcher is well acquainted with analytical methods because of his experience in soil and water analysis. The analyses of groundwater samples are done using procedures of standard methods (APHA 1995). Following terms are used in methodology.

I] SURVEY WORK

- a. Field survey will be conducted to water sources by several visits to the field.
- b. Questionnaire will be prepared for social impact assessment.
- c. Inventory will be undertaken using available information and data collected through questionnaire.
- d. Access questionnaire with the fish bone analysis.

II] ANALYTICAL WORK

- e. Water samples collected for laboratory analysis and keep in refrigerator.
- f. Collected water sample subjected for physical appearance.
- g. pH and EC will be measured by pH and EC meter.
- h. Micro and macro analysis will be studied for micro and macro elements.
- i. Fluoride measurement will be studied for their concentration.
- j. Microbiological analysis will be carried out for pathogenesis.

1. EFFECT ON TEETH -

Fluoride concentration present in water creates serious effects on Teeth. High level of fluorides up to 10 mg I leads to dental fluorosis (Yellowish or brown colour) while low level of fluorides such as less than 0.01 mg I creates dental carries in children.

2. SKELETON EFFECT

The presence of high level Haerides in drinking water creates crippling skeletal Fluorosis. Many times increased level of fluorides leads to bone cancer.

3. OTHER HEATTH ESTEETS –

The increased lend of fluorides affects as adverse pregnancy & spontaneous abortion; also it creates serious effects on respiratory track, haematopoietic, hepatic system.

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