



A STUDY OF FLOURIDE IN GROUND WATER OF VIDISHA BLOCK (M.P.)

BHAVNA CHAUHAN

Department of Chemistry, R. K. M. P. G. College, VIDISHA (M.P.) INDIA

ABSTRACT

Thirty (30) ground water samples collected from different areas of vidisha block (M.P.) were analysed for fluoride. The maximum concentration of fluoride has been observed as 2.46 mg/L in the sample from industrial area. The high concentration of fluoride is of serious concern, as it causes health problem to the local population.

Key words: Flouride, Vidisha, Ground water.

INTRODUCTION

Fluorine is the most highly reactive element of halogen family. The chemical activity of the fluoride ion makes it physiologically more reactive than found in sea water, bone, teeth and in ground water mainly as fluoride ion.

With low concentration of fluoride ion, enzymatic processes may be either inhibited or stimulated and interaction with other organic and inorganic body components may occurs that are of great importance for humans. Fluoride enters in human body through water, drugs, food containing fluoride, certain cosmetics and due to industries using or producing fluoride containing substance although 80% of fluoride entry to human body is through drinking water containing excess concentration of this contaminant.

Fluoride has a dual significance. If its content is less, than it may result in problem, like dentel caries. The maximum permissible limits of fluoride in drinking water has been found as 1.5 mg/L by BIS (1991).

* Author for correspondence

Concentration of fluoride between (mg/L.)	Health Hazard
1.5 to 4.0	Motting and staining of teeth
4.0 to 8.0	Dental caries and minor skeletal Deformation
Above 8.0	Acute osteo fluorosis stiffness in Joints, skeletal deformation, Thyroid change, Kidney damage.

The occurrence of high fluoride concentration beyond permissible limits in ground water is a problem faced by many countries notably India, Srilanka, Pakistan etc. In M.P. the main source of fluoride in ground water is fluorapatite in areas covered by granite and granitic gneisses. The local residents have many problems due to the presence of high fluoride in ground water. The high fluoride levels in the drinking water have increased the importance of defluoridation studies. Defluoridation is the process of removal of fluoride ion in drinking water.

EXPERIMENTAL

The water samples were collected from different areas of ground water. The samples were collected during the month June to December 2010. Samples for analysis were collected in sterilized plastic bottles. The determination of fluoride element was carried out by visible UV spectrophotometer and spadns spectrophotometer method.

F⁻

S. No.	Sample point	No. of samples (Analysis sources)	Minimum of F ⁻	Maximum of F ⁻	Flouride effected sources
1	Rangai area	2	1.21	2.25	1
2	Mukherjee Nagar	4	0.80	1.60	1
3	Tilak chowk	2	0.54	1.85	2
4	Railway station	2	1.02	2.00	1
5	Haripura	1	1.23	1.69	1

Cont...

S. No.	Sample point	No. of samples (Analysis sources)	Minimum of F ⁻	Maximum of F ⁻	Flouride effected sources
6	Indira complex	3	0.96	1.24	2
7	Industrial area	2	1.13	2.46	1
8	Indra prasth colony	2	1.67	1.70	1
9	Durga Nagar	2	1.19	1.50	1
10	Neemtal	2	1.32	1.66	2
11	RMP Nagar	4	1.34	1.68	1
12	Bus stand	2	1.20	2.28	2
13	Galla mandi	2	0.74	2.41	1

RESULTS AND DISCUSSION

The study shows high concentration of fluoride in Industrial Area and Galla Mandi in vidisha (M.P.). The rural population consuming the drinking water are warned not to use this off contaminant water. This drinking water are may be used after treatment with alum and thus filtrated of the excess fluoride.

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