

## Research Article

## Geochemical Study of Fluoride in Ground Water in Mohendergarh Town (Haryana)

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### ABSTRACT

Ground water samples of Mohendergarh town have been collected from the bore wells. The results indicates that fluoride concentration is varies from 0.46-5.46 mg/L. This Paper briefly presents the high content of fluoride in ground water. Also it is observed that 20 % locations samples of ground water contain less than 1.5mg/L and 80.00 % of locations samples are above than the maximum permissible value i.e., 1.5 mg/L.

**Keywords:** Fluoride, Ground Water and Mohendergarh.

### INTRODUCTION

Endemic Fluorosis is present in at least 20 states of India, affecting more than 65 million people including 6 million children. Fluoride ion (F) concentration in India's groundwater varies widely ranging from 0.01 mg / l to 48 mg/L. The amount of F occurring naturally in ground water is governed principally by climate, composition of host rock, and hydrogeology. Areas with a semi – arid climate, crystalline rocks and alkaline solids are mainly affected<sup>1</sup>. In general; the presence of F may be due to low- level basaltic volcanic activity<sup>2</sup>. Dean et al<sup>3</sup> conducted a study in 2009 to determine the optimum fluoride concentration in drinking ground water that would decrease dental decay with almost significant amount of Fluorosis, otherwise where the fluoride content in the drinking water is higher compared with areas where the fluoride content is low<sup>4</sup>. Safe and adequate drinking water is the prime requirements. Government of India and Government of Haryana has embarked a substantial amount of funds to implement water supply problem in rural as well as urban Sectors. In spite of rigorous implementation of program, the goal of supplying safe drinking water to the community has not been achieved fully<sup>5</sup>.

### MATERIALS AND METHODS

**1. Water Sampling** - A total of 10 ground water samples taken from ten locations of Mohendergarh town were collected in polythene bottles which were cleaned with acid water, followed by rinsing twice with distilled water. The water samples are chemically analyzed. The analysis of water was done using procedure of standard methods<sup>6</sup>.

**2. Study Area-** Mohender garh is one of the 21 district of haryana state in northern India. The district occupies an area of 1,859 km<sup>2</sup>. The district has a population of 812,022(2001 census). Narnual Town is the administrative headquarters of the district. Mohendergarh is one of the very few district in india where the name of the district and its town are different. As of 2011 it is the third least populous district of haryana (out of 21), after panchkula and Rewari. The district lies between north latitude 27°0' to 28°26' and east longitude 75°56' to 76°51'. It is bounded on the north by Bhiwani and Rohtak districts, on the east by rewari district and Alwar district of Rajasthan, on the South by Alwar, Jaipur and Sikar districts of rajasthan, and on the west by Sikar and Jhunjhunu of Rajasthan.

**3. Methodology** - F- Spectrophotometrically using ELICO-52 UV Spectrophotometer



## RESULT AND DISCUSSION

**Fluoride:** - The fluoride content in water is found in the range of from 0.46-5.46 mg/L which is in limits in some locations and maximum higher in remaining locations due to above data also it put effects i.e., dental and Skelton problems in the peoples of the areas<sup>7</sup>.

**Table 1: Fluoride content in different locations in Mohendergarh Town**

S. No.	Location Name	Fluoride Value
1	Azad Market	3.05
2	Kayampura Mohalla	2.07
3	Masani Mohalla	5.01
4	11 Hatta Bazar	0.46
5	Sabji Mandi	2.81
6	Satnali Chowk	1.02
7	Near Bus Stand	3.09
8	Near Railway Station	5.46
9	Krishna Nagar	2.65
10	Bucholi Road Nursery	4.06

## CONCLUSION

Most of the water samples collected from Mohendergarh town has containing high value of fluoride content in water then it treated before compustion. High fluoride consumption leads to fluorosis of the bones, which generally found in Asian region but it is more acute in India. Hence, possibilities of reducing high fluoride content of ground water by defluoridations process/dilution with the surface water is one very simple technique which appears to be more suitable solution to high fluoride problem in an otherwise water scarce in water.

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