



## Fluoride Content of Bore Well Waters in Mysore City of Karnataka, India

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### **Key Words:**

Fluoride concentration  
Bore well water  
Fluorosis

### **ABSTRACT**

The residents of Mysore city are mainly dependent on bore well water for domestic and small scale industries, especially in summer season. Hence, large number of bore wells exist in the city. Fluoride content of these bore wells water was analysed and the outcome of the results was in the view of pollution of the study area. It reveals that the fluoride concentration is within the permissible limits as prescribed by BIS and WHO. Hence, the bore well water of Mysore city can be conveniently used for drinking purpose without any pre-treatment for fluoride.

### **INTRODUCTION**

Mysore city is cultural capital of Karnataka. The city has a very high heritage for its cultural and historical backgrounds. A famous Mysore Palace and spiritual Chammundi hill are situated in the city. Krishna Raja Sagar (KRS) dam mainly meets the demand of water for the residents of Mysore city, which is 12 km away from the city. But during summer season, there is a shortage of water supply from KRS. As a result, a large number of bore wells exist in the city to meet the water demands. The poor quality of drinking water is more due to the contamination than due to the natural inferiority of the sources.

Fluorides are present in both surface water and groundwater. Most of the fluoride found in groundwater results from weathering and circulation of water in rocks and soils. The chemical quality of groundwater varies even at short distances. This variation may be attributed to the variations in the hydrochemical process (Maniraju 2006). Fluoride in small dosages has remarkable influence on the dental system inhibiting dental carries, while consumption of its high doses causes fluorosis (Shukla & Kaur 1994). In India, about 62 million people including 6 million children, suffer from fluorosis due to high content of fluoride in water (Susheela 1999). The present analysis attempts to evaluate the fluoride content in bore well water in Mysore city, Karnataka.

### **MATERIALS AND METHODS**

In the present investigation, 20 bore well water samples from different locations of Mysore city were collected in clean polythene bottles of 2 litre capacity. The bottles were first rinsed with distilled water and then two to three times by the sample water before collecting for analysis.

Fluoride concentration in water samples was determined by standard methods (APHA 1995). Water pollution levels at various spots in the city were analysed and compared with that of drinking water standards prescribed by BIS and WHO.

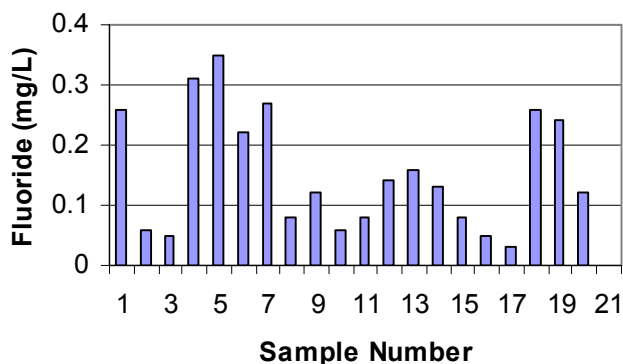


Fig. 1: variations of fluoride concentration in bore well water samples of Mysore city.

## RESULTS AND DISCUSSION

The results of the study are given in Table 1 and Fig. 1. Fluoride concentration of the bore well waters varied from 0.03 to 0.35 mg/L, which is below the permissible limit of drinking water (BIS 1991, WHO 1984). Fluoride has little significance in industrial water, whereas ingestion of excess fluoride in drinking water can cause fluorosis (Shukla & Kaur 1994), which affects the teeth and bones. Below the permissible limits, it is an effective preventive of dental carries, but above the permissible limits may cause disfigurement of teeth and severe skeletal fluorosis. Such water should be defluorinated to reduce fluoride concentration to the acceptable levels for drinking purpose.

## CONCLUSION

The present investigation conclude that the fluoride concentration is well within the permissible limits and the results reveal that the bore well water of the Mysore city is fit for drinking without any pretreatment for fluoride.

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Table 1: Fluoride ion concentration in bore well water samples (mg/L).

Sample No.	Fluoride(F)	Sample No.	Fluoride (F)
1	0.26	11	0.08
2	0.06	12	0.14
3	0.05	13	0.16
4	0.31	14	0.13
5	0.35	15	0.08
6	0.22	16	0.05
7	0.27	17	0.03
8	0.08	18	0.26
9	0.12	19	0.24
10	0.06	20	0.12

Standard permissible limits of fluoride: BIS-0.6; WHO-0.5