



## ANALYSIS OF FLUORIDE CONCENTRATION IN THE WATER OF BOREWELLS OF AMARPATAN AREA IN SATNA DISTRICT (M.P.) INDIA

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### ABSTRACT

Concentration of fluoride should be within permissible limit as prescribed by organizations like ICMR, WHO, BIS. High concentration of fluoride in drinking water causes fluorosis and mottling of teeth. Fluoride ions enters in ground water from geological formation. The absence or very low concentration of fluoride ions causes dental carries in children's teeth. So it is necessary to find out the concentration of fluoride ion in water used for drinking purpose. In present study fluoride ion concentration is determine by standard analytical procedures and found in the range from 0.2 to 1.6ppm at different sampling stations of Amarpatan area in satna district during Nov. 2018 to April 2019.

**KEYWORDS :** Drinking Water Fluorosis, Mottling Of Children Teeth.

### INTRODUCTION:-

Water is abundantly found on earth. Water is essential not only for humans but also for animals, plants and other living organisms. Only 0.3% of total water of earth is available for human use. Drinking water should be of high quality and constituents required for human health under prescribed limit. For the present study the Amarpatan region of satna district of M.P is chosen and sample were collected, analysed for only fluoride ion concentration. In this area bore well water is major source for drinking purpose. Fluoride ingested with water is almost completely absorbed and distributed rapidly throughout the body, with main retention in the bones and small portion in teeth. Recommended value of fluoride ion according to WHO is 0.5 to 1.0 ppm[3].

### MATERIAL AND METHOD :-

In present study to access the fluoride content in drinking water samples collected from different sampling sites of amarpatan area of satna city during Nov.2018 to April 2019. Details of which are given in table no.1

**Table No.1 Details of sampling stations**

SN.	Locality	Sampling Stations	Owner of the Borewell
1.	Nadan Tola Amarpatan	Ss1	Makhan Singh
2.	Jurmaniya Amarpatan	Ss2	Kamta Yadav
3.	Purani Basti Ramnagar Road	Ss3	Om Prakash Saket
4.	Kharamseda Road Amarpatan	Ss4	Rameshwer Prasad sahu
5.	Amarpatan City	Ss5	Neeraj Agrawal
6.	Word No 12 Lalpur Amarpatan	Ss6	Munni Lal
7.	Khaas Amarpatan	Ss7	Shurendra Prasad chaurasiya
8.	Rewa Road Amarpatan	Ss8	Diwakar Singh
9.	Chaturvedi Colony Amarpatan	Ss9	Prabha Devi Pandey

Water sample of bore wells were collected from above mentioned sampling stations of amarpatan area and deter-

mined fluoride ion by zirconium alizarin-s method. In the acidic medium zirconium react with alizarin red -s to form complex, which is bleached on the addition of fluoride ion and colour changes from red violet to yellow green [4]. 20ml of filtered sample is taken and sodium arsenite solution is added to remove residual chlorine. 5ml of zirconium alizarin solution added to the standards and samples solution mixed well immedietly and measured the absorbance after 20minutes at 520nm.

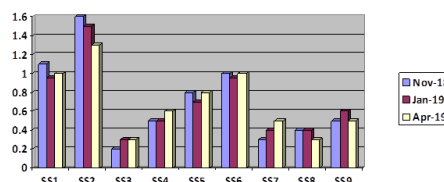
### RESULT AND DISCUSSION:-

The result of analysis of fluoride ion content of water samples of borewells of amarpatan regions of satna district are given in the table 2. From the table the fluoride content ranges from 0.2 to 1.6ppm at different sampling stations. In the present study fluoride concentration is found within the prescribed limit except SS1 and SS2. Apart from rock forming mineral which on weathering can contribute to the fluoride content in ground water the use of phosphoric fertilizer in agriculture and industrial effluent can enhance the concentration of fluoride.

**Table No.2 Fluoride concentration of different borewells**

SN.	Sampling Stations	November-2018	January-2019	April-2019
1.	Ss1	1.1	0.95	1.0
2.	Ss2	1.6	1.5	1.3
3.	Ss3	0.2	0.3	0.3
4.	Ss4	0.5	0.5	0.6
5.	Ss5	0.8	0.7	0.8
6.	Ss6	1.0	0.95	1.0
7.	Ss7	0.3	0.4	0.5
8.	Ss8	0.4	0.4	0.3
9.	Ss9	0.5	0.6	0.5

### FLUORIDE ION CONCENTRATION IN PPM



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#### **REFERENCES:-**

1. Khadsan, R. E.,(2007),Analysis of fluoride in borewells water of Chikhli City, Dist. Buldana (M.S.), Journal of Ultra Chemistry,3(1),p 93-95
2. Handa, B. K. (1988), Fluoride occurrence in natural water in India and its significance, Bhujal News, 3(2), p 3-7
3. WHO, International Standards for drinking water, (1971), 3rd Edition ,WHO, Geneva
4. Megregian, S., (1954) Rapid spectrophotometric determination of fluoride with zirconium eriochrome cyanine R lake, Anal. Chem 26, p 1167-s1166.
5. APHA (1993), Standard methods for the examination of water and waste water, 16th edition American public health association, washington for D.C. 2005.
6. Shafqat Alauddin, Shailendra Yadav (2016) Study of fluoride concentration in the ground water of Atrauliya Nagar Panchyat area of Azamgarh. IJETER Volume 4, Issue 1, January 2016.
7. Handa B.K. (1975), Geochemistry and genesis of fluoride containing ground water in India groundwater, 13(3) P 275-281.
8. Manivaskam, M. (1996), Physico-Chemical Examination of water, sewage and industrial effluents pragati prakashan, 3rd Edition P-83-88.