

## A study of fluoride in ground water of Karera block (Shivpuri, M.P.)

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### ABSTRACT

84 ground water samples collected from different areas of Karera Block (Shivpuri M.P.) were analysed for fluoride. The maximum concentration of fluoride has been observed as 4.23 mg/L in the sample from Dumduma

**Key words:** Fluoride content, ground water, Karera Block, M.P.

### INTRODUCTION

Water, air and soil are the most essential components to sustain life on the earth. Safe drinking water is the primary need of every human being. Village population mainly depends upon ground water sources. All ground water sources are not always safe. Some of these have problems such as excess nitrate fluoride. Fluoride is known to cause a variety of health problems viz dental fluorosis, skeletal fluorosis and non skeletal fluorosis. Fluorite occurs as vein mineral of fluorite. The other mineral that are associated with fluoride are cryolite, lepidolite, topaz, biolite, actinolite etc.

### MATERIAL AND METHODS

The water samples were collected from different areas of ground water. The samples were collected during the month February to September 2005. Samples for analysis were collected in sterilized bottles (plastic). The determination of

Fluoride elements was carried out by visible-UV spectrophotometer 128. Fluoride-Spandns spectrophotometric method

### RESULTS AND DISCUSSION

The maximum permissible limit of fluoride in drinking water has been fixed as 1.5 mg/L by BIS (1991)

#### Concentration of effect

Fluoride between (mg/L)	
1.5 to 4.0	Mottling 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 changes, Kidney damage.

In M.P. (India) the main source of fluoride in ground water is fluorapatite in areas covered by granite and granitic gneisses.

Table - 1: The local residents

S. No.	Village name	Analyzed sources	Effected sources	Minimum	Maximum
1	Dumduma	3	3	1.65	4.23
2	Toda Rampur	3	1	0.98	1.98
3	Domronkala	3	1	0.63	1.65
4	Silarpur	1	1	1.78	1.78
5	Zuzai	4	1	0.89	1.73
6	Bamhari	6	2	1.23	4.16
7	Sajora	3	1	1.0	2.98
8	Oder	2	1	0.67	1.68
9	Sailaya	7	2	0.53	1.76
10	Hazinagar	8	3	1.26	3.90
11	Bangawa	2	1	1.32	1.66
12	Bagedhari	4	2	1.11	1.78
13	Mugawali	2	1	1.0	1.54
14	Machawali	1	1	1.76	1.76
15	Chata	2	1	0.84	1.56
16	Khamera Vijaypur	4	1	0.69	1.53
17	Hatlae	8	5	0.94	2.22
18	Chan	4	1	1.20	1.86
19	Silanagar	2	1	1.12	1.70
20	Sarsoda	6	4	0.83	1.89
21	Amoal	2	1	0.91	1.76
22	Bhagora	3	1	0.76	1.82
23	Kalipahadi	1	1	1.69	1.69
24	Nonehra	1	1	1.66	1.66
25	Panuha	2	1	1.42	1.98

### Conculsion

The study shows high concentration of fluoride in Dumduma and Bamhari villages of Karera Block (Shivpuri, 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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