



## Study of Fluoride of Groundwater in Two Blocks of Dungarpur District, Rajasthan, India

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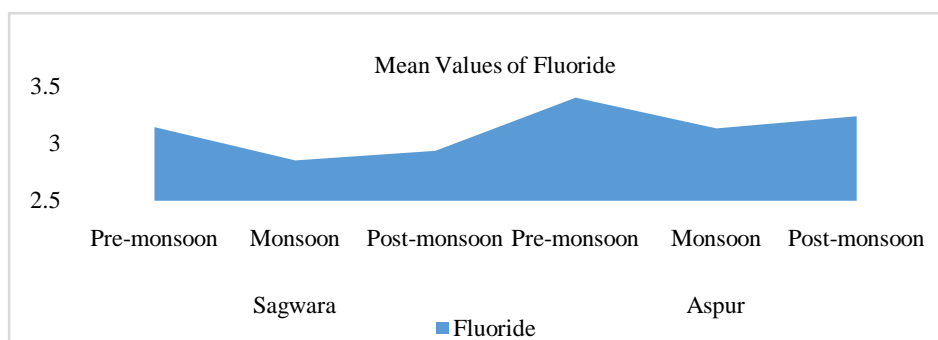
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Accepted on 15<sup>th</sup> June, 2022

### ABSTRACT

In most places of the world, groundwater is the primary source for a variety of purposes. Low or excessive concentrations of particular ions are a significant issue because they make groundwater unfit for various uses. Fluoride is one such ion that has been associated to health problems in many countries around the world. The purpose of this study was to investigate the fluoride levels in groundwater in the Aspura and Sagwara blocks of Rajasthan's Dungarpur district. Fluoride is a naturally occurring mineral in groundwater, but an excessive amount of fluoride in drinking water can cause dental fluorosis, skeletal fluorosis, and bone deformation in both infants and adults. In this context, 30 ground water samples were collected from different villages of Aspura and Sagwara blocks, during pre-monsoon, monsoon and post monsoon seasons and samples were analysed using standard method of APHA to determine fluoride concentration in groundwater. The results were compared with the drinking water standard of fluoride, prescribed by BIS and WHO. The results of analysis revealed that the concentration of fluoride in Aspura and Sagwara blocks, were higher than its desirable limit ( $1\text{mg L}^{-1}$ ). The graphical representation show that the fluoride concentrations increase during pre-monsoon season in both the blocks, and peaks of graph indicated that the fluoride level was comparatively higher in Aspura block. The one-way ANOVA test was also conducted to estimate significant or non-significant value of fluoride in Aspura and Sagwara blocks. The all values were found non-significant ( $p = 0.152$  which is  $> 0.05$ ) in both the blocks.

### Graphical Abstract:



Mean values of Fluoride in both the blocks during different seasons.

**Keywords:** Groundwater, Concentration, Fluoride, Fluorosis, One-way ANOVA.

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