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## **Fluoride contamination in ground water leads to health hazard in Bijapur district of Chhattisgarh, India**

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Supply of safe drinking water is the main necessity for the health of human beings. But it is not true in developing and under-developed countries especially African and south Asian countries. Resulting with intake of contaminated water with heavy metal, arsenic, selenium and fluoride forced to health hazards. Adequate amount of fluoride in minute is an essential component for bones and formation of dental enamel. However, its excessive intake may lead to fluorosis. WHO prescribed 1.5 mg/l maximum limit for fluoride in drinking water. In case of India, endemic fluorosis affects more than one million populations and is a major problem in 17 of the 25 states. The highly affected states in India are Andhra Pradesh, Rajasthan, Orissa, Gujarat, Madhya Pradesh and Chhattisgarh states. The ground water in the Bijapur district of Chhattisgarh (Bhopalpatnam Taluk) is contaminated with fluoride (F<sup>-1</sup>) ranging 0.06 mg/l to 7.07 mg/l which are quite high permissible limit of drinking water standard for fluoride (1.5 mg/l WHO). Total 61 samples (borewell-42, dugwell-6, rivers water-3, talab-8 and streams-2) were collected to identify the sources of fluoride concentration in all water samples. Among all water samples, 17 water samples showing exceed (1.5 mg/l WHO) limit for fluoride. Major ions of water samples show large spatial chemical variation. Chemical analysis of rocks and soils for fluorine revealed high fluorine in rock and soils of the area. Lithology of south-eastern part of Bhopalpatnam town consists of Grt-Cpx bearing enderbite charnockites, Grt-Bt±Sil gneiss and Grt-Sil-Rt gneiss, north-easterly by Bhopalpatnam Granulite Belt. This belt is 20-40 km wide and about 300 km long. Weathering of country rock bearing fluoride rich minerals may be the responsible for fluoride contamination in ground water of this area.

### **Biography**

A K Chandrashekhar has completed his MSc degree in applied geology at the age of 23 years from Aligarh Muslim University Aligarh, India. Currently he is pursuing his PhD degree at the Department of Geology Indian Institute of Technology, Bombay, India. He is awarded Junior Research Fellowship & Senior Research Fellowship, by CSIR-UGC, India and Student Fellowship by - EAGE SPE EUROPEC-2013. He has published more than 10 papers in reputed journals and international conferences.

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