

Distribution, factors for contamination and health hazards of fluoride in groundwaters in Rajasthan, India

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Non-optimum concentration of fluoride ion in groundwater resources has become a common problem in many of the countries. The high content of fluoride in drinking water exerts a negative effect on the course of metabolic processes, mainly on bones and teeth. Studies have proved that the regular intake of fluoride rich water (more than 1.0 mg/L of F^{-1}) may cause dental fluorosis, skeletal fluorosis, non-skeletal manifestations etc. in the due course of time.

The state of Rajasthan, India is one of the fluorosis endemic region where "fluoride rich" groundwater is widely distributed in all the 32 districts. The survey studies for fluoride distribution reveal that in 2702 villages the groundwater sources have high fluoride concentration, ranging from 1.0 to 13.0 mg/L. and nearly 3.0 million population of the villages is using such water for drinking purpose. A substantial number of fluorosis patients were also identified in these problem villages.

In the present paper an attempt has been made to evaluate the groundwater quality with special reference to fluoride concentration, factors of contamination, resultant health hazards and their severity. Further, the results of domestic defluoridation techniques which are being employed in the problem villages, have also been discussed.