

Fluoride distribution in groundwater, soil and some crops grown in fluoride endemic area

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ABSTRACT : Fluoride content of ground water, soils and some cereal and vegetable crops were estimated in 26 villages in Aatmakoor mandal of Nalgonda district, Telangana, India. The results indicated that, accumulation of fluoride (F) was observed in different plant parts of crops irrigated with F contaminated ground water (0.73 to 3.25 and 1.12 to 4.67 mg L⁻¹ during *Kharif* and *Rabi* seasons, respectively) grown in soil containing 0.41 to 2.32 and 0.68 to 2.63 mg kg⁻¹ available fluoride during *Kharif* and *Rabi* seasons, respectively. All the values obtained were well below the toxic limit of 2.57 to 6.44 mg kg⁻¹ in soil and maximum contaminant level of 4.0 mg kg⁻¹ in crops and vegetable stipulated by EPA, FAO, and WHO Joint standard limit for fluoride. The implication of the results is that the use of the ground water for irrigation and the contribution of fluoride to the soil and absorption by the crops, has no deleterious effect on the soil and some crops cultivated with ground water. Maximum accumulation of F (mg kg⁻¹ dry wt.) occurred in the roots followed by shoot and economic part. The mean F levels in the economic part of the crops analyzed are follows the order, paddy > sorghum > red gram in *Kharif* and groundnut > paddy > sorghum in *Rabi*.

Key Words :

Fluoride, Ground water, Soil, Crops, Nalgonda

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