



Study of Flouride Level in the Ground Water in the Dharmaram Village of Nizamabad Dist. A.P.

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ABSTRACT

Fluorine is found in the combined state in ground water, sea water and in some other sources of water. The permitted level is 1ppm to 3ppm in drinking water. The occurrence of Fluorine is due to variety of geological factors. Presence of Fluoride in water causes many diseases in humans and other animals. Non availability of proper and easy defluoridation techniques is also a problem. In the present study the level of Fluoride in Ground water has been studied.

Key words: Defluoridation, Fluorosis, ingestion, water pollution.

INTRODUCTION

Fluorine has not only notable chemical qualities but also physiological properties of great interest and importance for human health and well-being (Fluorides and human health 1970). The effects of fluorides on the health of man are largely from dissolved fluorides present in many supplies of drinking water. However, particulate fluorides suspended in water may have a health importance that has largely been overlooked and given inadequate attention. Particulate fluoride could become dispersed as a contaminant, not only in drinking water, but also in foods ingested by man and animals.

In India today, millions of men, women and children are crippled and leading a vegetative life due to fluorosis. It is a clinical condition recognized as early as 1937 and the cause of the disease being intake of high quantities of fluoride through water, food, cosmetics like fluoridated tooth paste, drugs

and inhaling air contaminated with fluoride in industrial environment. Although there are several sources as fluoride intake, it is roughly estimated that the highest amount of total intake of fluoride is through drinking water.

Data with the "Rajeev Gandhi National Drinking Water Mission" (RGNWDM) shows that Andhra Pradesh has 7,548 habitations with excess fluoride in drinking water while the "Central Ground Water Board" estimates the number of people consuming water with fluoride in excess 1.5ppm / liter at 12, 70,000 another 16, 00,000 consume water fluoride content above one ppm/liter but below 1.5ppm/liter which is also considered unsafe in tropical conditions due to larger consumption of drinking water. In some villages of Nalgonda, fluoride content of over seven and eight In Andhra Pradesh Nalagonda, Krishna and Nizamabad are the most affected districts with the fluoride problem. The present study is aimed to study the levels of fluorides in ground water.

MATERIALS AND METHODS

Samples of ground water have been collected from 10 identified sampling stations in the study area in the intervals of 15 days each in thoroughly washed plastic bottles. The levels of fluoride, Calcium and Magnesium ions have been estimated using standard techniques available in literature. The average values obtained are recorded in tabular form.

S.No	Sample	Fluoride	Calcium	Magnesium
1	S1	3.2	70	10
2	S2	3.7	72	12
3	S3	3.2	56	8
4	S4	3.5	40	25
5	S5	4.1	56	30
6	S6	3.3	56	30
7	S7	3.1	68	73
8	S8	3.5	40	60
9	S9	2.7	34	67
10	S10	2.9	42	57

All values are in ppm/litre.

RESULT AND DISCUSSION

It is found that fluoride content in all the samples was above the limit region from 2.0 to 5.0. Fluoride level in water is normally controlled by the calcium and magnesium salts. Higher the values of calcium and magnesium, higher will be the presence of Fluoride ions. Rivers and lakes

generally contain fluoride levels less than 0.5mg per liter, but ground water, particularly in volcanic or mountainous areas can contain as much as 50 mg per liter.(Brudevold, F. et al 1987) When fluoride content exceeds 2.0ppm, then brownish spots, varying from small to large in size, can be seen on numerous teeth in the great majority of the members of the exposed community. When the fluoride content is more than 2.5ppm the enamel loses its smoothness: signs of serious dental hyperfluorosis. The symptoms of intoxication appeared in immigrants one to four years after their arrival. The finding that it takes one to four years for symptoms to manifest themselves is at variance and residence of 30-40 years in an endemic area was required for a definite picture of skeletal fluorosis to develop. An exceptionally high content of water fluoride (2-5ppm), excessive heat (46°C) and a poor state of nutrition, the diet being deficient in Ca & vitamin-C, may be possible factors responsible for the early development of skeletal fluorosis in Nizamabad.

Though the government is committed for the supply of safe drinking and potable water, the plans are yet to prove themselves practical. Many N G Os have come up in different parts of country to provide fluorine free water in rural areas. Different defluorination techniques have been designed. NEERI Nagpur has also developed a simple technique for defluorination of ground water. Herbal and simple technique with the use of Soda lime, Bleaching powder and alum is recommended for the defluorination of ground water in the study area.

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