

Excess of Fluoride and Nitrate in Ground Water of Rajasthan - Their Health Hazards and Remedial Methods

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ABSTRACT

Surface water resources in Rajasthan are not abundant so people are dependent on ground water for their needs. Alarming excessive pollutants especially fluoride and nitrate in ground water in various districts of the state is a matter of concern as the increased concentration of fluoride and nitrates is causing harmful effects on health. Permissible limit of fluoride and nitrate in ground water is 1.5 ppm and 45 ppm respectively. Excess of fluoride causes severe bone and teeth problems and excess of nitrates causes blue baby disease in infants. Jalore, Jaipur, Ajmer, Nagaur, Pali, Jodhpur and Sirohi are severely affected districts by fluoride contamination. Barmer, Churu, Jaisalmer, Ajmer, Alwar, Banswara, Bhilwara, Bikaner, Bundi, Dhaulpur, Dungarpur, Jaipur, Jhunjhunu, Jodhpur, Karauli, Kota, Nagaur, Pali, Rajsamand, Sikar, Tonk are the districts with high concentration of nitrate in the ground water. Various chemical treatment methods have been discussed for the removal of fluoride and nitrates from ground water in the paper but the upmost requirement is to make people aware to minimise those practices that make the water more contaminated of these pollutants.

Key words : Fluoride, Nitrate, Blue baby.

Introduction

Among all the necessary life support systems, water is the most important substance on earth. Without water, there is no existence of flora and fauna as well as animal life. Over seventy percent of the earth's surface is covered in water. But of that water, just one percent is readily available for the human use, and of that one percent, ninety nine percent of it is stored beneath the earth as groundwater. Ground water is the major source for fulfilling most of the needs of animal and plants such as drinking, irriga-

tion, washing etc. Ground water also helps to recharge lakes and rivers. Unfortunately, groundwater is highly susceptible to pollutants. Man-made products such as gasoline, oil, road, salts and chemicals, mining activities are some of the causes that make ground water unsafe and unfit for use. Rajasthan is the state having acute shortage of water. It has very few surface water resources. Most of the water needs (specially drinking) are fulfilled by ground water only. But ground water in most of the districts in the state is contaminated by high concentration of fluoride and nitrate.

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