

In brief, an overall analysis of rainfall parameter proved that the magnitude of rainfall is a fundamental weather element, which determines the location of the particular crops in different parts of the study area.

References :

1. Hammond R. and McCullagh P. (1998): Quantitative Techniques in Geography - An Introduction, Clarendon Press, Oxford University Press, London, PP 14 - 197.
2. Phule B. R. (2002): Pomegranate Cultivation in Solapur District: A Geo-economical Analysis, Ph. D. Thesis Submitted to Shivaji University Kholhapur, (M. S.)
3. Tawade M. D. (1981): Geography of Fruit Farming, Perspectives in Agricultural Geography Vol. 1, edited by Noor Mohammad, Naurang Rai, Concept Publishing Company H-13, Bali-Nagar, New Delhi, PP 232..
4. Jasbir Singh, J & Dhillon, S.S. (2005). Agricultural geography (3rd ed.). New Delhi. Tata McGraw-Hill Publishing Company Limited,
5. Maharashtra state gazetteers, Nashik district
6. Nashik, district census handbook



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Chemical contaminants in drinking water : Sources, Impacts on human health and preventive measures

Sandeep G. Sontakke

Department of Chemistry,

Dr.B.N.Purandare Arts, Smt. S.G.Gupta Commerce and Smt.

Shardaben Amrutlal Mithaiwala Science College, Lonavala

Email id: sandipsontakke@gmail.com

Introduction:

Clean drinking water is completely vital for healthy living. Enough supply of fresh and clean drinking water is a basic need for all human beings on the earth; so far it has been observed that millions of people around world are deprived from this. The present articles focus on chemicals in drinking water which causes problem to health and leads to water-borne diseases which can be prevented by taking measures can be taken even at the domestic level.

Sources of chemical contamination in drinking water:

Chemicals in water can be both naturally occurring or introduced by human interference and can have serious health effects. Fluoride in the water is essential for protection against dental caries and weakening of the bones, but higher levels can have an adverse effect on health. In India, high fluoride content is found naturally in the waters in Rajasthan. Arsenic occurs naturally or is possibly aggravated by over powering aquifers and by phosphorus from fertilizers. High concentrations of arsenic in water can have an adverse effect on health. A few years ago, high concentrations of this element was found in drinking water in six districts in West Bengal. A majority of people in the area was found suffering from arsenic skin lesions. It was felt that

arsenic contamination in the groundwater was due to natural causes. The government is trying to provide an alternative drinking water source and a method through which the arsenic content from water can be removed. *Lead*. Pipes, fittings, solder, and the service connections of some household plumbing systems contain lead that contaminates the drinking water source. *Recreational use of water*. Untreated sewage, industrial effluents, and agricultural waste are often discharged into the water bodies such as the lakes, coastal areas and rivers endangering their use for recreational purposes such as swimming and canoeing. Petrochemicals contaminate the groundwater from underground petroleum storage tanks. These contaminants come from mining waste and tailings, landfills, or hazardous waste dumps. Metal and plastic effluents, fabric cleaning, electronic and aircraft manufacturing are often discharged and contaminate drinking water.

Impacts of chemicals on human health:

A large number of chemicals that either exist naturally in the land or are added due to human activity dissolve in the water, thereby contaminating it and leading to various diseases. The organophosphates and the carbonates present in pesticides affect and damage the nervous system and can cause cancer. Some of the pesticides contain carcinogens that exceed recommended levels. They contain chlorides that cause reproductive and endocrinal damage. Lead is hazardous to health as it accumulates in the body and affects the central nervous system. Children and pregnant women are most at risk. Excess fluorides can cause yellowing of the teeth and damage to the spinal cord and other crippling diseases. Drinking water that gets contaminated with nitrates can prove fatal especially to infants that drink formula milk as it restricts the amount of oxygen that reaches the brain causing the 'blue baby' syndrome. It is also linked to digestive tract cancers. It causes algae to bloom resulting in eutrophication in surface water. Benzene and other petrochemicals can cause cancer even at low exposure levels. *Chlorinated solvents* are

linked to reproduction disorders and to some cancers. Arsenic poisoning through water can cause liver and nervous system damage, vascular diseases and also skin cancer. Heavy metals cause damage to the nervous system and the kidney, and other metabolic disruptions. *Salts* make the fresh water unusable for drinking and irrigation purposes.

Preventive measures:

Water-borne contagion and health hazards in the aquatic environment are mainly due to improper management of water resources. Proper management of water resources has become the need of the hour as this would ultimately lead to a cleaner and healthier environment. In order to prevent the spread of water-borne infectious diseases, people should take adequate precautions. The drinking water supply should be properly checked and necessary steps taken to disinfect it. Water pipes should be regularly checked for leaks and cracks. At home, the water should be boiled, filtered, or other methods and necessary steps taken to ensure that it is free from infection.

References:

1. Bisson, J. W., and V. J. Cabelli. "Clostridium perfringens as a water pollution indicator." *Journal (Water Pollution Control Federation)* (1980): 241-248.
2. Cabel, B., et al. "Pollution of drinking water with nitrate." *Chemosphere; (United States)* 11.11 (1982).
3. Clark, R. M., J. A. Goodrich, and L. J. Wymer. *Effect of the distribution system on drinking-water quality*. No. PB-93-173722/XAB; EPA—600/J-93/085. Environmental Protection Agency, Cincinnati, OH (United States). Risk Reduction Engineering Lab., 1993.
4. Maurer, Crescencia, et al. "Water pollution and human health in China." *China Environment Series* 2 (1998): 28.
5. Goel, P. K. *Water pollution: causes, effects and control*. New Age International, 2006.
