

Iodine content of potable water sources in endemic villages of Nagpur district Maharashtra

■ SHUBHADA JAMBHULKAR AND S.A. VALI

Received: 12.06.2012; Revised: 07.09.2012; Accepted: 23.10.2012

■ **ABSTRACT** : Iodine deficiency disorders (IDD) is considered as a major public health problem all over the world including India. An inverse relationship between iodine content of drinking water and goitre prevalence has been noted and supported by several investigators. Iodine content of drinking water varies from region to region and also within a region. Several villages in Nagpur district have been categorized as endemic by Public Health Department. The variation in iodine content in drinking water from different sources (bore well (BW), tap water (TW) and dug well (DW) from the endemic pockets of Nagpur district covering fourteen villages under five talukas (Kalmeshwar, Ramtek, Kamptee, Kuhi and Parseoni) were analyzed. The drinking water sources differed in the villages and also showed varied levels of iodine. The mean iodine values noted in water from DW was found to be highest (32.9 ± 9.26). Water sources from BW and TW showed slightly lower mean iodine levels (28.89 ± 14.11 and 28.82 ± 12.02 , respectively). Amongst the five talukas, the lowest mean iodine levels were seen in BW water (20.46 ± 12.66) and DW water (19.59 ± 2.17) in Ramtek taluka. The mean levels of iodine observed in water sources in other villages were found to range between a minimum of 24.06 ± 10.91 to a maximum of 47.91 except for the water sources of Kamptee taluka. The results showed that drinking water from different sources from the same geographical background of endemic regions of the five talukas of Nagpur district did not reflect significant variations in iodine concentration.

■ **KEY WORDS** : Iodine deficiency disorders, Endemic, Potable water

■ **HOW TO CITE THIS PAPER** : Jambhulkar, Shubhada and Vali, S.A. (2012). Iodine content of potable water sources in endemic villages of Nagpur district Maharashtra. *Asian J. Home Sci.*, 7 (2): 372-377.

See end of the paper for authors' affiliations

Correspondence to :

**SHUBHADA
JAMBHULKAR**

Department of Home Science,
Rashtrasant Tukadoji Maharaj,
Nagpur University, NAGPUR
(M.S.) INDIA

Email: shubhada.jambhulkar@gmail.com

Iodine is an important micronutrient required for human nutrition. Lack of iodine in the diet leads to visible and invisible spectrum of health consequences collectively called iodine deficiency disorders (IDD). In India, a nation wide survey revealed that out of 283 studied districts of 29 states and four union territories, 235 have prevalence of endemic goitre (Chandra, 2006). Requirement of iodine is normally met from food and drinking water. Drinking water is one of the most important sources of iodine intake. The sources of drinking water reflect upon the iodine level based on the composition of rocks and soil of the region. It has been identified that there is considerable difference in the levels of iodine in water from different sources and places.

Natural factors like the erosion of soil in riverine areas which occur due to loss of vegetation which is again linked to

forest clearing for agriculture, overgrazing, or the depletion of forests for domestic requirement of wood ensures a continued and increasing loss of iodine from the soil. Ground water and locally grown plants in these areas also lack iodine. Iodine deficiency in human beings is thus due to the ecological chain of consumption, who are dependant on these animals and plants for their dietary supply of iodine.

Differences in iodine nutriture and goitre in subjects have been attributed to significant differences in iodine content of water in Siwa Oases (Coble Yank *et al.*, 1968).

A good correlation between iodine content of drinking water and incidence of thyroid enlargement points to the inadequate intake of iodine as the most probable cause of goitre in Iran (Emami *et al.*, 1969).

Although, many factors such as iodine content, pH, and