

Risk Assessment Of Drinking Water Of Chinnor Areas, Gwalior, India

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Abstract

The present study was designed to assess the quality of potable water supplied by municipal cooperation of Chinnor to the different human settlement areas like Puri, Fatepur, Harnamkapura, and puri colony of Gwalior, Madhya Pradesh, India. All the samples were analyzed for various physico-chemical parameters like Hardness, Alkalinity, Total Dissolved Solids (TDS), chloride, Nitrate, Sulphite, Electrical conductivity, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) by following the standard methods of APHA. The results of present study revealed that all the parameters analysed are higher from the standard given by USEPA, WHO and BIS (Bureau of Indian Standards).

Keywords: Water quality and human risk.

1- INTRODUCTION

The quality of water is of fundamental concern for civilization since it is directly linked with human welfare. Good drinking water is important for human development, health and well-being, and because of this it is an internationally accepted human right. Water is the most vital resource for life. Approximately 97.2% water lies in oceans as salt water. While 2.15% in frozen ice form and the remaining 0.65% remain as fresh either on surface or ground water. Available fresh water resources are very limited. The demand for fresh water has increased day by day and will increase with the rapid growth of population, agriculture and industry. As a result the fresh water reserve depletes day by day too. The requirement of clean water per person is about 2.7 lit per day, thus the global requirement is about 5 billion cu. m. only for drinking purpose. Agriculture is also one of the major consumers of fresh water resources. Water as resource is under relentless pressure due to population growth, rapid urbanization, large scale industrialization and environmental concern.

2- MATERIAL & METHODOLOGY

In present study, the methods of sampling used were combination of random and purposive sampling. Water samples were collected from the different municipal water tank. From different locality of Chinnor like. Puri, Fatepur, Harnamkapura, and puri colony. These samples were collected in sterilized glass bottles (500 ml), labeled properly with date and name of the location.

Temperature, Turbidity, pH, TDS etc. and chemical parameters comprised of Electrical conductivity, Total hardness, Total alkalinity, Chloride, Fluoride and chlorine, Nitrate, Dissolved oxygen and Biochemical oxygen demand. Methods employed for analysis of physico-chemical parameters were in accordance with APHA (1992).

3- RESULTS AND DISCUSSION

The measured value of different physical and chemical water quality parameters of the collected water samples is summarized in Table. Findings of the study have been assessed according to WHO drinking water quality guidelines and BIS as well.

Physico-chemical parameters (mg/L) in samples from different sites

S.No.	Parameters	BIS permissible limit (mg/L)	WHO Acceptable limit (mg/L)	Fatepur (mg/L)	puri (mg/L)	Harnam Ka pura (mg/L)	Phoolbag (mg/L)	Puri colony (mg/L)
1	Hardness	600	200	250	400	350	310	330
2	Alkalinity	600	200	160	300	210	150	220
3	TDS	200	500	0.10	1.37	0.2	0.12	0.58
4	Chloride	100	250	66.8	246.5	77.5	87.4	97.4
5	Nitrate	100	45.0	17.5	4.0	0.0	4.0	4.0
6	Electrical conductivity	2000	-	170.7	242.16	161.0	192.0	44.6
7	Dissolved oxygen	6.0	-	6.5	6.4	5.4	6.4	3.8
8	BOD	6.0	-	0.7	1.6	1.6	0.4	0.7
9	Fluoride	1.5	1.0	1.9	4.4	2.6	2.8	6.7

4- CONCLUSIONS

Results of water samples collected from the different area revealed that the water entering the distribution system was not of desired

5- REFERENCES

- [1] De Miguel E, Iribarren I, Chacon E, Ordonez A, Charlesworth S, Risk-based evaluation of the exposure of children to trace elements in playgrounds in Madrid (Spain). *Chemosphere* (2007), 66: 505–513.
- [2] Kavcar P, Sofuoglu A, Sofuoglu SC A, health risk assessment for exposure to trace metals via drinking water ingestion pathway. *Int J Hyg Environ Health* (2009) 212:216–227.
- [3] US EPA (1989) Risk assessment guidance for superfund volume I human health evaluation manual (part A)
- [4] US EPA (2004) Risk assessment guidance for superfund volume I: human health evaluation manual (part E).

some physico-chemical quality like fluoride, Chloride, conductivity were also detected in samples which were greater than the WHO limits

- [5] Wu B, Zhang Y, Zhang X, Cheng S, Health risk from exposure of organic pollutants through drinking water consumption in Nanjing, China. *Bull Environ Contam Toxicol* (2010) 84:46–50.
- [6] Wu B, Zhao DY, Jia HY, Zhang Y, Zhang XX, Cheng SP, Preliminary risk assessment of trace metal pollution in surface water from Yangtze River in Nanjing Section, China. *Bull Environ Contam Toxicol* (2009) 82:405–409.
- [7] Harendra K. Sharma, Makhmoor Ahmad Rather, Assessment of Chlorination Efficiency and Quality of Municipal Drinking Water in Gwalior City, Madhya Pradesh, India. *International Journal of Science and Research (IJSR)* (2015) 4:1699-1707.