

## ANALYSIS OF CONTAMINANTS OF DRINKING WATER IN JAIPUR CITY, RAJASTHAN, INDIA

Akshima Gautam<sup>1</sup>, Madan Mohan Meena<sup>2</sup>, Preeti meena<sup>3</sup>, Shabnam koser<sup>4</sup>,  
Khushi Ram Choudhary<sup>5</sup>

<sup>1</sup>Assistant Professor, Poornima Group of Institutions, Jaipur (Rajasthan), 302022

<sup>2,3,4,5</sup> Student, Poornima Group of Institutions, Jaipur (Rajasthan), 302022

Akshima.gautam@poornima.org , 2016pgicvmadan024@poornima.org

### Abstract

*The study aims to find out the contaminants in water used for drinking purpose in Jaipur city of Rajasthan. The main source for the supply of water in Jaipur is ground water. It is supplied by the means of piped line by the Public Health and Engineering Department (PHED) at different areas of Jaipur. In water contaminants study about fluoride, chloride and nitrate is to be done for better health of human beings.*

### INTRODUCTION

Water is one of the best gifts of nature for the mankind. One cannot be able to survive without water. Study of quality of drinking water is must for the development of human being. The quality of water is continuously decreasing day by day at every place. Jaipur city is capital of Rajasthan and situated in semi arid zone (Longitude: 95 24' E; Latitude: 27 18' N). Water should be free from any harmful elements such as living and non-living organisms, when used for the purpose of drinking. It's difficult to detect and hard to resolve the major issues in quality of water.

### METHODOLOGY

For the study about contaminants in drinking water, 4 different drinking water samples (Murlipura, Panipech, Malviya Nagar, Jawahar Nagar) of the city were collected and after that sample were analyzed by the use of systematic random sampling method. The water samples taken from the different areas were collected in pre-cleaned plastic bottles and sent to PHED laboratory for quality analysis on the following parameters: pH, Fluoride, Nitrate, Chloride.

### CHARACTERISTICS

#### PH:-

PH refers to "power of hydrogen or potential of hydrogen". Chemical nature is decided by the PH. As we know that the pH of the drinking water varies from 6.6-9.5 according to area. The pH of water is decided by the B.I.S. standard. Value of normal water is 7. PH measures the power of hydrogen in the terms of concentration of H<sup>+</sup> ions. Table-1 shows the different values of pH.

Mostly in the two areas level of pH was to be found, that is one sample by piped water and another from sample of bore well which have alkaline nature.

### Fluoride:-

Content of Fluoride found in 'Panipech' which is highest, borewell sample from Malviya Nagar. Water of piped sample had fluoride content is not so high. Sample piped water was limit of under permissible limit. These samples were free from fluoride content concentration. According to the B.I.S. standard the permissible limit of the fluoride content is 1.5 mg/l. By the observation, the fluoride content in the sample of jhotwara was higher than the normal permissible limit. If the amount of fluoride content is present in excess, ground water may be affected by the natural sources effects. Nature of the fluoride is widely distributed.

Highly amount of the fluoride can decay the teeth, bones, and fluorosis. Normal dose of the fluoride should be less than the 1mg/l. Its carries will not exceed from the 1.5mg/l. Fluoride content should be lie between the 0.8-1.0 mg/l for drinking water.

### Chloride:-

In drinking water to increase the tends of pressure of asthmatic of cellular extra fluid, chloride is intake. Thirst of the sensation is closely related to the extra cellular fluid. So that the fluid regulation in the human body & kidney achieve the electrolytes and it create the harmful problems for the kidney. Chloride ions are the major ions of the inorganic ions in water. Permissible limit for the borewell water is 200-1000, and other areas have the high amount of the chloride.

### Nitrate:-

Nitrate content create problems is considered harmful for the body of the human. The high level of nitrate occurrence of the prominent ground water and it create issues in many parts of the country. The sample of the water also accessed for the concentration of the nitrate area. The higher permissible limit of 45 mg/l in bore well water.

Methaemoglobinaemia is the disease created by the higher concentrations of nitrate.

Table no.1 Different values of the parameters of the samples.

Sl no..	Contaminants	MURLIPURA (mg/l)	PANIPECH (mg/l)	MALVIYA NAGAR (mg/l)	JAWAHAR NAGAR (Mg/l)
1.	PH	7.6	7.8	7.1	7.9
2.	Fluoride	0.9	0.79	.83	.70
3.	Nitrate	30	24	40	80
4.	Chloride	90	106	80	160

**Table no.2** Water quality according to the BIS standards:-

Sl no.	PARAMETERS	PERMISSIBLE LIMIT	NO.OF THE AREAS WHITCH HAVING BEYOND PERMISSIBLE LIMITOF QUALITY OF DRINKING WATER
1.	PH	6.5-8.5	0
2.	FLUORIDE	1.5	2
3.	CHLORIDE	1000	4
4.	NITRATE	45	3

**CONCLUSION:-**

The supply of the chief water is from ground water because of the extraction quality of the ground water was deteriorated. Drinking quality of the water is paramount for living sustainable quality. More the samples of the one third of water can not meet BIS standard of the portable and drinking water.

From the study found that supply of the piped waterby PHED was less polluted as compared to the water from bore wells.

**REFERENCES:-**

1. Analysis of Drinking Water Quality of Private Bore-well & Pipe water Supply of Jaipur city, Rajasthan, India
2. Networking site