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Studies on Possible Contamination/Pollution and Quality of Water during Conveyance - A Case Study of Bhadravathi Town, Karnataka

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Abstract*: It is a known fact that more than billion people world-wide do not have an access to safe water, the reasons being industrialization, urbanization, population explosion etc. Therefore the need of the day is to treat the water to meet the quality standards prescribed by agencies. Further great care has to be exercised to see that the water will not get contaminated during conveyance. Thus it is opined the frequent monitoring of water quality at the consumer end is essential. In this background an attempt has been made to monitor the water quality at selected pockets of Bhadravathi town, Karnataka. This paper throws light on outcome of such a study. Results specially with respect to bacteriological contamination (MPN) revealed that the water quality is not deteriorated during the passage from treatment plant to consumer end.*

Keywords: water conveyance, pollution, MPN, consumer end, quality

1. Introduction

Water is a unique component of nature and has played the crucial role in the evaluation of life. Even though more than 70% of earth is covered by water only 0.01% of earth's water is available for drinking and domestic use. Therefore the judicial usage and conservation of such a valuable resource is warranted. Further it is opined that the consumer should get the required quantity of water in accordance with the demand, but also the quality meeting standards prescribed by agencies. Again care should be taken to see that quality of water will not deteriorate during conveyance form treatment plant to consumer end, which may occur due to faulty distribution system. This warrants the regular monitoring of water quality of consumer end. This paper throws light on water quality checked at selected pockets of Bhadravathi town, Karnataka. More emphasis has been given to check the residual chlorine content and their by bacteriological contamination. Researches across the globe carried out similar studies to evaluate the water quality (Syeda and Nurul: 2013, Sunitha et.al. 2013).

2. Study Area

To check the water quality at consumers end, the samples were collected from the selected pockets of Bhadravathi town, a taluk headquarter situated in Shimogha district of Karnataka. Bhadravathi which was earlier hub of the industries is situated at about 250km from Bangalore, Capital of Karnataka. The source of water for the town is Bhadra River. Water from Bhadra River will be treated and supplied to consumers.

3. Materials and Methodology

The water samples from selected pockets (Table 1) were collected and analysed for various parameters viz., MPN, E-coli, Total Solids, pH, chlorides and hardness. The study was carried out for three months (August, September and October of 2016), frequency of sampling being once in a month. The samples were collected, preserved and analysed as per standard methods (AWWA: 2006).

Table 1: Study pockets considered

Sampling stations	Area
S_1	MPM colony
S_2	Vidya Mandir
S_3	Surgitoppu
S_4	New Colony
S_5	Hudco Colony
S_6	Jannapura

4. Results and Discussions

Quality parameters of water samples collected from selected pockets during the study period are shown in Table 2.

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Table 2: Details of Water Quality of Samples of Selected Pockets during Study Period

Quality parameterss	Treated Water characteristics	Quality of samples at pockets and study period stated																	
		August						September						October					
		S_1	S_2	S_3	S_4	S_5	S_6	S_1	S_2	S_3	S_4	S_5	S_6	S_1	S_2	S_3	S_4	S_5	S_6
pH	6.9-7.16	6.9	6.82	6.92	7.0	7.1	6.93	6.99	7.04	6.95	6.96	7.02	7.09	6.92	7.16	6.95	6.82	6.99	7.12
TDS, mg/l	100-150	120	110	130	110	100	130	140	104	136	142	110	135	118	125	148	143	136	153
EC, µS/cm	154-214	191	174	200	172	165	198	205	169	204	210	175	203	185	195	208	205	202	216
Hardness, mg/l	30-78	47	35	53	37	30	57	66	32	60	65	34	58	45	50	79	63	67	76
Chlorides, mg/l	8-17	11	9	13	10	9	14	15	8	14	15	10	12	11	14	16	17	14	18
MPN/ 100ml	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E- Coli, cfu/ 100ml	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

The ranges of quality parameters of treated water during the study period are depicted in the table 2. The ranges observed is found to be within the recommended water quality standards and is found to be fit for drinking and domestic use. Accordingly the water samples collected from six pockets during three different months were analysed and summarized in this table. Based on characteristics of samples analysed at the consumer points it is inferred that the quality of water at consumer end is remained unaltered within the stastical limitations. Specially it is observed with reference to bacterial contamination which may likely change during the conveyance of water is not affected by any source during conveyance. Many investigators reported and suspected that intrusion of dirty water through the leaky joints of the water mains and thereby pollution of water mainly the increase in salts concentration. Such a intrusion has not taken place in the distribution network considered for study.

5. Conclusion

Based on the results obtained there is no contamination during the conveyance of treated water.

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