Survey of Microbial Quality in Drinking Water of Rural Areas Covered by Water and Wastewater Organization of Kermanshah Province

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Providing of safe drinking water is one of the important objectives of human communities. Access to the development and progress is possible in Healthy Community. It is clear that human health depends on desirable water supply. The presence of pathogenic microorganisms in water is very dangerous to health and life of humans and cause gastrointestinal diseases such as typhoid and Para- typhoid [1]. The aim of this study was to evaluate the microbial quality of drinking water of rural areas covered by water and wastewater Organization of the Kermanshah province in the spring and summer the year 2012. This study was across–sectional type, that microbial qualities of water of 397 water supply projects in 13 cities of Kermanshah province was investigated. For measuring total count of microorganisms in water, the multiple-tube fermentation procedure as a Most Probable Number (MPN) index was used according to the Standard Method [2].

During the study 1815 samples were sent to the laboratory. The results were analyzed by SPSS-16 software due to find the reasons of microbial contamination of water and taking appropriate hygienic strategies. The results showed that the bacteriological water desirability was highest in Qasr-e-Shirin and Guilan-e-Gharb (100%) and the lowest was in Sarpol-e- Zahab (40%) in the first half year 2012. Also 85.5% of the samples were desirable in terms of microbiological quality and the other samples were undesirable. In 93% of samples, lack of chlorinating water was the reason of contamination, but the reasons of remaining contaminated samples were not mentioned. Free chlorine in contaminated samples has been reported zero percent. It is extremely important that before the distribution of water, it would be free from contamination, so disinfection of water before entering to water distribution network should never be forgotten. Since the water is able to transfer pathogenic microorganisms, lack of free residual chlorine in water cause bacterial contamination and consequently undesirable quality of water and could be a risk factor to human health by causing gastrointestinal disease [3]. The results showed using chlorination systems could prevent microbial contamination of water sources. Advantages of chlorine to the other disinfectants are its simplicity, low cost of production, ease of use and reliability. On the other hand chlorination process using appropriate methods, in addition to microorganism reduction, leads to less biological corrosion. Although chlorination causes corrosion slightly but overall decrease corrosion rate and reduces costs in operation and maintenance of the distribution system.

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