

Effect of pH, Chlorine Residual and Turbidity on the Microbial Bio Indicators of Drinking Water Network

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Abstract

Background and objective: Bioindicators of drinking water are always influenced by physical and chemical factors such as turbidity and chlorine. Considering the assessment of drinking water quality is based on residual chlorine, E.coli, heterotrophic bacteria and turbidity. We aimed to evaluate the effect of pH, chlorine residual and turbidity on the microbial bioindicators.

Material and methods: In this descriptive-analytic study, 324 and 32 water samples were collected from rural and urban water distribution network of Aq Qala city in 2013, respectively. All steps were performed according to standard methods.

Results: In rural water supply, 5%, 9% and 33% of the samples were contaminated with fecal coliform, fecal streptococcus and the heterotrophic more than 500CFU / ml. In urban network, coliform contamination was not seen and other bioindicators were less than those of rural networks were. Turbidity of above 5 NTU in urban and rural samples was 3 and 9 percent, respectively. Bioindicators had significant relationship with residual chlorine, fecal coliform bacteria with pH and turbidity with heterotrophic bacteria ($P \leq 0.05$).

Conclusion: The presence of fecal streptococcus bacteria in some samples without fecal coliform cannot confirm the safety of drinking water. Microbial contamination in the presence of residual chlorine implies that just chlorination is not enough for having healthy water.

Keywords: Chlorine, Turbidity, Biological Factors, Drinking water