

QUALITY OF WATER USED IN BAKERY

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Abstract

Water is considered as the most important substance on the earth. The water quality directly affects the food quality. It is the second ingredient of dough system. Its quality is as important as flour quality in final products. Factors that should be considered are taste, chemical, mineral and microbiological bacteria content. Water has several functions in dough as solvent, hydration, yeast activation and consistency. The aim of this study was to evaluate the quality of water used in a baking industry.

This study is based on data analyzed in the bakery near Tirana city, which was using private dug well water. We have analyzed some parameters of water such as pH (pH meter), conductivity (EC meter), ammonium (NH₄), nitrates (NO₃⁻), calcium (Ca), and magnesium (Mg) chloride (Cl) with UV-visible spectrophotometer. Water samples were analyzed for microbiological parameters as *Escherichia coli* and *Streptococcus faecalis* with membrane filtration method.

Based on results, the average values of some physico-chemicals parameters like ammonium and nitrate are near the maximum of allowable limit of Albanian standards of drinking water. Ammonium content in the samples varies 0.028 mg/L to 0.051 mg/L. In general natural water usually contains up to 0.2 mg/L. Samples with higher value may be affected by various organic contaminants. The nitrate content varies from 38.12 mg/L to 46.85 mg/L. Contamination of water by sewage systems or septic sewage and fertilizer are main sources of nitrate content. We found a high concentration of *Escherichia coli* in this well water, while *Streptococcus faecalis* was not detected during the monitoring period.

Our investigation results that well water doesn't fulfill the quality of drinking water, and may affect the quality of products in bakery. High values present in this well water can be as result of soil contamination (organic fertilizer or septic sewage). We recommend the installation of a microbiological filter system to eliminate bacteria from water.

Key words: Bakery, Bacteria, Pollution, Tirana.