

*Ministry of Higher Education
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*Studying some Microbial and Chemophysical
Parameters of Tap Water and Mineral
Bottled water in AL- Muthanna Province.*

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ABSTRACT

This study was carried out at Al-Muthanna province, some microbial and chemical tests of three (Oasis, Mina and Al-Rawdhateen) brands of bottled water and tap water samples from different sources that are consumed in Al-Muthana province (Al-Sammawa, Al-Rumaytha, Al-Swier , Al-Majid , Al-Khudher) towns were analyzed under standard methods. This study was conducted from August 2011 to February 2012. A survey of 120 duplicate water sample . The multiple-tube fermentation technique was used for the determination of total coliform in all samples membrane filtration technique was used for the determination of fungi.

The statistical analysis of results using analysis of variance showed that there are significant differences among water sample means of physical, chemicals and microbiological properties.

The bacteriological tests of water showed that the bacterial failure percentage was 88.33% of tap water samples (n=60) and 26.67% of bottled water samples. the most probable number of total coliform ranged between 18.9 to 583.3 Cell For Unit (CFU)/ 100ml in tap water samples. while ranged between 12.30 to 81.0 CFU/ 100ml in bottled water samples. These results didn't agree with national and international standard characters that detected no coliform bacteria / 100 ml of treated water. on the other hand, mycological tests showed that the fungal contamination percentage was 91.67% of tap water samples and 65.00 % of bottled water samples. The fungal count ranged between 15.9 to 367.3 CFU/ 100ml of tap water samples and 15.4 to 30.3 CFU/ 100ml of bottled water samples. Neither the WHO's Guidelines for Drinking Water Quality nor the other Drinking Water Guidelines contain standards covering microfungus contamination of drinking water.

EC values ranged between 135.5 to 263.4 μ S/cm in bottled water didn't exceed the national and international guidelines for drinking water.

Whereas ranged between 962 to 2724 $\mu\text{S}/\text{cm}$ in tap water samples. Al concentration ranged between 0.368 - 0.095 mg/L in tap water samples and ranged between 0.252 - 0.228 mg/L in bottled water samples. on the other hand Cd concentration was < 0.05 mg/L and Pb concentration was < 0.2 mg/L in all water samples. in other chemical parameters (TDS, NaCl, Free Chlorine Residual) most samples was agree with national and international standards. Taste and Odor were acceptable in both tap and bottled water samples.

