

Ice and water sources used for commercial ice production: quality and its suitability to be used on fish.

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Abstract

Study was carried out to test the quality of ice and water sources used for commercial ice production in determining its suitability to be used on fish for human consumption during post harvest handling. Samples from all the water sources used for production, ice after production were collected from 13 ice plants from 07 districts. Samples were tested for its physical, chemical and microbiological composition using temperature, pH, conductivity, turbidity, residual chlorine, ammonia, nitrate and nitrites, total bacterial count at 22 °C & 37 °C, total coliforms, faecal coliforms, *E. coli*, *Salmonella* and faecal streptococci.

Water sources used for ice production were dug wells, tube wells and municipality water lines. Most of the ice plants had more than one water source and more than one from one water source. It was noted that when the ice plant has multiple water sources, the water used for ice production is a mixture of them. There were no *Salmonella* contaminations of the water or ice in any of the tested ice plants. But there were considerable level of faecal contamination found common to majority of the ice plants except in municipal water. Even with municipal water the final water used for production had average of *E. coli* 50 MPN/100ml where the standard microbial quality for ice and potable water indicates as zero. This is conformed by the presence of faecal streptococci in the samples. Presence of *E. coli* in ice was indicated by average of 494 MPN/100ml. Chemical analysis revealed that any of the final water sources were not fulfill suitable standard except municipal water.

This study reveals that private water sources used for ice production and ice produced from them are not up to the microbiological standards for potable water and there for not fit to be directly used on food items intended for human consumption specially on fish which is considered to be highly perishable. It also indicate that chemical and physical adulteration is less or negligible when compared to this. No residual chlorine were found in most of the private water sources, and no chlorination nor any other treatment practiced which may be one cause for these high bacterial contaminations found during the study.

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