Quality and Shelf life of UHT Milk Produced in Tripoli, Libya

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Abstract : Ultra High Temperature (UHT) processed milk is widely distributed and preferred in numerous countries all over the world due its relatively high quality and long shelf life. Because of the notable high consumption rate of UHT in Libya in addition to negligible studies related to such product on the local level, this study was designed to assess the shelf life of locally produced as well as imported reconstituted sterilized whole milk samples marketed in Tripoli, Libya . Four locally produced vs. three imported brands were used in this study. All samples were stored at room temperature (25± 2C) for 8 month long period, and subjected to physical, chemical, microbiological and sensory tests. These tests included : measurement of pH, specific gravity, percent acidity, and determination of fat, protein and melamine content. Microbiological tests included total aerobic count, total psychotropic bacteria, total spore forming bacteria and total coliform counts. Results indicated no detection of microbial growth of any type during the study period, in addition to no detection of melamine in all samples. On the other hand, a gradual decline in pH accompanied with gradual increase in % acidity of both locally produced and imported samples was observed. Such changes in both pH and % acidity reached their lowest and highest values respectively during the 24th week of storage. For instance pH values were (6.40, 6.55, 6.55, 6.15) and (6.30, 6.50, 6.20) for local and imported brands respectively. On the other hand, % acidity reached (0.185, 0181, 0170, 0183) and (0180, 0.180, 0.171) at the 24th week for local and imported brands respectively. Similar pattern of decline was also observed in specific gravity, fat and protein content in some local and imported samples especially at later stages of the study. In both cases, some of the recorded pH values, % acidity, sp. gravity and fat content were in violation of the accepted limits set by Libyan standard no. 356 for sterilized milk. Such changes in pH, % acidity and other UHT sterilized milk constituents during storage were coincided with a gradual decrease in the degree of acceptance of the stored milk samples of both types as shown by sensory scores recorded by the panelists. In either case degree of acceptance was significantly low at late stages of storage and most milk samples became relatively unacceptable after the 18th and 20th week for both untrained and trained panelists respectively.

Keywords : UHT milk, shelf life, quality, gravity, bacteria
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