Determination of Chemical Composition and Microbial contamination of Cow's , Buffalo's Milk and Some Dairy Products from Four Different Regions of Basrah, Iraq

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Abstract

Ninety samples of cow and buffalo's milk besides their products (soft white cheese, yogurt, and cream), which were collected from four different regions in Basrah city (Al-Ashar, Karma Ali, Abu Al-Khasib, and Al-Zubair), were investigated. The process of estimating milk components such as moisture, fat, protein, lactose, and ash was conducted. Estimate the total counts of *Staphylococcus aureus* and *E. coli* bacteria. It was observed that the highest total logarithmic number of bacteria was in a cow's milk and manufactured products, such as cheese, yogurt, and local cream, reaching 6.082, 9.049, 9.378, and 6.324 CFU/ml, respectively. At Al-Karma and Al-Zubair, the buffalo milk samples were 5.186, 7.328, 8.895, and 5.616 CFU/ml at Al-Ashar, Abu Al-Khasib, and Al-Zubair. The Al-Zubair region recorded the highest logarithmic number of Staphylococcus aureus bacteria in cow's milk (2.681 CFU/ml). The Al-Ashar region recorded the highest logarithmic count of this bacterium in buffalo milk (2.361 CFU/ml). The highest numbers of Staphylococcus aureus bacteria in soft white cheese made from cow milk (3.363 CFU/ml) and E. coli bacteria (4.146 CFU/ml) were in the areas of Al-Zubair and Al-Ashar, The highest number of both types of bacteria appeared in the Al-Zubair area for yogurt made from cow's milk 3.934CFU/ml the highest number of both types of bacteria, respectively, in cow's milk cream (2.544 CFU/ml) is in Al-Zubair,. Statistical analysis showed that the differences between all different regions were statistically significant ($P<0.05$) .

Keywords: milk products, chemical content, pathogens, Safety.

Introduction

Humans have used milk and its products for thousands of years as an important nutritional and therapeutic source, in addition to its quality. Which depends mainly on its chemical content and microbial cells. With the beginning of the emergence of agriculture, farmers began to ferment milk and make new products from milk, such as cheese, yogurt, and others. Studies related to healthy and functional foods have developed, and knowledge of the microorganisms found in these products has increased because they produce compounds with biological benefits [1]. Lactic acid bacteria found in fermented dairy products are beneficial bacteria in milk and milk products. Some species from the *Bacillus*, *Bifidobacterium*, and *Lactobacillus* families are considered probiotics that produce bioactive compounds that are beneficial to human health [2]. Lactic acid bacteria produce enzymes that degrade milk components, as they are the powerhouses of the metabolic system because they stimulate biological and chemical reactions faster than in their absence, which improves the nature of their fermented products [3]. Scientific evidence has proven that milk after milking is contaminated with microorganisms that arise from various causes and are transmitted to milk, such as mastitis or pathogens transmitted from

ISSN 2072-3857