



Microbial contamination of dairy products manufactured from buffalo and cow milk in Basra Governorate

Najla Hussen AL GARORY, Raghad Saad Al MUSA, Zainab Abd ALI, Alaa gazi AL-HASHIMI

Department of Food Sciences, College of Agriculture, University of Basrah, Iraq

SUMMARY. Microbial contamination indicators exceeded internationally accepted limits for milk and its products in the local markets of Basra Governorate, led to a study of microbial contamination in cow and buffalo milk and manufactured products, such as soft white cheese, yoghurt and cream, at the local markets of the areas of Al-Ashar, Karma Ali, Abu Al-Khasib and Al-Zubair. Four samples and three replicates were used for each product manufactured from cow and buffalo milk, according to the regions from which the samples were taken. The process of estimating milk components such as moisture, fat, protein, lactose and ash were conducted. To estimate the total number of bacteria and count *Staphylococcus aureus* and *E. Coli* bacteria, it was observed that the highest total logarithmic number of bacteria was in cow's milk and manufactured products such as cheese, yogurt and local cream reached 6.082, 9.049, 9.378 and 6.324 CFU/ml, respectively. At Al-Karma and Al-Zubair for 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 highest number of *Staphylococcus aureus* bacteria in cow's milk and its products was 2.681, 3.363, 3.934 and 2.544 CFU/ml, for buffalo milk samples, it was 2.361, 3.053, 3.695, and 2.510 CFU/ml at Al-Ashar. The highest numbers of *E. coli* bacteria in cow's milk samples were 3.633, 4.146, 4.695 and 2.240 CFU/ml, for buffalo milk samples, it was 2.707, 3.892, 4.067, and 2.048 CFU/ml in Al-Zubair and Al-Ashar.

RESUMEN. Los indicadores de contaminación microbiana excedieron los límites aceptados internacionalmente para la leche y sus productos en los mercados locales de la gobernación de Basora, lo que llevó a un estudio de la contaminación microbiana en la leche de vaca y de búfala y en los productos manufacturados, como el queso blanco tierno, el yogur y la nata, en el mercados locales de las zonas de Al-Ashar, Karma Ali, Abu Al-Khasib y Al-Zubair. Se utilizaron cuatro muestras y tres réplicas para cada producto elaborado con leche de vaca y búfala, según las regiones de donde se tomaron las muestras. Se realizó el proceso de estimación de los componentes de la leche como humedad, grasa, proteína, lactosa y cenizas. Para estimar el número total de bacterias y contabilizar las bacterias *Staphylococcus aureus* y *E. coli*, se observó que el mayor número logarítmico total de bacterias se encontraba en la leche de vaca y productos elaborados como queso, yogur y crema local alcanzaron 6.082, 9.049, 9.378 y 6.324 UFC/ml, respectivamente. En Al-Karma y Al-Zubair, las muestras de leche de búfala fueron 5.186, 7.328, 8.895 y 5.616 UFC/ml en Al-Ashar, Abu Al-Khasib y Al-Zubair. El mayor número de bacterias *Staphylococcus aureus* en la leche de vaca y sus productos fue de 2.681, 3.363, 3.934 y 2.544 UFC/ml, para las muestras de leche de búfala, fue de 2.361, 3.053, 3.695 y 2.510 UFC/ml en Al-Ashar. Los números más altos de bacterias *E. coli* en muestras de leche de vaca fueron 3.633, 4.146, 4.695 y 2.240 UFC/ml, para muestras de leche de búfala, fueron 2.707, 3.892, 4.067 y 2.048 UFC/ml en Al-Zubair y Al-Ashar.

KEY WORDS: Safety, pathogens, local cream, cheese, chemical content.

* Author to whom correspondence should be addressed. *E-mail:* raghad.saad@uobasrah.edu.iq