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EFFECT OF HOMOGENIZATION ON BINDING-AFFINITY OF BACTERIOPHAGE A511 IN BOVINE MILK FRACTIONS

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Abstract

The effect of milk homogenization conditions, including speed (17,400 rpm; 20,600 rpm; and 24,000 rpm) and time (5 to 25 min) on phage affinity in milk fractions was investigated. A broad host-range Listeria phage (A511) was inoculated. Milk fractions separation was carried out and phage enumeration was expressed as percentage of added phages. A maximum quantifiable phage of 42.6 % was obtained in unhomogenized milk. Homogenization (5 min, at any speed) further reduced quantifiable phages (15.9 to 20.6 %), but this percentage increased as homogenization time increased. Phage distribution in unhomogenized milk showed preference for fat followed by caseins. Milk homogenization caused milk fat to lose its ability to bind phages, inducing phages to bind to caseins preferentially. Whey

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Abbreviations: MFGM, milk fat globule membrane**;** PFU, plaque forming unit; SM, saline-magnesium; TSA, trypticasein soy agar; TSB, trypticasein soy broth; BHI, brain heart infusion broth; HIV-1, human immunodeficiency virus type 1.