

# Accepted Manuscript

Effect of homogenization on binding-affinity of bacteriophage A511 in bovine milk fractions

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

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9  
10                  **Abstract**

11  
12                  The effect of milk homogenization conditions, including speed (17,400 rpm; 20,600  
13                  rpm; and 24,000 rpm) and time (5 to 25 min) on phage affinity in milk fractions was  
14                  investigated. A broad host-range Listeria phage (A511) was inoculated. Milk  
15                  fractions separation was carried out and phage enumeration was expressed as  
16                  percentage of added phages. A maximum quantifiable phage of 42.6 % was  
17                  obtained in unhomogenized milk. Homogenization (5 min, at any speed) further  
18                  reduced quantifiable phages (15.9 to 20.6 %), but this percentage increased as  
19                  homogenization time increased. Phage distribution in unhomogenized milk showed  
20                  preference for fat followed by caseins. Milk homogenization caused milk fat to lose  
21                  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.

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