

TITLE: PROFILE OF FATTY ACIDS IN BOVINE AND BUFFALO FERMENTED MILK BY PURE AND MIXED CULTURES *Bifidobacterium animalis* subsp. *lactis* AND *Lactobacillus acidophilus*

AUTHORS: MATSUO, M.M.; PRESTES, A.; YOSHIGA, B.M.; RODRIGUES, A.M.; BOGSAN, C.S.

INSTITUTION: FACULDADE DE CIÊNCIAS FARMACÊUTICAS, UNIVERSIDADE DE SÃO PAULO, SÃO PAULO, SP (AVENIDA PROFESSOR LINEU PRESTES, 580, BLOCO 16, CEP 05508-000, SÃO PAULO, SP, BRAZIL).

ABSTRACT: Due to higher fat content in buffalo milk, this is a major supplier of fatty acids to the human body, since they contribute to the modulation of immune, anti-inflammatory functions. However, buffalo milk could be improved with probiotic microorganisms, producing fermented dairy products. Therefore, the study aims to evaluate the fatty acid profile in bovine and buffalo fermented milk by pure and mixed probiotic cultures over 21 days of storage. The bovine and buffalo milk were fermented by pure cultures of *Bifidobacterium animalis* subsp. *lactis* and *Lactobacillus acidophilus*, and mixed culture of these two strains, and monitored by the CINAC system until reaching pH 4.7. After fermentation, they were bottled and kept under refrigeration at 4 ° C until the day of lipid extraction. For the extraction of lipids, a method of ISO 14156 was used, and for the preparation of methyl esters, the method of ISO 15884 was used. Gas chromatography determined the fatty acid profile. Analysis of fatty acids showed that the Buffalo matrix has a higher polyunsaturated fatty acid composition when compared to the bovine matrix. The fermentation process by bifidobacteria reduces the content of polyunsaturated fatty acids while by lactobacilli these values are increased in both matrices after 24 hours of fermentation. The mixed culture significantly reduces the content of saturated fatty acids. However, after 21 days of storage, both the pure and mixed cultures showed no statistical difference between the levels of monounsaturated and polyunsaturated fatty acids, whereas saturated fatty acids were reduced only in mixed cultures. The distribution of fatty acids between the types of fermented matrices were reorganized through different types of probiotic cultures and combinations. Also, the stability of the fatty acids contents acquired by the product over many days of storage, indicating the composition of acids Fatty acids of health interest suffer variation during the storage period and mixed cultures contribute to greater stability of the polyunsaturated fatty acids.

Keywords: MUFA, PUFA, Probiotic, fermented milk.

Development Agency: Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP.