EVIDENCE FOR AN ADULTERATION OF MILK FAT OF IMPORTED MILK POWDER VARIETIES BY ADDING NON-DAIRY FAT SOURCES

L.J.P.A.P. Jayasooriya[1], S.C. Wanniarachchi[2], M.S.W. de Silva[3], K.M.W. Bandara[2], A. Wickramanayake[2], G.A. Prathapasinghe[3], C.V.L Jayasinghe[3], S.S. Alwis[3] and A. N. F. Perera[3]

[1]Department of Basic Veterinary Sciences, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya
[2]Mawbima Lanka Padanama, No. A4, Perehera Mawatha, Colombo 03
[3]Faculty of Livestock, Fisheries and Nutrition, University of Wayamba, Makandura, Gonavila

Introduction

The problem of adulteration of food items has become a major health hazard all over the world and efforts are continuously being made to detect and avert such malpractices. The best example is the recent melamine issue, which tarnished the global dairy food industry. One of the most possible constituents of milk that can be adulterated is butter fat content, because of its high market value. Often this valuable milk fat is replaced by low cost vegetable fats and animal fats. Our regulatory bodies are only concerned about the total fat content and obsolete quality indices such as Reichert-Meissl (R.M) and Polenske values. Nonetheless, scientific literature has pointed out the fact that these indices are not accurate enough and obsolete in detection of adulterations of milk fat (Kirk and Sawyer, 1991). The proportion of butyric acid (BA) in the fatty acid profile of milk fat is used as an indicator of authenticity of pure dairy milk fat and it is used for detecting the adulteration of milk fat by other non dairy fat sources (Molkentin and Precht, 1998).

The aim of this study was to investigate the authenticity of imported milk powder brands in Sri Lanka by measuring the proportion (%) of BA in milk fat (w/w).

Materials and Methods

Samples of ten imported full cream dairy milk powder brands were collected from the retail dealers of the Sri Lankan market. The total fat content and BA level of milk fat was estimated using standard procedures (Kirk and Sawyer, 1991). The estimation of BA in milk fat was done by gas chromatography (GC). The initial analysis was performed at the milk quality testing laboratory of the ECLIPSE Scientific group, UK (Analysis-I). For further confirmation of the results of Analysis-I, four samples were re-analyzed at the Industrial Technology Institute (ITI), Colombo (Analysis-II). The statistical analysis of the data was performed using one sample t-test (Minitab Version 14, Minitab Inc, USA).