ABSTRACT

Determination of major minerals Like Na, K, Ca and Fe like trace minerals is a common practice of quality control laboratories of dairy industry. Because some dairy products manufacturers advocate their products as fortified with above minerals, but the actual composition of these mineral is often not indicated on the product labels. Analysis of above minerals by Flame Atomic Absorption Spectroscopy (FAAS) appears to be quite straight forward.

First approach was to develop a method to analyze four minerals in milk powders available in the market. The suggested method is a combination of an in house method and AOAC method which is a derivative of AOAC method. The accuracy of this method highly depends on sample preparation. The organic fraction must be removed from the mineral to avoid interference in the signal readout. The suggested method resulted the recovery percentages of 89%, 65% and 85% for Na, K and Fe respectively. According to the Mann Whitney statistical approach the method is more accurate for determination of Na in milk powders as the results have shown very close values for three milk powder categories out of five.

The second approach was to analyze mineral composition in other dairy products. For that purpose an in house method was used to analyze the four mineral levels in dairy products available in the market. Replicates were performed to get the most accurate value. Other dairy products such as Yoghurt, Curd, Ice cream, Butter, Butter Oil and Margarine products were analyzed based on the selected categories available in the market. Liquid milk products were directly analyzed without separating the organic fraction .It may affect for the accuracy of the test due to the interaction of organic fraction. Other dairy products were analyzed by separating the organic fraction by ashing. Kruskal Wallis statistical approach was applied to compare the results obtained for other dairy products. From the results it can conclude that there is no any significant difference among the brands of selected categories. By that can predict that the Na%, K%, Ca% and Fe% levels were approximately same for Curd, Yoghurt and Ice cream varieties most available in the local market.

A product wise comparison based on the analyzed mineral fraction was performed using Kruskal Wallis statistical approach. The results concluded that there is no any significant difference among Curd, Yoghurt and Ice cream based on the tested minerals. Each product does not give an added nutritional benefit in the form of tested minerals.