RESULTS OF EQUIPMENT PORTABLE DEVELOPED FOR QUALITY CONTROL AND DETECTION OF MILK ADULTERATIONS

Wesley William Gonçalves Nascimento
Universidade Federal de Juiz de Fora campus Governador Valadares

Virgílio de Carvalho dos Anjos, Maria José Valenzuela Bell
Universidade Federal de Juiz de Fora Campus Juiz de Fora

Milk is an important food from nutritional, economic and social points of view. However, a very common problem is the adulteration of milk by adding substances such as water, sodium chloride, caustic soda, formaldehyde, and so on, that can mask or preserve milk properties as cryoscopy point, acidity, pH. In view of this, the milk chain needs new and more efficient processes to ensure the quality and safety of milk. The present work describes the results of a device, named MILKTECH, developed to detect milk tampering, based on electrical measurements. The device indicates possible frauds by water, sodium chloride, caustic soda, ethyl alcohol and sodium bicarbonate. The advantages in relation to traditional methods are portability, low cost and detection of mixed frauds. In this work we present results of our device comparing its performance with reference methods. The experiments were conducted in dairy plants from Juiz de Fora and Governador Valadares, in Brazil. The results were compared with cryoscopy and chloride tests. They presented high correlation which indicates the feasibility of the technique. For instance, the detection limit of the equipment for water addition with the set of analyzed data was 0.78.