



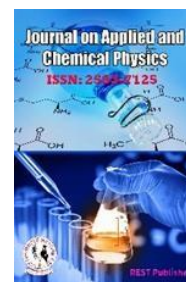
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Determination of Sugar Content in Cows Milk

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Abstract: Salts in milk exist in colloidal and soluble form. A large amount of salt is present in casein micelle's structure and is in equilibrium with salts in the soluble phase of milk. During acidification/fermentation of milk some salts gets solubilized from the colloidal state and come in to the soluble state. This destabilizes the casein micelle structure and tends to precipitate out as happens during curd setting of milk and preparation of acid casein. It also Chemistry of Milk 121 happens that the casein micelle stability is lost during heating of milk at high temperature such as in UHT processing, sterilization and boiling of milk. This is due to the in solubilization of colloidal calcium phosphate and final loss in the stability of milk, this in turn affects the quality of dairy products. Such changes in the salt balance also take place during manufacture of condensed milk, evaporated milk and milk powder. The salt balance in milk is defined by the following equation It has been observed that the balance between certain salts such as Ca^{+2} and Mg^{+2} with citrate and phosphate in the colloidal and soluble phase plays a pivotal role in the stability of casein micelles structure.

1. INTRODUCTION

Milk is a complex fluid containing many components in different states of dispersion. Understanding its properties and the changes that occur in it requires knowledge of all the components and their interaction with other constituents. An over view of the milk composition and their physical states of dispersion are being dealt in this lesson. Milk in legal terms may be defined as whole, fresh, clean, lacteal secretions, obtained by complete milking of one or more healthy milch animals, excluding that obtained 15 days before or 5 days after or such periods as may be necessary to render the milk practically colostrum free and containing legally prescribed minimum percentage of fat and Solids-not-fat (SNF). However, in chemical terms milk may be defined as a complex chemical substance in which fat is present in the form of an emulsion, protein and some mineral matter in the colloidal state and lactose with some minerals and soluble proteins in the form of true solution. All species of mammals secrete milk to provide nutrients required for the optimum growth of the newborn, apart from protecting it from some of the common diseases. The development of the young one in all species of mammals is not uniform as such the composition of the milk secreted by these mammals will also vary depending up on the nutritional needs of the young one. It is a matter of academic interest to know the average composition of milk from some of the species along with the composition of milk from humans.

2. MATERIALS AND METHODS

Sample milk: Hydrochloric acid: Add 2ml of hydrochloric acid to 3ml of cow's milk for the test. This solution should be warmed by keeping well in water bath. For this test five samples of cow's milk were taken of which three were white in color and the other two did not give star color.

3ml milk + 2ml HCl \longrightarrow white or yellow color.

3. RESULT

This test resulted in a white spot and yellow. For this test five samples of cow's milk were taken of which three were white in color and the other two did not give star color. Out of the five samples of cow's milk taken, the first three gave a perfectly good, white color and the other two gave a mellow white color.

4. DISCUSSION

Most of the cow milk that is taken gives which colour. It is known that quality milk which gives white colour in this test method of cow milk should give white colour and quality milk should have low sugar content. Out of the five samples taken, three samples gave good whitens and three gave mild whitnes. Three specimens that have given a good white color are more than three-month-old when calving. Some of the milder country models have been without a calf for a few days. Good quality milk means good quality milk if it gives a good white colour at the end of this test.

5. CONCLUSION

The white color of this reaction in the samples of the cow's milk taken is conformed as quality milk and a soft color is conformed as quality color.

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