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Success Story on CIRC-COWCAM ASSAY: A Kit for Detecting Cow Milk Admixed with Camel Milk or Vice Versa

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Abstract

The milk is considered as a functional food used as a natural remedy in many part of world for the management of a number of human diseases for which it's purity is important. The Prevention of Food Adulteration Act (PFA) stipulates the supply of pure milk to the consumers. Presently, due to high market demand and less supply of camel milk, it is being adulterated with cow milk. As it is well known, food adulteration is a global concern and developing countries like India are at higher risk. So, developing robust, reliable and low cost molecular technique would be beneficial for monitoring the cow and cattle milk adulteration in labs provided with basic instrumentation facility. The CIRC-COWCAM assay kit is useful for detecting cow milk adulteration in camel milk and vice versa at a minimum level of 1%.

Introduction

Camel milk is used as natural remedy in many part of world for the treatment of a number of human diseases. Like in Kazakhstan, it can be prescribed for curing gastric and intestinal diseases. Many researchers believed that camel milk can be effectively used for combating many diseases viz. HIV/AIDS, hepatitis C, Alzheimer's disease etc. (Kaskous S, 2016). It is also called as 'White Gold' of the desert, and showed high similarity with the human milk. It has very unique chemical properties i.e. low level of cholesterol and sugar and high level of minerals, protective proteins and Vitamin C (Yadav *et al.*, 2015). It is having different chemical composition from bovine milk but contains all essential nutrients (Patel *et al.*, 2016). Presently, due to high market demand and less supply of camel milk, it is being adulterated with cow milk. As it is well known, food adulteration is a global concern and developing countries like India are at higher risk. So, developing robust, reliable and low cost molecular technique would be beneficial for monitoring the cow and cattle milk adulteration in labs provided with basic instrumentation facility. There are many protocols based on DNA identification in the food industry to detect adulteration in food products of animal origin. *In-vitro* amplification of DNA template is a most common molecular technique applied for this purpose.

Conclusion

The CIRC-COWCAM assay kit is useful for detecting cow milk adulteration in camel milk and vice versa at a minimum level of 1%. The test can be completed less than 4 hours. The stability of the reagents in the kit can be more than six months in normal refrigerated temperature. The kit is less expensive, user friendly, rapid and specific in detection of adulteration of camel milk with cow milk or vice-versa. *CIRC-COWCAM ASSAY KIT* was released by honourable

Secretary (DARE) & DG (ICAR) Dr. Trilochan Mohapatra, on 03-11-2019 during the inaugural function of National Conference on Livelihood Improvement through Sustainable Livestock Production & IV Annual Convention of Pashu Poshan Kalyan Samittee (PPKS) organized on the occasion of the 33rd Foundation day celebrations of ICAR-Central Institute for Research on Cattle, Meerut, Uttar Pradesh, India



Figure 1: Releasing of CIRC-COWCAM Assay Kit

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