

Short communication

Effect of the production system and stage of lactation on the microbiological and biochemical characteristics of camel milk

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Abstract

This study was conducted to assess the physicochemical and microbiological status of camel milk from different production systems (intensive, semi-intensive, extensive) and to monitor its quality during the different stages of lactation. Lactic Acid Bacteria (LAB) was also isolated and identified from milk samples from the different production systems and at different stages of lactation. Although the physicochemical characteristics of milk from the different production systems were not statistically different except for fat and proteins, the microbiological analysis revealed significant differences in total counts of mesophilic bacteria, yeast and molds and total coliforms. The differences in physicochemical and microbiological characteristics between lactation stages was significant. The diversity of LAB was also affected by these two parameters.

Keywords: camel milk, production system, lactation stage, lactic acid bacteria

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Introduction

In Tunisia, camel farming is conventionally extensive, a method perfectly suited to the biology of the species, and concentrates in the southern areas (Moslah et al., 1989). In recent years, there has been a growing interest in the development of intensive camel farming operations mainly for milk production. This system is based on the adoption of technologies developed and applied to other species of animals, such as cattle, aimed at optimizing the animal's production capacity (Faye, 2004). The semi-intensive, or integrated, system, created in response to the decrease in pasture and feed, is also being used (Diallo, 1989).

The nature and significance of the microflora contained in camel milk, are determined by the health status of the animal, the milking conditions, and the temperature and handling of milk after milking. The dominant and most beneficial microflora in camel milk are mainly lactic acid bacteria (LAB). This group of bacteria is considered to be a potential source of biological agents for use in dairy technology (Khedid *et al.*, 2009). This study aimed to determine the impact of lactation stage and production system on the physicochemical characteristics and microbiological quality, especially LAB concentration, on camel milk.