Possibility of small scale production of sour mare's milk product kumis

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Introduction

Sour mare's milk product called kumis has been used for centuries in Asia by many native people. It is made by fermenting mare's milk while stirring or churning. During the fermentation, *Lactobacillus bulgaricum* acidifies the milk, and *Saccharomyces lactis* turn it into a carbonated and mildly alcoholic drink. Kumis is considered a very nutritious and rehabilitative drink. The biological value of kumis is based e.g. on its high-quality protein, easily absorbable fat and lactic acid and vitamin content. The aim of this study was to find out if a small scale kumis production is possible on horse farms, which can sell it e.g. to their customers of "bed & breakfast" and green care services.

Material and methods

Milk in the present study was milked from Finnhorse mares by hand, but also a milking machine and human breast pumps were tested. Finnhorses were shown to have gentle nature for milk production. The souring agents used were imported from Russia. Fresh milk was folded to kumis and mixed with mixer rather large volume about 15 minutes at the temperature of 26-29 °C degree. Period for fermentation in the warm place took 3-5 hours depending of activity of the souring agents. After fermentation milk was bottled into glass bottles and closed with crown caps. After closed bottles kept at room temperature about half an hour before putting to fridge at temperature 4 °C degree. Kumis was stored for 1-76 days to study how its quality remained. The preservation quality of kumis was estimated by a panel, which stated kumis to remain fresh, aromatic and sparkling for 3 weeks.

Results

The result of the taste test by a panel indicated that it is possible to produce high-quality and sufficiently long-perishable kumis, which remain fresh at 3 weeks.

Conclusions

In conclusion, it is possible to produce high-quality and sufficiently long-perishable kumis, which remain fresh at 3 weeks, in ordinary domestic kitchen conditions. Handling milk with high hygiene standards is important. Milk production is one potential new use of many domestic and draft horse breeds, such like Finnhorse in maintaining their populations.