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Fortification of dairy products with vitamin D3 and calcium and its influence on dairy microorganisms

Sarka Havlikova, Nemeckova I and Smolova J

¹Dairy Research Institute, Czech Republic

Purpose: The aim of our work was to test the effect of vitamin D and calcium supplementation on dairy microorganisms and subsequently to design the technological processes of dairy products with an increased nutritional value. It is important to supply the diet of temperate climate inhabitants with these nutrients, especially in winter period when the exposure to UV light is reduced. The lack of these nutrients contributes many civilization chronic diseases (diabetes, osteoporosis, cancer, immunity disorders).

Methods: In the first stage, the growth curves of yoghurt, acidophilic, bifidogenic and mesophilic cultures in UHT milk with the addition of vitamin D3, Aquamine F or Lactoval were studied. The supplements were added to cover 30% of the recommended daily allowance (DDD) in a 100 ml portion. Afterwards, samples of yoghurt drinks and quark desserts were prepared with an emphasis on studying the influence of fortification and flavoring components on dairy microorganisms, selected physicochemical parameters and sensory evaluation of the products.

Results: The addition of vitamin D and Aquamine F did not significantly affect the growth curves of tested cultures. The addition of Aquamine F even had a positive effect on the density of bifidobacteria. On the other hand, the addition of Lactoval slowed down the growth of acidophilic culture but the density of microorganisms was comparable across all samples. Due to the buffering capacity of the calcium preparations, there has been a low pH drop in the developed dairy products.

Conclusion: Our study suggests possibilities to fortify dairy products fulfilling nutritional, microbiological and sensory criteria.

Biography

Sarka Havlikova is working as an engineer in the Department of Cheese Technology at the Research Institute of Dairy. She has experience in the field of microbiology and biotechnological related research work. She has interest in dairy products and dairy microorganisms related projects and technical challenges.

s.havlikova@vum-tabor.cz

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