

## Assessment of technological properties of low- fat yoghurt enriched with beta-glucan and probiotic bacteria

Saied Aboushanab and Irina Selezneva

Ural Federal University, Russia


Fermented dairy products represent a vital constituent of the human diet globally. Fat content is the most critical parameter in yoghurt manufacturing. At the same time, excessive intake of dietary fat resulted in serious health disorders. It is also well-known that probiotics were confirmed to enhance the consumer health and digestive system. Besides, functional probiotic yoghurt with  $\beta$ glucan added is considered as an alternative to the conventional yoghurt presented in the market. In our research, we were able to prepare low-fat yoghurt fortified with standard oat  $\beta$ -glucan 86% (Johncan Mushroom Bio-technology) using standard bacterial culture (*Streptococcus thermophilus* & *Lactobacillus bulgaricus*) and probiotic *Lactobacillus* & *Bifidobacterium* strains (Yogurtel), as an adjunct culture, and investigated their rheological and sensory properties. The production was carried out using full-fat 3.2% and low-fat 2.5% milk (Irbitskoe). Three different experimental groups were produced with 0.1, 0.15 and 0.2%  $\beta$ -glucan for low-fat yoghurt. In addition, two control groups of full-and low-fat yoghurts (without  $\beta$ -glucan) produced with the standard culture and standard culture with probiotics were assessed for comparison. The viability of lactic acid bacteria (LAB), probiotic bacteria, rheological, colour and sensorial characteristics were determined. The addition of  $\beta$ -glucan

promoted the growth of *Lactobacillus* and *Bifidobacterium* strains in yoghurt. The results demonstrated that the use of  $\beta$ -glucan in the manufacture of yoghurt did not significantly impact on the pH and titratable acidity. However, whey separation, viscosity and sensory scores were influenced. The level of syneresis was affected in low-fat yoghurt production and improved the rheological properties of the final products. The best results were obtained by addition of the composite at a level of 0.2 % for the manufacture of low-fat yoghurt. It was concluded that the addition of  $\beta$ -glucan with probiotics enhanced microbiological and rheological properties of yoghurts which may improve the health benefits of consumers.

### Speaker Biography

Saied Aboushanab has completed his bachelor's degree from Alexandria University, Egypt. He also has got a one-year post-bachelor Diploma in Food Hygiene from Alexandria University. He has over 3 years' experience that has been gotten within several companies and universities and has been serving as a control manager of milk and meat products. He was the inspector of a Milk Dairy House and Automatic Abattoir in NSPC Egyptian Military Project. He has got professional training courses in GMP, HACCP and ISO 22000:2005 implementation as well. He is speaking several languages, Arabic (native), English (fluent) and Russian (fluent). Nowadays, he is a Research Engineer and a master student at Ural Federal University, Russia. He is seeking to publish various articles in the area of his research and interest.

e: saiedaboushanab@gmail.com

 Notes: