

## 3<sup>rd</sup> International Conference and Exhibition on **Probiotics, Functional & Baby Foods**

September 23-25, 2014 Hotel Royal Continental, Naples, Italy

## Exopolysaccharide production of lactic acid bacteria: Genetic background and future perspectives

Enes Dertli<sup>3</sup>, Omer Said Toker<sup>2</sup>, Mustafa Tahsin Yilmaz<sup>2</sup>, Osman Sagdic<sup>2</sup>, Muhammed Arici<sup>2</sup>, Talha Demirci<sup>3</sup> and Nihat Akin<sup>3</sup>

<sup>1</sup>Bayburt University, Turkey <sup>2</sup>Yildiz Technical University, Turkey <sup>3</sup>Selcuk University, Turkey

Several lactic acid bacteria (LAB) were shown to produce exopolysaccharides (EPS) which either forms a capsular layer around them or being directly secreted to the environment. These biopolymers were shown to be important for LAB for their putative roles in colonisation, adhesion, stress resistance, immunomodulation and host-bacteria interactions. They are also of considerable interest to food industry due to their essential roles in rheological properties of food products and food formulations. Bacterial EPS structure has a wide diversity among different LAB species due to the different sugar monomers in their repeating units and the glycosidic linkages present among these sugar monomers. Structurally, EPS are divided into two groups as homopolysaccharides which are formed by only one type of sugar molecule and heteropolysaccharides which consists of several sugar monomers such as glucose, galactose and rhamnose. Recent studies revealed that only single gene is responsible for the homopolymeric EPS production whereas eps gene clusters were shown to be responsible for the heteropolymeric EPS production. The structural properties of EPS are crucial for their role in colonisation and regulation of host responses as well as their role in food rheological properties. Several factors such as incubation temperature and time, sugar source and environmental conditions affect the levels of EPS production by LAB. This study will summarise recent findings in genetic and structural analysis of EPS production by LAB and their role in potential probiotic properties as well as recent applications in the food industry.

## Biography

Enes Derti conducts research in the field of microbiology. His aim is to gain a better understanding of how probiotics show their beneficial effects and what are the molecular factors behind these effects. His research is focused on finding new strains for human consumption as probiotics and potential new starter cultures for food industry. After studying Food Engineering at Selcuk University, he finished his Master with the scholarship of Turkish National Science Council at same university (2008). Then he received a scholarship from Turkish National Education Ministry and moved to Institute of Food Research, UK where he finished his PhD in Molecular Biology and Microbiology (2014). At present he works as an Assistant Professor in Bayburt University, Turkey.

enes.dertli@hotmail.com