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Physicochemical and rheological properties of some exopolysaccharides produced by lactic acid bacteria isolated from plant origin materials

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Exopolysaccharides (EPS) produced by lactic acid bacteria (LAB) have gained considerable attention in the fermented dairy industry because of their potential application as viscosifiers, texturizers and emulsifying agents. EPS produced by the food-grade microorganisms with GRAS (generally recognized as safe) status are important sources of natural alternatives to commercial additives of plant or animal origin. In this study, LAB isolated from different plant origin materials was screened for their ability to produce EPS. The taxonomic affiliation of the EPS producing strains was determined on the basis of their 16S rRNA sequences. Nine of the 146 tested strains have been shown to produce EPS in MRS medium with sucrose, all belonging to *Leuconostoc mesenteroides* species. One strain, namely *L. mesenteroides* 109, has been shown to produce large amounts of EPS, of about 19 g/L. All isolated EPS have a high molecular mass of above 1400 kDa and a monomer composition dominated by the presence of glucose. The rheological properties and the EPS production in different growth media were studied for four LAB strains producing high amounts of EPS, *L. mesenteroides* 109, 112, 124, 127 and one strain, namely *Weissella cibaria* 120 that was not able to produce EPS when grown in MRS with sucrose. Among the EPS producing strains, the most promising one regarding the potential application in the food industry is *L. mesenteroides* 109, as it produces considerable amounts of EPS (over 25 g/l), together with a high viscosity (over 2400 mPa s) in soy milk supplemented with sucrose.

Biography

Silvia Simona Grosu Tudor has completed her PhD in 2009 at the Institute of Biology of the Romanian Academy. Her Postdoctoral studies were funded by The National Authority for Scientific Research, Ministry of Education, Research and Innovation, Romania. Her scientific experience is illustrated by the contribution to thirteen research projects, both national and international, as Collaborator to ten of them and as Director to other three. She has more than 20 original papers, of which 14 in international journals, 26 posters and 6 oral communications presented in national/international conferences.

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