

### Application of ohmic heating on the bell pepper puree with added apple pectin



Lucian Daniel Olaru<sup>1,\*</sup>, Oana Viorela Nistor<sup>1</sup>,  
Doina Georgeta Andronoiu<sup>1</sup>, Ioana Otilia Ghinea<sup>2</sup>,  
Elena Ioniță<sup>1</sup>, Elisabeta Botez<sup>1</sup>

<sup>1</sup> Food Science and Engineering Faculty, “Dunărea de Jos” University of Galati, Romania

<sup>2</sup> Faculty of Sciences and Environment, “Dunărea de Jos” University of Galati, Romania

E-mail address: [lucian.olaru@ugal.ro](mailto:lucian.olaru@ugal.ro) (L.D. Olaru).

Ohmic heating (OH) is a potential novel technology which can concur to improve the quality of food. The effects of OH at 20V/cm applied for 3 min on the bell pepper purees with added apple pectin (0.1...0.3%) were evaluated. The quantification of the effects of OH over the products was carried out in terms of chemical properties, antioxidant capacity and total polyphenols determination, viscosity and texture analysis, Fourier transform infrared (FT-IR) spectroscopy and confocal scanning microscopy. The pH values after 30 days of storage varies from 4.22...4.45 with a decreasing of 5...15% reported to the blank sample. The inhibition of ABTS for all samples ranged from 45.85...54.47%, which indicates a very good antioxidant capacity. The sample with 0.3% apple pectin registered the highest value of total polyphenols (85.2 mg GAE/ml sample). The dynamic viscosity values of the samples versus share rate are arranged according to the Ostwald de Waele model, specific to rheological behavior of purees. The (FT-IR) spectroscopy and confocal scanning microscopy results indicate minimal changes in bell pepper purees with added apple pectin, recommending the OH as a mild processing.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.641>

### Amaranth – A promising crop for fodder manufacturing



Svetlana Valerevna Pavlenkova<sup>1,\*</sup>, Galina Pavlovna Shuvaeva<sup>1</sup>, Olga Leonidovna Meshcheryakova<sup>1</sup>, Galina Pavlovna Shuvaeva<sup>1</sup>, Lidiya Aleksandrovna Miroshnichenko<sup>2</sup>, Olga Sergeevna Korneeva<sup>1</sup>

<sup>1</sup> Department of Biochemistry and Biotechnology, Voronezh State University of Engineering Technologies, Voronezh, Russia

<sup>2</sup> Ltd “Russkaya oliva”, Russia

E-mail address: [sveta5501pavlenkova@yandex.ru](mailto:sveta5501pavlenkova@yandex.ru) (S.V. Pavlenkova).

Amaranth is an annual plant of the amaranth family (Amaranthaceae), which, according to N.I. Vavilov, is destined to feed humanity. By its properties, it is unique fodder crop, the green mass yield of which makes up more than 50 t/ha. The fiber content in amaranth is 16–20%, the concentration of water-soluble sugars is 6.4–7.2%. Amaranth protein contains 6–9% of amino acid lysine, which is much higher than in the protein of maize, wheat or rice. The use of amaranth for the production of silage will enable to significantly facilitate the solution of the protein problem in cattle breeding. However, number of tasks related to its ensilaging have not been resolved: there is no consensus on the timing of amaranth harvesting for silage, its ensilage capacity has not been studied, there are no data on the preservation and quality of the fodder obtained as well as on the effectiveness of its use in cattle diet.

The authors have selected variants of starter cultures from several kinds of lactic acid bacteria for this hard-to-ensilage raw

material. The optimal proportion of cultures in starter formulations was determined, which makes it possible to obtain high quality silage from amaranth.

### Acknowledgments

Work supported by the state task No. 40.4149.2017/PCh.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.642>

### Antimicrobial activity of essential oils of *Laurus nobilis*, *Rosmarinus officinalis*, and *Myrtus communis* on common foodborne pathogens



Gulden Goksen\*, Esmâ Eser, H.İbrahim Ekiz

Department of Food Engineering, Mersin University, Mersin, Turkey

E-mail address: [gulgok@mersin.edu.tr](mailto:gulgok@mersin.edu.tr) (G. Goksen).

Aromatic plants have been used in food, medicine, cosmetics as well as pharmaceutical industry for centuries. Essential oils have been great biotechnological potential due to their importance functions such as they effectively destroy microorganisms. Essential oils consist of chemical components such as terpenoids including monoterpenes, sesquiterpenes and their oxygenated derivatives. Antimicrobial activity of essential oils of *Laurus nobilis*, *Rosmarinus officinalis*, and *Myrtus communis* on *Escherichia coli* O157:H7, *Listeria monocytogenes*, *Salmonella* Typhimurium, *Salmonella* Enteritidis, and *Staphylococcus aureus* were determined by disk diffusion method. Air-dried leaves of the plants were steam-distilled using a Clevenger-type apparatus. A 100 µl portion of bacterial suspension was adjusted to 10<sup>8</sup> CFU/ml and was spreaded on the surfaces of Mueller–Hinton (MH) agar plates. Paper disks were impregnated with 5 µl of essential oils and were placed on the surface of MH agar, then were incubated overnight at 37 °C. After 24 h, the diameter of the resulting zone of inhibition was measured. The obtained results showed the essential oils had a remarkable antimicrobial effect on the different bacterial strains as food additives to extend shelf life of foods. Moreover, *Laurus nobilis* and *Rosmarinus officinalis* showed the highest antibacterial activity against Gram-negative bacteria.

<http://dx.doi.org/10.1016/j.jbiotec.2017.06.643>

### Probiotic and functional characterization of *Lactobacillus* spp. isolated from infant faeces



Nazan Tokatli Demirok<sup>1</sup>, M. Zeki Durak<sup>2,\*</sup>, Muhammet Arici<sup>2</sup>

<sup>1</sup> Namik Kemal University, Turkey

<sup>2</sup> Yildiz Technical University, Turkey

E-mail address: [mzdurak@yildiz.edu.tr](mailto:mzdurak@yildiz.edu.tr) (M. Zeki Durak).

In the early stages of life, balanced colonization of the gastrointestinal system is crucial for acquiring immunity in the infancy period. *Lactobacillus* spp. is beneficial in human diet due to their potential therapeutic and probiotic properties. In this study, 104 *Lactobacillus* species isolated from faeces of babies and their probiotic and functional properties were investigated.

Faecal samples were collected from 14 healthy infants, which were fed with breast milk and their age between 3 and 47 weeks. Strains were identified by 16s rDNA sequencing and phenotypically characterized by testing their growth in MRS broth at 15 and 45 °C, production of CO<sub>2</sub> (gas production) from glucose, hydrolysis of arginine, and salt tolerance.