

**Holló, J.:** Professor József Farkas is 70 years old

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**Editorial: Beczner, J.:** Bacillus in the highlight.

Pp. 325-327. [j.beczner@cfri.hu](mailto:j.beczner@cfri.hu)

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**Levaj, B., Dragovic-Uzelac, V., Dancevic, A., Frlan, J.:** The effect of ripening and storage on peach pectin and gel strength of related jams.

Pp. 329-340. [blevaj@pbf.hr](mailto:blevaj@pbf.hr)

Peaches were harvested in three stages of ripeness (threshold-mature - I, firm-ripe - II and ripe - III). Firm-ripe (II) peaches were stored for 9 days at 4 and 22 oC. The amount of water-soluble, oxalate-soluble and alkali-soluble pectin were extracted and quantitatively determined as galacturonic acid. Furthermore, in those fractions the proportion of neutral sugars was determined as glucose. Jams were made with all peach samples as well as gels from extracted fractions. Gel strength of jams and gels was measured.

Dry matter, sugar composition (amount of sucrose and reducing sugars) and pH-value were determined and very little change was found during the investigated ripening period and storage also.

Alkali-soluble fraction was more abounding than water-soluble fraction. The oxalate-soluble pectic fraction was found to be a minor fraction in all peach samples. The amount of total pectin and the amount of alkali-soluble pectin fraction dropped markedly after the 1st stage of ripening, after the 2nd day of storage at 22 oC and slightly after the 6th day of storage at 4 oC. The level of alkali-soluble pectin in total pectin was inversely proportional to the level of water-soluble pectic fraction, and the level of oxalate-soluble pectic fraction in total pectin content was fairly constant during the ripening and storage. Gel strength of jams and gels correlated very well with changes of the amount of alkali-soluble pectic fraction.

The extracted alkali-soluble pectic fraction was capable of forming an acidic gel. Extracted oxalate-soluble pectic fraction forms a gel in the presence of calcium and solid matter more than 77%.

It seems that the amount of alkali-soluble pectic fraction in peaches is the most responsible in producing peach jams according to gel strength.

**Keywords:** peach, pectic substances, jam, gel strength

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**Swiecicka, A., Verbeke, W., Jeznach, M., Viaene, J.:** Mother's attitudes and behaviour towards infant feeding: an exploratory study in Poland.

Pp. 341-352. [jeznachm@alpha.sggw.waw.pl](mailto:jeznachm@alpha.sggw.waw.pl)

This paper reports on a preliminary and exploratory study on mother's attitudes and behaviour towards infant feeding in Poland. The aim of this study was to explore the impact of demographic and socio-economic factors on mother's choice of breastfeeding and attitude towards baby ready food. Primary cross-sectional data were gathered through a sample survey research. The choice for breastfeeding is found to be associated with lower income, whereas no significant effects of mother age and education are observed. With respect to attitude towards baby ready foods, younger mothers were found to attach significantly more

importance to advertising and information on the product label. They also rely more on specialised information from paediatricians with respect to infant feeding. Generally, the findings point towards a greater need for information related to infant feeding among younger and economically less-favoured mothers.

**Keywords:** consumer behaviour, infant feeding patterns, Poland, survey

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**Fodor, M., Hegóczki, J., Vereczkey, G.:** The effects of zirconium, a less known microelement, on basic fermentation characteristics and protein composition of *Saccharomyces cerevisiae*.

Pp. 353-362. [fodorm@omega.kec.hu](mailto:fodorm@omega.kec.hu)

A strain of *Saccharomyces cerevisiae* used in the food industry was propagated in the presence of zirconium ascorbate or zirconium citrate complex. The propagation of the yeast was slightly inhibited by zirconium (Zr) in a complex form, but it was not toxic. The Zr content in the fermentation medium decreased faster when using ascorbate complex than the citrate complex. The ascorbate complex was better accumulated by the yeast (4300 mg Zr/g dry mass) than the citrate complex (1600 mg Zr/g dry mass). The total amino acid content of the yeast cells decreased in the presence of both complexes. The concentration of some amino acids [threonine (Thr), proline (Pro), phenylalanine, and cysteine (Cys)] was increased by 10-39% in the medium containing Zr ascorbate, while that of other amino acids [arginine (Arg), serine (Ser), methionine (Met) and glutamic acid (Glu)] decreased by 18-60%. As a result of the presence of zirconium citrate the concentration of Glu, aspartic acid (Asp), leucine (Leu), Thr, valine (Val), Ser, Arg, Pro and Met decreased by 19-32%, and the concentration of Cys increased by 59%.

**Keywords:** *Saccharomyces cerevisiae*, zirconium ascorbate, zirconium citrate, zirconium accumulation, amino acid concentration

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**Rurik, I., Gyömörei, E., Biró, L., Nagy, K., Regöly-Mérei, A., Antal, M.:** Nutritional status of elderly patients living in Budapest.

Pp. 363-371. [rurik.dr@axelero.hu](mailto:rurik.dr@axelero.hu)

The aim of this study was to evaluate the nutritional status of elderly belonging to one primary care office. Twenty seven men and 26 women, all over 60 years, were involved. Nutritional assessment, anthropometric measurements were performed, serum proteins, lipid and iron status and haematological parameters were determined.

Energy and protein intake was sufficient, but the distribution of energy with a high fat and low carbohydrate was inadequate. Iron, copper, calcium, retinol and folate intake was lower, whereas sodium, ascorbic acid and cobalamin intake was higher than the Hungarian recommendation. The prevalence of obesity characterized by body mass index or waist circumference was higher in women than in men. The percentage of pathological levels of lipid parameters was also higher in women. No iron deficient erythropoiesis was detected, but high serum ferritin concentration as a marker of body iron store was determined in some cases.

General practitioners have possibilities to influence the nutritional habits of elderly, thereby reducing the incidence of obesity, cardiovascular diseases and stroke. Iron status of Hungarian

elderly looks to be satisfactory, so supplementation without testing the iron status would be useless and harmful.

**Keywords:** elderly, energy, nutrient intake, anthropometry, lipid, iron, nutritional status

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**Farkas, J., Andrásy, É., Simon, A., Mészáros, L.:** Effects of pasteurizing levels of high hydrostatic pressure on *Bacillus subtilis* luxAB spores.

Pp. 373-381. [jfarkas@alarmix.net](mailto:jfarkas@alarmix.net)

A recombinant *Bacillus subtilis* strain containing a plasmid encoding a luxAB fusion, which gave bioluminescence upon addition of an exogenous long-chain aldehyde as substrate for the endogenous luciferase enzyme, was used as test organism. Its populations were treated with 300 MPa for 20 min, or 600 MPa for 20 min at around room temperature, and this treatment is foreseen as a quality-friendly, non-thermal pasteurisation of foods. Besides the estimation of viable cell counts, the extent of pressure-induced germination and post-process development were investigated by phase-contrast microscopy, turbidimetry and luminometry. Increased heat sensitivity of pressurized spore populations was observed both by viable cell counting during a linearly programmed elevation of temperature and a simultaneous differential scanning calorimetry. This was related to pressure-induced germination of spores, although a small fraction remained ungerminated. The luciferase pool built into the spores during their formation seemed to have withstood pressurization. Spore germination was accompanied by the emergence of bioluminescence which also indicated sensitively the characteristic changes of metabolic activity running parallel with the development of untreated cell populations and that of the survivors of the hydrostatic pressure treatments when the cells were incubated in a nutrient broth.

**Keywords:** *Bacillus subtilis*, luxAB recombinant, high hydrostatic pressure, spore germination, bioluminescence, differential scanning calorimetry

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**Nedic Tiban, N., Pilizota, V., Subaric, D., Milicevic, D., Kopjar, M.:** Influence of hydrocolloids and sweeteners on flow behaviour of peach nectar.

Pp. 383-393. [Nela.Nedic@ptfos.hr](mailto:Nela.Nedic@ptfos.hr)

Influence of adding six hydrocolloids, guar gum, carrageenan, carboxymethylcellulose and three types of pectin, and of sweeteners, aspartame and fructose, as replacement of sucrose, on flow behaviour of peach nectar was studied. A series of peach nectar samples (with approximately 65% fruit) was prepared using commercially processed peach purée with sucrose and substituting sugar with low-calorie sweetener aspartame and fructose (alone and in combination in a sweetness ratio of 1:1) taking into account their sweetness. To prevent reduction of viscosity and mouthfeel/body of low-calorie peach nectars, different concentrations of hydrocolloids were added. A control sample was prepared by mixing fruit purée with a sucrose solution (7% mass fraction) to provide a 14% (in total solids) nectar. Rheological measurements were carried out on a rotational viscosimeter Rheotest 3 at 20 °C and 5 °C. The flow of all peach nectars was characterized as pseudo plastic. Among all used hydrocolloids, addition of only 0.03% of carrageenan to the peach nectar was enough to obtain viscosity similar to the viscosity of the control sample.

**Keywords:** flow behaviour, hydrocolloids, peach nectar, viscosity

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**Kasper-Szél, Zs., Amtmann, M., Takáts, A., Kardos-Neumann, Á.:** A comparative analysis of Hungarian robinia and milkweed honeys based on their chemical and physical characteristics.

Pp. 395-403. [szel@katki.hu](mailto:szel@katki.hu)

Sugar composition, pH, invertase and diastase activity and colour of 7 robinia (*Robinia pseudoacacia*) and 8 milkweed (*Asclepias syriaca*) honey samples were compared, all purchased from producers and wholesalers. Milkweed honeys proved to be of darker colour and more acidic. The two unifloral honeys showed statistically significant differences between their diastase and invertase activities, milkweed honey showed higher enzyme activity values than robinia honey. The fructose to glucose ratio was 1.58 in case of robinia honey and 1.28 in case of milkweed honey. There was also a significant difference between the di- and trisaccharide content of the two unifloral honeys.

**Keywords:** robinia honey, milkweed honey, sugar content, diastase, invertase

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Book reviews