EDITORIAL: D. Bánáti: Scientific substantiation of health claims. Pp. 381-386.
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V. Kyrova, V. Ostry, L. Laichmannova and J. Ruprich: An occurrence of genetically modified foodstuffs on the Czech food market. Pp. 387-396. e-mail: kyrova@chpr.szu.cz

Genetically modified (GM) plants are obtained by adding to them one or more foreign genes that encode new properties, such as tolerance to herbicides, resistance to insects and the ability to produce new substances. The aim of this study was the detection and identification of GM foodstuffs. Six different types of samples (soybeans, soya products, tomatoes, maize flour, rice and papaya) were collected at 12 places in the Czech Republic during the years 2002–2007. It represents a total of 1225 samples of foodstuffs. Samples were investigated for the presence of material derived from the following genetically modified organisms (GMOs) which are approved for food use in the European Union (EU): Roundup Ready soybean (RRS) and maize lines Bt176, Bt11, T25, GA21, MON810, DAS1507 and some non-approved in the EU: maize lines Bt10 and Starlink, rice, tomatoes and papaya. Polymerase chain reaction (PCR)-based methods and enzyme-linked immunosorbent assay (ELISA) were used for the detection of GM foods. RRS was detected in 14 (4.9%) samples of soybean out of 288 and in 88 (30.5%) soya products out of 288 samples. The amount of RRS in positive samples was determined by quantitative PCR. The content was in the range of 0.01-75.3% RRS. GM maize was detected in 5 (1.7%) of 288 samples. It was detected in the maize line MON810, Bt176 and StarLink. GM rice was detected in 2 (1.9%) samples out of 102. All investigated tomatoes and papaya samples were negative for detection of GM.

Keywords: GMOs, soya, maize, rice, tomato, papaya, PCR, ELISA

L. Takács, K. Korány and Gy. Vatai: Process modelling in the production of low alcohol content wines by direct concentration and diafiltration using nanofiltration membranes. Pp. 397-412. e-mail: gyula.vatai@uni-corvinus.hu

In our investigations the membrane filtration of quality wines (Tokaji Hárslevelű and Egri Bikavér) – based on diafiltration principles, applying nanofiltration membranes – has been studied. For the diafiltration experiments a relatively dense nanofiltration membrane NF 45 has been used, while for simple wine concentrations a membrane developed for organic components rejection NF200 has been investigated. The mixture of the retarded wine compounds was considered the main product of the process. The permeate that crossed the membrane was handled as the by product. Separated wine samples and the original wines have been subjected to gas chromatographic analysis: according to the results the partition of the main components and aroma compounds of the samples was approximately equal between the main and by-product. Membrane separation has been applied in accordance with a "prelaborated" experimental plan, when completing it the effect of operational parameters on the effectiveness of the process has been evaluated and analysed. By mathematical modelling of the phenomenon empirical and quasi-empirical relations were set up, and solutions for the practical realization of the procedure were searched for. Our new model describes the filtration efficiency with our new index in the function of the operational parameters' influence. The significance of the relation is, that the knowledge of the wine-constants might

promote the expedient choice of the membrane, which is a primary aspect in planning and creating the process optimal.

S. Kravić, N. Marjanović, Z. Suturović, J. Švarc-Gajić, Z. Stojanović and M. Pucarević: Determination of the trans fatty acid content of Serbian shortenings by gas-chromatography – mass spectrometry. Pp. 413-423. e-mail: sne@uns.ns.ac.rs

The fatty acid composition and trans fatty acid (TFA) content of Serbian shortenings were determined by capillary gas chromatography-mass spectrometry. The saturated, cis-monounsaturated and polyunsaturated fatty acid contents were within the ranges of 16.0-89.0, 4.9-41.9 and 0.0-23.2% of total fatty acids, respectively. Among the saturated fatty acids, palmitic acid (4.8-48.7%) was dominant and its higher amount indicates that palm oil was the major contributor in the shortening manufacturing. The content of total trans fatty acids ranged from 0.0% to 48.7% of total fatty acids and the mean was 27.4%. Trans 18:1 isomers were the major group of TFA present in analysed samples, representing 94.2% of total trans isomers. The content of all 18:2 trans isomers ranged from 0.0% to 3.6% of total fatty acids. Among thirty four analysed samples only six contained low level of TFA (0.0-3.1%) while the rest contained very high content amounts of TFA (10.2-48.7%) which clearly indicate that partially hydrogenated vegetable oils are still the major raw materials used in the production of shortenings in Serbia.

J. Vetter: Inorganic iodine content of common, edible mushrooms. Pp. 424-430. e-mail: Vetter.Janos@aotk.szie.hu

The edible mushrooms have different valuable chemical properties (proteins, minerals, aromatic compounds, low lipid and energy contents, etc.) but there are practically no data about the iodine content. The aim of this work was to produce new data on the iodine content of the common edible mushrooms. The inorganic iodine contents of different wild growing (n=49) and cultivated (n=30) mushroom samples were analyzed. A partly modified spectrophotometric method was used for the iodine determination in triplicate. The average iodine contents of the wild growing and the cultivated species and samples were 284 (+/-211) and 148 (+/-86) µgkg-1 d.m., respectively; these data do not differ significantly. The type of nutrition for the mushrooms seems to be the most important factor affecting the iodine level. The lowest values were identified in edible, wood decaying mushrooms. The analysed cultivated taxa (varieties of Agaricus bisporus, Pleurotus ostreatus and Lentinula edodes) do not have significantly different iodine level, however, significantly lower iodine contents were found in mushroom samples produced in Germany than in samples cultivated in Hungary. The inorganic iodine level of edible (wild growing and cultivated) mushrooms is low. The lowest concentrations were identified in the wood-decaying species compared to the mycorrhizal ones. The calculated daily iodine intake of humans by mushrooms only accounts for 4-5% of the daily requirement.

The influence of joint applications of N and S on false flax (Camelina sativa L.) growing was studied in a pot experiment. Nitrogen was applied as NH_4NO_3 at rates of 0.6 (N1) - 0.9 (N2) - 1.2 (N3) g per pot. Sulphur was applied as $(NH_4)_2SO_4$ to achieve levels of 35 ppm (S1) and 55 ppm (S2) $S-SO_4^{2-}$. The number of branches per plant increased with the nitrogen doses (10.62-12.41-15.38). The N2 and N3 rates (4.91 g and 4.79 g, respectively) significantly increased the seed yields (g/plant) as compared to N1 (3.77 g). Straw yields (g/plant) and thousand seed weight (g) increased significantly only with the highest level of nitrogen N3 (18.23 and 1.17, respectively) compared to N1 (16.52 and 1.06, respectively). Increasing levels of nitrogen (N1-N2-N3) reduced the oil content of seeds (40.79-38.40-37.66%), but increased the protein content (23.93-25.63-28.19%). The level of sulphur S2 significantly stimulated only the oil content to 39.36% compared to 38.54% with S1. At the same time a negative correlation was discovered between the oil and protein content in the seeds (r = -0.8164). The applied doses of nitrogen N2 and N3 significantly increased the total oil yields (1.88-1.80 g/plant) as well as the total protein yields (1.25-1.35 g/plant) compared to N1 (1.53 and 0.90 g/plant, respectively).

Keywords: Camelina sativa L., fertilization, nitrogen, sulphur, yield, oil content, protein content

The effect on the rheological properties of different processing parameters (pH, storage temperature, moisture content and gelation temperature) of surimi obtained from Blue Whiting (Micromesistius poutassou) was studied. Surimi paste was obtained in the laboratory from fresh Blue Whiting and samples were taken at the different phases of the surimi paste elaboration process. Results showed that Blue Whiting surimi has a yield, appearance and yield point value similar to that of typical cod or pollock surimi. Also, the paste should be frozen in the first 24 h after cutting, kneading and mixing to avoid an excessive decrease in elasticity. In addition, pH values higher than 7 could give derivates that are too deformable, values of about 6.7 being recommended for the paste. Likewise, the study of the gelling temperature showed values for the first temperature ("setting") lower than the cod and pollock surimi setting temperature, and so it is recommended that the second heating temperature for Blue Whiting paste be lower.

Keywords: Blue Whiting, surimi, rheological properties, gelation, pH, moisture.

The present study was designed to investigate the protective ability of the ethanol extracts of Achillea aleppica D.C. subsp. aleppica (AA), Achillea aleppica D.C. subsp. zederbaueri (Hayek) Hub.-Mor (AZ) and Achillea biebersteinii Afan. (AB) against the lipid peroxidation, protein oxidation and DNA damage induced by Fenton system. Ethanol extract of Achillea species were evaluated by quantifying the ability of different concentrations of plant extracts to supress Fe^{2+}-induced lipid peroxidation in rat liver homogenates. The inhibition of lipid peroxidation by ethanol extracts of AA, AB and AZ was the result of their scavenging effect on Fe^{+2}/ascorbate generated free radicals. The ability of AA, AZ and AB to prevent oxidative damage to bovine serum albumin (BSA) induced by Fe^{3+}/H_2O_2 and ascorbic acid was investigated. The ethanol extracts of AA, AB and AZ at different concentrations (50-1000 µgml-1) efficiently prevented protein oxidation induced by hydroxyl radical as assayed by protein oxidation markers including protein carbonyl formation (PCO). We have also investigated the effect of ethanol extracts of AA, AB and AZ on DNA cleavage induced by UV-photholysis of H_2O_2 using pBluescript M13+ plasmid DNA. These extracts significantly inhibited DNA damage induced by reactive oxygen species (ROS). Therefore, Achillea aleppica D.C. subsp. aleppica (AA), Achillea aleppica D.C. subsp. zederbaueri (Hayek) Hub.-Mor (AZ) and Achillea biebersteinii Afan. extracts may be useful in the food industry as effective synthetic antioxidants.

T. Deák: Current taxonomy of common foodborne bacteria. Part I. Gram-negative phyla of proteobacteria and bacteroidetes. Pp. 471-487. e-mail: tibor.deak@uni-corvinus.hu

Recent changes in classification of the four major groups of cultivable bacteria commonly encountered in foods are reviewed. Newly described species and genera as well as reassignment of former taxa belonging to Proteobacteria, Bacteroidetes, Firmicutes and Actinobacteria are considered. Taxonomic changes are surveyed derived from results of 16S rRNA gene analysis confirmed by other molecular techniques and traditional methods. The review is aimed to update relevant taxonomic information for those not directly involved in taxonomy, however, this kind of information will have significance in understanding the microbial ecology of food systems and promote improvement of preservation methods, fermentation technologies as well as enhance the safety of products.

Preliminary communications:
D. Šoronja Simović, N. Filipović, Z. Šereš, J. Gyura, A. Jokić and B. Pajin: Optimization of the formula of bread enriched with sugar beet fibres. Pp. 488-497. e-mail: dragana@tf.uns.ac.rs

Research on the effects of additives produced from sugar beet is aimed at satisfying the daily intake of dietary fibre in the range of 25 – 35 g. Bakery products are usually consumed several times a day and this offers the possibility of incorporating dietary fibres from sugar beet. The addition of this additive to white flour can eliminate the negative effect of phytic acid, present in whole-grain cereal products, which inhibits the mineral intake. In the aim to

decrease and eliminate adverse effects of sugar beet fibres on dough rheology and bread quality, optimal quantities of shortening and milk powder to the recipes were tested in order to counter addition of balance such effects. The influence of shortening and milk powder on characteristics of dough enriched with fibres (proving time and dough level) and parameters of bread quality (volume and crumb quality) was traced in two groups of samples: first without and second with 5% of added gluten. Applying regression analysis on measured parameters a mathematical model was defined. Based on presented data and regression analysis concerning samples with and without gluten, it can be stated that fibres enriched bread of the best quality can be made with gluten, shortening and milk powder at the level of 5%, 5% and 2%, respectively.

Keywords: dough, bread, sugar beet fibres, mathematical modelling

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Book review:
D. Kilcast (Ed): Sensory analysis for food and beverge quality control – A practical guide. Pp. 498-500.