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A capillary isotachophoretic (cITP) method to determine the concentration of nitrates and nitrites in vegetables and lactic acid fermented tomato, cucumber and cucumber–onion juices is described. Method characteristics (selectivity, response function, linearity, precision, accuracy and limit of quantification) were determined. The minimal sample pretreatment and relatively low running make isotachophoresis a good alternative to existing methods.

Keywords: capillary isotachophoresis, nitrites, nitrates, vegetable products

Locally prepared meals, borak, were treated with 0, 2, 4 and 6 kGy doses of gamma irradiation. Treated and untreated borak were kept in a refrigerator (1-4oC). Microbiological and chemical analyses were performed on each treated sample immediately after processing, and weekly throughout storage period, which lasted for 6 weeks. Sensory evaluation and proximate analysis were done within one week after irradiation. Results of the proximate analysis of borak showed that irradiation doses did not have a significant effect on moisture, protein and fat content of borak. Gamma irradiation decreased the total counts of mesophilic aerobic bacteria, total coliform and yeast and increased the shelf life of borak. The radiation doses required to reduce the microorganisms load by one log cycle (D10) in borak were 456 and 510 Gy for the Salmonella spp. and E. coli, respectively. Three chemical parameters, total acidity, lipid peroxide and volatile basic nitrogen, which were chosen as the indices of freshness, were all well within the acceptable limits for up to 1, 3 and 6 weeks at 1-4oC for samples treated with 2, 4 and 6 kGy, respectively. Sensory evaluation showed no significant differences between irradiated and non-irradiated samples.

Keywords: borak, irradiation, microbial load, refrigeration, sensory evaluation

The application of organic coatings is widely used in the production of metallic food containers to protect metal against corrosion and to avoid metal-food contact. The protective action of a lacquer film is determined by its physical-chemical characteristics, the method of application and its compatibility with the packed products.
The goal of this study was to investigate the protective action of three groups of coatings

(water based lacquers, UV cured lacquers and conventional epoxyphenolic lacquers) applied on four lots of different metallic substrate. In characterization, the methods used are dry adhesion, wet adhesion and wet adhesion after sterilization treatments of samples in food imitating solutions. The results show that the best characterization of lacquers is given by the last method, which allows better differentiation between lacquers/substrate systems.

Keywords: coatings, tinplates, food packaging, adhesion

G. UJHELYI?, A. JÁNOSI and É. GELENCSÉR: Effects of different meat processing techniques on the detection of gm soy from model meat samples. Pp. 39-48. g.ujhelyi@cfri.hu

The aim of the study was to assay by PCR screening method whether the processing and the thermal stress have any influence on the feasibility of the detection of genetically modified DNA in different kinds of processed meat products such as sausages, liver canes, ready-to-eat hamburgers. The model meat products have been prepared with soybean meal spiked with RR (Roundup Ready) soybean meal in 0.5%, 1%, 1.5% and 2%. The samples were prepared under industrial circumstances. The assay was based on the detection of the specific part of the 35S promoter and the NOS terminator sequences. The modified PCR method was shown to be suitable for screening of GMOs in raw and also in moderately and highly processed meat samples when extreme heat treatment and pressure were used for the preparation of meat products. Half a percent RR soy contamination could be detected even if the food products underwent high temperature treatment.

Keywords: genetically modified organisms (GMOs), polymerase chain reaction

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F. ROMEO and M. POIANA: Ability of commercially available lactobacillus strains as starter in brining and debittering of table olives. Pp. 49-60. mpoiana@unirc.it

The adaptation to brining conditions of 20 strains of Lactobacilli were tested. At 6% salt all strains reduced the pH to 4 in 72 h. At higher salt concentration, only some of the strains showed this ability. The ability to synthesise lactic acid was tested at different salt concentrations. Lactic acid was quantified by HPLC analyses and at halophilic conditions six strains showed good ability. The glucosidic activity tested on a synthetic compound (p-nitrophenyl-?-D-glucopyranoside) screened the best Lactobacillus strains (20205 DSMZ, 20314 DSMZ and 104442 CIP). The ability to hydrolyse the oleuropein molecule was tested and all of the strains selected showed good activity at low salt concentration and low oleuropein content in the medium. This ability decreased drastically when the salt and oleuropein content were higher. The best strain was the 20205 DSMZ, which at low salt concentration hydrolysed more than 95% of oleuropein in 120 h.

Keywords: lactobacillus strains, table olives, salt tolerance, lactic acid, oleuropein, ?-glucosidase.

P. PLAHUTA, B. TIVADAR and P. RASPOR: Slovenian public opinion regarding genetically modified organisms in winemaking. Pp. 61-73. peter.raspor@bf.uni-lj.si

The aim of this paper is to report the results about Slovenian consumer's, professional's

(oenologist's) and retailer's attitudes regarding genetically modified organisms (GMOs) in winemaking. In the paper, results of novel analysis in viticulture and winemaking are presented in which data from public opinion survey for GMO wine has been evaluated. The opinion of Slovenian consumers, retail chain representatives and professionals (oenologists) about GMO is refusal. The majority of the participants believe that GMO will be on the market within five years.

Keywords: genetically modified food, public opinion, Slovenia, wine

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ZS. H. HORVÁTH: Procedure for setting the colour characteristics of paprika grist mixtures. Pp. 75-88. horvatzs@szef.u-szeged.hu

The colour characteristics of different paprika grist samples were analysed. The CIE L*, a*, b* system was used for colour characterization measured with a Minolta CR-300 instrument. The relationship between the instrumentally determined colour difference and the visual estimate was investigated. The conditions for the classification of paprika grist samples into colour classes were discussed: the colour difference calculated from the colour coordinates of two paprika grist samples cannot be visually distinguished if ?E*ab?1.5, the difference can hardly be distinguished visually if 1.5<?E*ab?3.0 and (|?L*|?2.0 and |?a*|?2.0).
The changes in colour coordinates for mixed paprika grist samples were analysed. The colour coordinates of the mixture of paprika grist samples can be determined as the averages of the colour coordinates weighted with the mass fractions of the samples contributing in the mixture (basic samples). A process was described that makes it possible to determine the needed mass fractions of the basic samples in order to get the prescribed colour characteristics of the mixture.

Keywords: paprika grist, colour measurement, colour coordinates, paprika grist mixtures

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K. MARKOVIĆ*, M. HRUŠKAR and N. VAHČIĆ: Stability of lycopene in tomato purée during storage. Pp. 89-98. kmarkov@pbf.hr

Lycopene, the pigment responsible for the characteristic deep red colour of ripe tomatoes and their products, plays an important role in human health. The stability of lycopene in tomato purée during storage was studied. Tomato purée was prepared from tomatoes grown in three different geographical regions of Croatia during two seasons. The samples of tomato purée were stored in the dark at 5, 15 and 25°C and under light at 25°C during a period of 6 months with constant monitoring of the changes of lycopene content. At the beginning of the storage there was no statistically significant difference ($P<0.05$) in lycopene content between the samples and geographic origin, while season significantly ($P<0.05$) influenced lycopene content. The value of lycopene content in all tomato purée samples significantly decreased ($P<0.05$) with increasing storage time for all the treatments. Light exposure significantly ($P<0.05$) facilitated degradation of lycopene.

Keywords: lycopene; tomato; tomato purée; storage

P.K. OUZOUNI * & K.A. RIGANAKOS: Nutritional value and metal content profile of greek wild edible fungi. Pp. 99-110. pouzouni@yahoo.gr

The basic composition (moisture, crude protein, crude fat, total carbohydrates and ash) and metal content profile (Mg, Cr, Mn, Fe, Co, Ni, Cu, Zn, Pb, Cd, Al, As and Sn) of eight wild edible mushroom species (Boletus edulis, Boletus luridiformis, Suillus granulatus, Amanita rubescens, Macrolepiota procera, Pleurotus ostreatus, Lepista nuda and Volvariella gloiocephala) corresponding to 7 different families, from forests of West Macedonia, Greece, were determined. The dry matter content of mushrooms varied from 7.72% to 12.3%. Also, mushrooms were found to be good sources of proteins and total carbohydrates, with contents varying in the ranges 1.27-3.15, 5.33-8.41 g/100g fresh weight (fw), respectively. In addition, the fat contents were very low 0.28-0.66 g/100g fw. The mineral elements were analysed by Atomic Absorption Spectroscopy (AAS) and metal content of mushroom samples ranged from 743-1200 for Mg, 0.20-11.8 for Cr, 8.57-35.1 for Mn, 74.8-393 for Fe, 0.07-1.45 for Co, 0.65-5.74 for Ni, 4.75-75.2 for Cu, 60.6-101 for Zn, 0.02-1.75 for Pb and 0.08-1.31 μg g-1 for Cd. As, Sn and Al concentrations were under the detection limit of the method used. The detection limits of the method for As, Sn and Al are 0.02μg-1 for each element.

Keywords: wild edible mushrooms, nutrients, metal content, atomic absorption spectrometry, Greece.

K. CIEŚLA and A-C. ELIASSON: Dsc studies of gamma irradiation effect on the amylose-lipid complex formed in wheat and potato starches. Pp. 111-126. kcielsa@ichtj.waw.pl

Influence of gamma irradiation (60Co- rays) with doses in the range up to 30 kGy was studied on gelatinisation of wheat starch, wheat flour and potato starch. Differential scanning calorimetry was then applied at several heating and cooling cycles for studies of the effect of irradiation with a 30 kGy dose on interaction of wheat starch with their native lipids and potato starch with admixed 1-mono-lauroyl glycerol.
Amylose-lipid complex transition occurs after irradiation at decreased temperature and is accompanied by decreased enthalpy in respect to that recorded in the case of non-irradiated wheat starch, wheat flour as well as potato starch and admixed lipid. Differences between the initial and irradiated starch were easier to detect on the foregoing heating or cooling cycles than during the preceding ones and after the gels' retrogradation. The complex was less influenced by the less advanced retrogradation taking place in the irradiated than in the non-irradiated wheat flour. Radiation-induced modification of structural properties of the complex results due to degradation of starch granules confirmed at present by essential reduction in pasting properties and by the increased amount of short molecular products leached during gelatinisation and their higher branching.

Keywords: wheat starch, wheat flour, potato starch, gamma irradiation, lipid, amylose-lipid complex, gelatinisation, retrogradation, differential scanning calorimetry, amylose leaching

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M. SZEITZ-SZABÓ and E. SZABÓ: Presence of mycotoxins in food: can we use the data from the eu rapid alert system for quantitative risk assessment? Pp. 127-138. maria.szabo@mebih.gov.hu

Mycotoxins are natural compounds that may cause various adverse toxicological manifestations in humans and animals. The nature, the severity and scope of their adverse activity are varied and in general, even in small amount they have potent carcinogenic, genotoxic effect and injure the immune system. In order to provide high level of health protection for consumers, the European Union has established strict regulatory limits, whose

implementation is enforced.
The Commission Regulation No 466/2001 sets maximum levels for some mycotoxins in foodstuffs: for aflatoxins, ochratoxin A, patulin, deoxynivalenol, zearalenone, fumonisins, T-2 and HT-2 toxins. Particular product categories are regulated under specific decisions ordaining control of imported consignments at the point of entry. Due to the fact that only aflatoxins are addressed in the specific decisions, they are the mostly detected and notified mycotoxins in the EU Rapid Alert System for Food and Feed (RASFF). The second most frequent group, Ochratoxin A is typically detected during internal EU market controls. Most RASFF notifications concern product categories falling under specific EU decisions, especially the Aflatoxin content of nuts and nut products. Significant amount of aflatoxins can be found also in dried fruits, spices and herbs.
The article reviews and analyses the data available in rapid alert system concerning mycotoxins notification, and evaluates the usefulness of this information for risk assessment. The value of RASFF system is unquestionable and it fulfils its intended function included in its name. The system is a significant source of valuable information, but for risk assessment purposes, other additional information is needed. It could be used most effectively for risk assessment, if it was to provide data on the ratio of all/tested/positive lots and if the authorities provided not only the positive results, but also the exact mycotoxins level of every analysed sample.

Keywords: aflatoxin, mycotoxin, health protection, risk assessment, RASFF (Rapid Alert System of Food and Feed), mycotoxins regulation

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R. R. Catharino, J. A. Lima and H. T. Godoy: Determination of Folic acid in Enriched Dairy Products. Pp. 139-147. rrcatharino@yahoo.com.br

In Brazil, dairy products are being enriched with folic acid (FA), an important vitamin for public health. With a view to guaranteeing a degree of confidence in these enriched products, the objective of this research was to determine the levels of FA in enriched dairy products such as powdered milk, sterilised milk, dairy beverages and petit suisse cheese. The methodology used to determine FA by high performance liquid chromatography (HPLC) used a 0.1 mol l-1 KOH solution for extraction and trichloracetic acid for the clean up. A C18 column was used for the separation with gradient elution using a mobile phase of acetate buffer and acetonitrile, which allowed for the completion of the analysis in 9 min. Detection was carried out at 290 nm and quantification by the way of an external standard. Of the twenty five products analysed, sixteen presented FA values with only slight deviations from the values declared, whereas seven showed very low values, mainly sterilised milks and ready to drink dairy beverages, and in two of the three petit suisse cheeses no vitamin was detected.

Keywords: folic acid, dairy products, vitamin analysis