

Casañas Rivero. R, Suárez Hernández. P,L, Rodríguez Rodríguez. E,M and Díaz Romero. C: Chemical composition of eight cultivars of potatoes. Application of multivariate analysis. Pp. 405-414. cdiaz@ull.es

Moisture, protein, starch, amylose, ash, ascorbic acid and fibre contents were determined in potato samples harvested in Tenerife belonging to eight cultivars and three species/subspecies: *Solanum x chaucha*, *Solanum tuberosum* spp. *tuberosum* and spp. *andigena*. There were several significant differences among the means of various chemical compounds according to cultivar, species or subspecies, local and recently imported potatoes. Mean values of moisture contents were often significantly different concerning the three species/subspecies considered. Local potatoes presented lower moisture and higher content of chemical compounds than the recently imported potatoes. Using principal component analysis, three principal components explaining the 64.4% of the total variance were extracted. After Varimax rotation, the first component was related to starch, and in a lesser extent to moisture (negatively), the second and the third components were associated to ash and to amylose (negatively) and ascorbic acid, respectively. Applying discriminant analysis on potato samples belonging to the spp. *tuberosum* and spp. *andigena*, adequate separation according to the cultivars was obtained.

Keywords: chemical composition, potatoes, multivariate analysis, cultivars, Tenerife Island

Kovács. E, Muskovics. G and Perlaki. R: Relationship of colour and other quality parameters of sweet cherry during development and ripening. Pp. 415-426. etelka.kovacs@uni-corvinus.hu

Sweet cherry fruits (*Prunus avium* cv. Vera, Carmen, Linda and Krupnoplodnaja) were harvested in different ripeness stages after anthesis 39, 42, 49, 56 days (Carmen); 37, 40, 47, 52, 59 days (Krupnoplodnaja); 32, 36, 44, 53, 58 days (Linda); 38, 42, 50, 52, 57 days (Vera). The colour, total soluble solids, dry matter content, -galactosidase and polygalacturonase activity were determined. The dry matter content and total soluble solids content (Brixo) increased during development. The L^* values significantly decreased as a function of ripening while a^* values increased up to 3rd harvest, then they decreased, b^* values continuously decreased as a function of development. The a^*/b^* values linearly increased as a function of development, indicating reddening of fruits. Hue angle (h_o) increased rapidly between harvest one and two. The measured (a^* , b^* , L^*) and calculated parameters (h_o , a^*/b^* , chroma) well represented the colour development of sweet cherries. Linear and strong correlation was found between a^*/b^* , L^* values and the Brixo, exponential correlation was found between h_o , chroma and Brixo. Activity of -galactosidase was different among cultivars and as a function of development. The two maximums might -galactosidase isoenzymes. The role of PG (polygalacturonase) could not be explained clearly enough, further investigations are needed to find the exact role of the enzyme in the cell wall metabolism of sweet cherry.

Keywords: sweet cherry, colour, -galactosidase, polygalacturonase

Alberti. A, Amorati. R, Campredon. M, Lucarini. M, Macciantelli. D and Pedulli. G,F:

Antioxidant activity of some simple phenols present in olive oil. Pp. 427-436.
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The antioxidant activity of five phenols, i.e. catechol, homovanillyl alcohol, homovanillic acid, gallic acid and syringic acid, present in all olive oils has been investigated. For gallic acid and syringic acid the Bond Dissociation Enthalpy BDE(O-H) has been determined through the EPR (Electron Paramagnetic Resonance spectroscopy) based on radical equilibration technique as 81.0 and 82.1 kcal mol⁻¹, respectively. For both homovanillyl alcohol and homovanillic acid the BDE(O-H) values were assumed to be identical to that of the similar 2-methoxy-4-methylphenol (82.8 kcal mol⁻¹). The inhibition rate constants of the above compounds and of catechol in the autoxidation of cumene (or styrene) were also determined in acetonitrile/chlorobenzene solution and corrected for hydrogen bonding by acetonitrile. The results indicate that in organic solvents gallic acid and catechol are fairly good antioxidants, while homovanillyl alcohol, homovanillic acid and syringic acid, i.e. the three 2-methoxy substituted derivatives, are much less efficient antioxidants.

Keywords: BDE, EPR, phenolic antioxidants, olive oil

KUNDU. P and LASKAR. S: Functional properties of protein concentrate from *Ailanthus excelsa* roxb. Seed. Pp. 437-450. slaskar@yahoo.com

The protein content, solubility and functional properties of a total protein concentrate prepared from the seeds of *Ailanthus excelsa* Roxb. were determined. The effects of pH and/or NaCl concentration on some of these functional properties were also investigated. The protein content of the seed protein concentrate was found to be 65.88%. The minimal protein solubility was observed at pH 4 and the maximum was at pH 12. Water- and oil-holding capacities of the seed protein concentrate were 2.77g.g⁻¹ and 5.79g.g⁻¹, respectively. The emulsifying activity and emulsion stability, as well as foaming capacity and foam stability, were greatly affected by pH levels and salt concentrations. Lower values were observed at slightly acidic pH (pH 4.0) and high salt concentration. Total protein concentrate was highly viscous which depends on concentration and pH levels. The lowest gelation concentration of seed protein concentrate was found to be 14% and 8% when the proteins were dissolved in distilled water and 0.5M or 1M NaCl solution, respectively.

Keywords: *Ailanthus excelsa*, seed protein concentrate, nitrogen solubility, functional properties

Valenčič. V, Bučar-Miklavčič. M and Golob. T: Assessment of slovenian table olives produced by traditional technology. Pp. 451-457. vasilij.valencic@zrs.upr.si

Table olives are prepared from the sound fruits of varieties of the cultivated olive tree (*Olea europaea* L.) that are chosen for their production of olives whose volume, shape, flesh-to-stone ratio, fine flesh, taste, firmness and ease of detachment from the stone make them particularly suitable for processing. The world production in the crop year 2006/2007 is estimated at 1.8 million tons of table olives and in the last fifteen years it has constantly increased. Most of the Slovenian Istria table olive production is based on a modification of the Spanish style. Results of qualitative and quantitative sensory assessments of two olive cultivars, 'Storta' and 'Istrska belica', are presented. Sensory characteristics were determined after four and six months of fermentation. Texture differences between the two production

systems were revealed. Significant decrease in hardness was determined after six months of fermentation with initial alkaline treatment. The effect of cultivar type was also evident. After four and six months, the bitterness of table olives produced by the traditional technology decreased and the olives were appropriate for consumption.

Keywords: table olives, quality, production technology, sensory assessment

Korošec. M, Bertonec. J, Pereyra Gonzales. A, Kropf. U, Golob. U and Golob. T: Monosaccharides and oligosaccharides in four types of Slovenian honey. Pp. 459-469. mojca.korosec@bf.uni-lj.si

Honey consists of simple carbohydrates. Glucose and fructose represent the majority of honey's carbohydrate profile, while a spectrum of oligosaccharides is in minority, but typical for the honey type regarding its main source nectar or honeydew, respectively. The content of different carbohydrates was determined in 63 samples of four types of Slovenian honey (acacia, spruce, multifloral and forest honey). The honey samples were of different botanical and geographical origin, and were analysed six to ten months after harvest. The type of honey was determined by sensory analysis and electrical conductometry. In order to determine the content of monosaccharides and oligosaccharides high-pressure anion exchange chromatography with pulsed amperometric detection (HPAEC-PAD) was used. The applied chromatographic method with pulsed amperometric detection enables reliable and selective detection of carbohydrates, especially oligosaccharides, in honey. Statistical comparison of the results showed that there were statistically significant differences among some parameters, while for others such differences did not exist. The results of our research and available data of other authors propose that the carbohydrate profile (the presence of individual carbohydrates in honey) and the content of carbohydrates in honey may have a potentially valuable role in the assessment of botanical origin of honey and as an indicator of putative adulteration of honey with sugar mixes or syrups, respectively. Nevertheless, analysis on numerous samples and different honey types are needed.

Keywords: honey, monosaccharides, oligosaccharides, HPAEC-PAD, adulteration

Seifert. M, Dorn. W, Müller. R, Holzinger. S and Anke. M: The biological and toxicological importance of molybdenum in the environment and in the nutrition of plants, animals and man. Part III. Molybdenum content of the food. Pp. 471-481. mathias.seifert@gmx.de

The molybdenum content of food in Germany varies between 10 and 6000 µg kg⁻¹ dry matter. Cereal products, sugar- and starch-rich food, luxury food, bread, rolls, cake, spices and most kinds of fruits deliver 10 – 400 µg Mo kg⁻¹ dry matter. Herbs and vegetables are generally rich in molybdenum, for example, cucumber can store up to 4000 µg Mo kg⁻¹ dry matter as well as pulses. Animal products, with exception of liver and kidney, are poor in molybdenum. Vegetable foodstuffs as part of mixed diets in Germany deliver 70% of the human intake, animal foodstuffs about 20% and beverages less than 10%.

Keywords: molybdenum, vegetable food, animal food, beverages

KONCZ. ZS, NAÁR. Z, KISS. A and SZÉCSI. Á: PCR-based assays for the identification of enniatin-producing fusarium species associated to wheat. Pp. 483-492. aszecs@nki.hu

Enniatins (ENs), produced by *Fusarium* species are a group of mycotoxins with antimicrobial, insecticidal (GROVE & POPLÉ, 1980) and phytotoxic activities. PCR based assays were applied for detecting enniatin-producing strains of *Fusarium avenaceum*, *F. poae* and *F. sporotrichioides* isolated from wheat seeds originated of 30 geographic localities of Hungary. All *F. sporotrichioides* strains and except two of all *F. poae* strains gave positive signal to *esysp1* and *esysp2* primers as well as all *F. avenaceum* isolates were positive to *esya1* and *esya2* primers indicating the ability to produce ENs. This is a first report of the enniatin producing ability of *Fusarium* species associated to wheat in Hungary.

Keywords: *Fusarium avenaceum*, *F. poae*, *F. sporotrichioides*, PCR, primer sets, detection, enniatin

Li. D, Sihamala. O, Bhulaidok. S and Shen. L,R: Changes in the organic compounds following sun drying of edible black ant (*polyrhachis vicina roger*). Pp. 493-501. shenlirong@zju.edu.cn

Edible black ant (*Polyrhachis vicina Roger*) is a traditional edible insect species in China. It has long been used as an important ingredient of health foods. The aim of the present study was to investigate the changes of organic compounds following sun drying of edible black ant. The results showed that fresh and sun dried edible black ant samples have 28 organic components. Nine of them found in the present study have not been reported previously such as 8-heptadecene and (E,E)-6,10,14-trimethyl-5,9,13-pentadecatrien-2-one. Five constituents disappeared and 4 components formed while the ant was sun dried. The major organic compounds of fresh and sun dried edible black ant belong to fatty acids and hydrocarbons. Some compounds such as fatty acids, aldehyde and alkanes appeared during the procedure indicating that sun drying speeds up lipid oxidation and hydrolytic rancidity.

Keywords: *Polyrhachis vicina Roger*; organic compounds; hydrolytic rancidity; fatty acid; edible black ant