

Editorial: Farkas, J. and Beczner, J.: - Climate Change and Food Safety. Pp. 313-314.
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Božac, R., Kos, I., Janječić, Z., Kuzmanović, Ž., Konjačić & Nežak, J.: Effect of different crossbreeds on chemical and sensory profiling of istrian dry-cured ham. Pp. 315-326.
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An investigation has been carried out on the effect of different crossbreeds on chemical and sensory profiling of Croatian representative pork products, Istrian hams. Due to the original trimming of hams (without skin and subcutaneous adipose tissue) the total weight loss was significantly higher (41.67-43.69%) in all three genotypes (Swedish LandracexDutch Large WhitexPietrain (SLxDLWxP), Dutch Large WhitexSwedish Landrace (DLWxSL) and Dutch Large WhitexDuroc (DLWxD)) in comparison with the Italian and Spanish hams with skin and subcutaneous adipose tissue. Hams from DLWxD genotype had a significantly lower ($P<0.01$) total weight loss (41.67%) and, in comparison with the Spanish and Italian hams, Istrian ham contains much less moisture (45.05-46.35%). The content of total saturated, monounsaturated, polyunsaturated fatty acids and cholesterol was similar in all crossbreeds ($P>0.05$). The cholesterol level is low (541.9-555.9 mg kg⁻¹), which makes Istrian dry-cured ham a dietary product. Hams from DLWxD had significantly more visible intramuscular fat ($P<0.01$) than hams from SLxDLWxP crossbreeds. The colour of muscle tissue, seasoned flavour, taste, saltiness, total mouth consistency (tender, melting, stringy) and tactile consistency were best in genotype DLWxD.

Keywords: crossbreeds; dry-cured ham; compositional parameters; pH; sensory evaluation

Dadáková, E., Vrchotová, N., Chmelová, Š. and Šerá, B.: The stability of rutin and chlorogenic acid during the processing of black elder (*Sambucus nigra*) inflorescence. Pp. 327-334. nada@usbe.cas.cz

Black elder inflorescence has been traditionally used in Central Europe both in folk and official medicine. This plant material is a rich source of two biologically active components, rutin and chlorogenic acid. Nevertheless, there is a lack of data on the changes of their content during processing. The stability of rutin and chlorogenic acid during drying and the long-term storage of black elder inflorescence were analyzed in this study. The rutin content was determined by capillary electrophoresis using solid-phase extraction. HPLC was used for the determination of chlorogenic acid. The dependence of rutin and chlorogenic acid content on the temperature of drying and storage duration were monitored and statistically evaluated by a two-way ANOVA test. The contents of rutin and chlorogenic acid revealed no statistically significant changes when dried at temperatures of 22 °C and 30 °C. The significant decrease in contents of both studied compounds was found at a drying temperature of 50 °C. The decrease in content of rutin was about 20%, in chlorogenic acid about 12%. The content of both studied compounds also decreased after long-term storage (at a temperature of 22°C for one year). The decrease in content of rutin was greater than that of chlorogenic acid.

Keywords: Black elder, *Sambucus nigra* L., rutin, chlorogenic acid, high-performance liquid

chromatography, micellar electrokinetic chromatography

Szakály, Z., Szente, V., Polereczki, Zs. and Szigeti, O.: Health conscious consumer and functional foods - exploration of factors affecting consumer behaviour in Hungary via focus group discussions. Pp. 335-344. szakaly.zoltan@ke.hu

The research aims to examine the health conscious consumer behaviour on the market of functional foods. In the survey two focus groups with 8 participants from two Hungarian cities were involved. People, whose health behaviour has changed positively in the past few years, were chosen to take part in the focus groups. The respondents connected the concept of health consciousness to the conscious way of life, nutrition and active physical exercises as well. Most of them are interested in the possibilities of healthy nutrition, they consider themselves capable of controlling their state of health, but only few of them take particular steps. The difference is caused by the lack of time and financial background, but the low level of motivations also plays a significant role. The consumers accept the presence of functional foods, which is interpreted as a long run innovation trend. They have limited information on functional ingredients; they do not know nutritional benefits and most of them are mistrustful of this product category. The organisations that are mainly responsible for information are not authentic for the consumers, but the authentic ones do not reach their stimulus threshold. Beliefs, attitudes, subjective norms do not exert enough influence on the consumers and perceived behavioural control do not reach that critical level at which these factors can motivate them to take particular steps.

Keywords: health behaviour, functional foods, focus groups, consumer attitudes

Husveth, F., Galamb, E., Farkas, V., Wágner, L., Jolánkai, R. and Pál, L.: Conjugated linoleic acid and other C 18 fatty acid composition of muscle and adipose tissues in lambs fed on diets containing vegetable oil. supplementations or grass silage. Pp. 345-355. husveth@georgikon.hu

An experiment was performed to study the effect of different vegetable oils containing high proportions of PUFA (5% soybean oil, SBO; and sunflower oil, SFO; respectively in the DM of concentrate) or grass silage (150 g DM/d/animal, GSL) on the level of conjugated linoleic acid (CLA) isomers and other C18 fatty acids in muscle and adipose tissues of growing lambs. Control animals were fed on the same diet as SBO or SFO groups; however, instead of vegetable oils hydrogenated palm oil containing low level of PUFA was applied. In both muscle and adipose samples tested c-9, t-11 C18:2 showed the highest levels among the CLA isomers, however, t-10, c-12 CLA could also be measured in lower proportions. Considering vegetable oil supplementations, only SBO resulted in a significantly higher level of c-9, t-11 CLA in the triceps brachii muscle as compared to the control. Such a difference could not be detected in either the gracilis muscle or in the adipose tissue samples. However, lambs fed on the GSL diet had significantly higher c-9, t-11 CLA levels in both the triceps and gracilis muscles and lower proportion of t-10, c-12 CLA in the adipose than those fed on the control, SBO and SFO diets, respectively. Concerning C18 fatty acids other than CLA, SFO lambs showed significantly higher proportions of C18:1n-9 than those of control animals in both muscles and perirenal fat tested. However, level of C18:0 in the adipose tissue of GSL lambs was significantly lower than that of the animals fed both control or vegetable oil supplemented diets. Results of this experiments show that different dietary fatty acid sources

have various potential to increase CLA contents in the meat of lambs. In addition to vegetable oils rich in PUFA, grass silage may be good dietary source for nutritional manipulation of the fatty acid composition of lamb meat.

Keywords: sheep, meat quality; CLA, intramuscular lipids, perirenal fat

Budán, F., Szabó, I., Ember, Á., Horváth, Ó.P., Illényi, L., Orsós, Zs., De Blasio, A., Magda, I., Gracza, T., Perjési, P., Dávid, T., Nowrasteh, G. and Ember, I.: Effect of *Uncaria* and *Tabebuia* extracts on molecular epidemiological biomarkers in patients with colorectal cancer. Pp. 356-363. budfer2@gmail.com

The combined effect of surgical treatment and consumption of so called “CoDTM tea” (containing *Uncaria guianensis*, *U. tomentosa* and *Tabebuia avellanadae*) on expression of c-myc, Ha-ras, Bcl-2, Ki-ras and p53 key onco/suppressor genes, the carbohydrate antigen (CA19-9) and carcino-embryonic antigen (CEA) tumour markers in blood samples of patients with colorectal cancer (CRC) were investigated. Expression of genes followed the effect of the surgical treatment combined with neoadjuvant chemotherapeutic treatment; this may predict the outcome of carcinoma. Moreover their expressions might show possible additional effect of supportive therapy, e.g. CoDTM consumption. The antioxidant capacity of blood was also examined. Blood samples were taken at the day of, and one week, 3, 6 and 12 months after the surgical treatment. During that period patients got 0.25 litre standard portion of CoDTM tea three times a day. The surgical treatment and neoadjuvant therapy were able to suppress the expression of c-myc, Ha-ras, Bcl-2, Ki-ras, p53 genes up to the twelfth month. Moreover, CoDTM tea together with conventional treatment caused a strong decrease in the expression of c-myc and Ha-ras oncogenes in comparison to the non-consumer control.

Keywords: gene expression, Bcl-2, CRC, ras, p53, c-myc, *Uncaria*, *Tabebuia*, antioxidant

Ambrožič, M., Božič, T., Jevšnik, M., Cook, N. and Raspor, P.: Compliance of proposed Codex Alimentarius Guidelines for virus management with principles of good practice. Pp. 364-375. peter.raspor@bf.uni-lj.si

Public concerns relating to food safety remain high, with most attention focused on manufactured foods and those served in catering operations. The viral contamination of food can occur anywhere in the food supply chain from farm to fork, but most food-borne viral infections can be traced back to infected persons who handle food that is neither heated nor otherwise treated. Regard to the increasing incidence of food-borne viral infections, the Codex Alimentarius Committee on Food Hygiene issued an international draft on a Code of Hygienic Practice for the control of viruses in foods. Using SWOT analysis as a methodological tool, the main results of the analysis revealed limitations of the document regarding language terminology, detection methodology and transparency.

Keywords: food safety, food-borne viruses, Codex Alimentarius, SWOT analysis

Péter, G., Dlačhy, D., Szűcs, E. and Tornai-Lehoczki, J.: Enrichment in methanol-containing broth – a simple method for the isolation of *Saccharomyces* from grapes. Pp. 376-384. gabor.peter@uni-corvinus.hu

In this study a simple and effective method was developed for the isolation of *Saccharomyces* strains from grapes. Aseptically collected grape samples were processed by enrichment in a nutritive basal medium supplemented with 10% (v/v) methanol followed by isolation of yeast strains. Sixteen of the 18 grape samples yielded *Saccharomyces* strain(s). More than 70% of the isolates belonged to the genus *Saccharomyces*. Based on phenotype and electrophoretic karyotyping, all strains of *Saccharomyces* were identified as *S. cerevisiae*. For several grape samples, varying physiological characters, the number of spores per asci, and the observed chromosome length polymorphisms provided evidence for diversity of *S. cerevisiae* strains obtained by this enrichment in methanol-containing broth. Results indicated that enrichment in methanol-containing broth is an effective alternative method to facilitate isolation of *Saccharomyces* strains from grapes. The enrichment method described in this work provides a simple and effective tool for isolation of *Saccharomyces* strains from grapes. The method may be applied in studying wine fermentation ecology, as well as for the isolation of potential starter strains from grapes.

Keywords: grape, wine yeast, *Saccharomyces cerevisiae*, enrichment, methanol

Trinh, T.-T.-T., Yu, B., Curran, P. and D Liu, S.-Q.: Dynamics of volatile compounds during longan juice fermentation by three yeasts from the genus *Williopsis*. Pp. 385-395. chmLsq@nus.edu.sg

Three yeasts from the genus *Williopsis* (*W. saturnus* cv *mraki* NCYC500, *W. saturnus* cv *saturnus* CBS254, and *W. californica* NCYC2590) were examined for their ability to ferment longan juice and to enhance formation of longan wine aroma compounds. The three yeasts showed similar growth kinetics and pH changes during fermentation. *W. californica* was the least sugar consumer. Many of the naturally occurring volatiles (ethyl esters, fatty acids, aldehydes, and terpenes) in the juice were partially or completely degraded. The three yeasts varied with their ability to produce and utilise volatiles. Esters were the major volatiles produced with some esters being catabolised while other esters remained stable. The amount of most alcohols increased while of aldehydes decreased. *W. saturnus* CBS254 was the best producer of ethyl acetate, isobutyl acetate, isoamyl acetate and 2-phenethyl acetate, whereas *W. californica* NCYC2590 was the highest producer of butyl acetate. Ethanol was produced in similar amounts by *W. mraki* and *W. saturnus* but at a minimal level by *W. californica*. *W. mraki* formed the highest amount of isobutyl alcohol, isoamyl alcohol and 2-phenylethyl alcohol. Although the amounts of most of the major volatiles at the end of fermentation (day 14) differed statistically among the yeasts, it remained to be seen whether the quantitative differences can be detected organoleptically. These findings suggest that yeasts from the genus *Williopsis* could be exploited for longan wine aroma enhancement either singly or in co-inoculation with *Saccharomyces*.

Keywords: longan wine, *Williopsis*, yeasts, fermentation, flavour

Valcheva-Kuzmanova, S. and Kuzmanov, K.: Inhibitory effect of *Aronia melanocarpa* fruit juice on intestinal transit rate in rats. Pp. 396-399. stefkavk@yahoo.com

Aronia melanocarpa fruit juice (AMFJ) is rich in phenolic substances, mainly flavonoids and tannins. The influence of AMFJ (5 and 10 ml/kg) on the gastrointestinal propulsion of

charcoal meal in rats was investigated. AMFJ dose-dependently reduced the rate of intestinal transit and the effect was statistically significant at the dose of 10 ml/kg. This reduction of the intestinal transit rate might be due to the presence of flavonoids and tannins in the juice.

Keywords: Aronia melanocarpa, intestinal transit, rats Preliminary communications

ÖZILGEN, S.: Gender is correlated with body mass index, eating habits and exercise frequency in students attending a private university in western Turkey. Pp. 400-406.
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Influence of gender on body mass index (BMI), eating habits, and exercise frequency are evaluated in students attending a private university in Istanbul, Turkey. Males had a significantly higher mean BMI value. Among male students, 27.89% were overweight, and 6.11% were obese, while only 2.63% of females were overweight, and 0.87% were obese. Significantly higher percentage of females than males were underweight (23.70% versus 0.56%, respectively). Male students ate more in a typical day. Breakfast was the most often skipped meal for both genders. Females preferred to consume fruits and vegetables, whereas males preferred more meat and bread. Although the frequencies were significantly different, dairy consumption was low, and fast food and soda consumptions were high for both genders. The majority of university students were insufficiently active. Females were physically less active compared to males.

Keywords: university students, gender, eating habits, body mass index, frequency of exercise

Gvozdrenović, J., Lazić, V., Budimski-Simendić and Popović, S.: The changes of etheric oil content in powdered garlic during storage in different packaging materials. Pp. 407-414.
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The etheric oil components in garlic are proven to have numerous positive effects on human health, and powdered garlic has long been widely used in both the food industry and private households. In order to prolong the stability of etheric oil components, different combinations of packaging materials are used for the storage of powdered garlic. Since the quality of dehydrated powder depends on the packaging used, the investigation was aimed to determine the effects of packaging material types on etheric oil content in industrially powdered garlic over the storage period. Powdered samples were analyzed immediately after production and during long periods of storage (after 30, 90, 120, 180 and 270 days). The investigations were focused on the correlation between packaging materials performances (light, water vapour and air permeability), and the changes of etheric oil and moisture content in powdered garlic. In order to describe the changes in etheric oil content during time, as well as to predict changes in packed powdered garlic, a statistical procedure was applied for all examined packaging materials and curve fitting data were estimated (the least square approach).

Keywords: Powdered garlic, etheric oil content, packaging materials, barrier properties.

Book review:

Decker, E.A., Elias, R.J. and McClements, D.J. (Eds): Oxidation in foods and beverages and antioxidant applications. Vol. 1 & 2. Pp. 415-416.