

**SALGÓ, A:** Professor Radomir Lásztity is 80 years old. Pp. 149-150.

**Editorial: BÁNÁTI, D:** Food production and ecological footprints. Pp. 151-152.  
d.banati@cfri.hu

---

**ELMADFA, I. & MEYER, A.L:** Trends in nutrition in Europe. Pp. 153-159.

ibrahim.elmadfa@univie.ac.at Nutrition in Europe is characterised by a positive energy balance, excessive fat and sugar intakes, while consumption of complex carbohydrate sources like bread and potatoes as well as of fruit and vegetables is too low. Together with insufficient physical activity, unhealthy nutrition is considered as the major determinant for the high prevalence of overweight, obesity and related diseases. In addition, current nutrition is often deficient in certain essential micronutrients like folic acid, for instance. Food fortification may help improve the supply, although a diet rich in fruit, vegetables, whole grain cereal and with a moderate fat content is the better option. Fortunately, health awareness of consumers is increasing and this is also mirrored in the popularity of functional food, having beneficial effects on health and wellbeing. While these may contribute to a healthy nutrition, they can only be part of a broad food choice. The requirements of vulnerable population groups are another matter of concern. This is particularly true for the increasing number of elderly that are prone to malnutrition but difficult to reach by new nutrition trends. In conclusion, healthy food choices should be encouraged and special attention be paid to particular risk groups like pregnant women and elderly.

**Keywords:** food intake, nutrition trends, functional food, food fortification, micronutrient deficiency, overweight, Europe

---

**SEBŐK, A. & BAÁR, CS:** Influence of the preparation, storage temperature, modified atmosphere and vacuum packaging on shelf life of sliced chilled, yellow pepper and pre-cooked sweet corn. Pp. 161-178. a.sebok@campdenkht.com

Sliced peppers can be stored at 4.5°C without chilling injury. At 8 °C 7 days shelf-life was achieved in active MAP, at 4.5 °C 7 days also in passive MAP. At 8 °C the development of a slight off-flavour was observed from day 7th in the passive MAP. Washing in chlorinated water was more efficient for the reduction of *Listeria monocytogenes* than flash washing in warm water, which reduced the spoilage efficiently. The growth of *Listeria monocytogenes* was limited to the first 3 days of chilled storage at 4.5–8 °C in all samples and a slight decrease was observed up to day 10, indicating the likelihood of a competitive inhibition effect of the spoilage microbiota. In case of storage at 1.5 °C the sensory properties of blanched vacuum packed corn on the cob were acceptable for more than 30 days. The shelf life is limited by safety considerations, toxin formation of the psychrotrophic *Clostridium botulinum* due to the higher temperatures in the distribution chain might occur. Efficient pre-cooling delays the spoilage.

**Keywords:** minimal processing, MAP, vacuum packing, shelf-life, yellow pepper, corn, challenge testing, *Listeria monocytogenes*, sensory properties, food safety.

---

**PIENIAK, Z., VERBEKE, W., BRUNSØ, K., SCHOLDERER, J. & OLSEN, S.O:**

Comparison between polish and western european fish consumers in their attitudinal and behavioural patterns. Pp. 179-192. zuzanna.pieniak@UGent.be

The objective of this paper is to investigate consumer attitudes and behavioural patterns related to fish consumption in Poland and four Western European countries (Belgium, Denmark, the Netherlands, and Spain). A quantitative cross-sectional consumer survey was carried out and a total sample of 4786 respondents, representative within each country for age and region (n=800-1100 respondents per country) was obtained. Although Polish consumers have the most positive general attitudes toward fish and the strongest belief that eating fish is healthy and safe, their intention and fish consumption is on a very low level compared to the Western European countries.

**Keywords:** consumer, survey, attitude, fish, Poland

---

**STEVANATO, R., FABRIS, S., BERTELLE, M., & MOMO, F:** Phenolic content and antioxidant properties of fermenting musts and fruit and vegetable fresh juices. Pp. 193-203. rstev@unive.it.

DPPH, Folin-Ciocalteu (FC) and peroxidase catalysed methods have been used to determine the free radical scavenging activity and total phenolic content (TPC) of two fermenting musts and thirty four fresh juice of fruits and vegetables. Generally, a good correlation between the phenolic content and the scavenging activity was found. The red must showed catechin equivalent (CE) values almost one magnitude higher than the white one, while the CE behaviours in the course of the fermentation process appeared similar for two musts and for all the measurement methods. The FC results showed TPC values generally higher than those obtained by the enzymatic method, while the scavenging activity, expressed as CE in order to better correlate the results, showed lower values with the exception of citrus fruit juices for which the enzymatic response was twice of that obtained by the FC test. Furthermore, generally it was found that fruits presented CE values 2-3 times higher than those found in the vegetables. Finally, the results obtained demonstrate the applicability of the peroxidase catalysed coupling method to the TPC and antioxidant properties determination in wine, tea, fruits and vegetables.

**Keywords:** polyphenols, antioxidants, musts, fruits and vegetables

---

**FISZMAN, S.M., VARELA, P., SALVADOR, A., GÁMBARO, A., GIMÉNEZ, A., ARES, G., DE PENNA, E.W., LÓPEZ, L. & LÓPEZ, M.E:** Use of enzymes in brown bread production and their influence on the shelf life of the sliced and wrapped products: a collaborative transcultural sensory evaluation. Pp. 205-217. sfizman@iata.csic.es

Three independent studies were conducted in Chile, Spain and Uruguay to assess the effects of the addition of enzymes on the shelf life of brown pan bread. Four batches of brown bread were prepared in each country: a control batch with no added enzymes, a second batch with amylase, a third batch with xylanase and a fourth batch with a 1:1 mixture of amylase and xylanase. Three sensory texture parameters were evaluated (softness, size of the soft area and cohesiveness) and a consumer study was conducted to determine the acceptability of the samples. In each country, the doses of each enzyme and enzyme mixtures (1:1) added to doughs have to be adapted to obtain good dough handling characteristics and minimise

adhesiveness and stickiness of the corresponding flour in the traditional formulation. In all three countries the addition of the enzyme mixture gave the best results, achieving a longer shelf life, while the addition of xylanase accelerated bread staling.

**Keywords:** brown bread, enzymes, shelf life, consumer panel, transcultural

---

**BUTINAR, B., BUČAR-MIKLAVČIČ, M., KRUMPAK, A. & RASPOR, P:** Experiences in olive oil purity and quality assessment as a tool for pumpkin seed oil evaluation. What can consumers benefit? Pp. 219-227. bojan.butinar@zrs.upr.si

Olive and pumpkin seed oils play a specific role in Slovenian edible oil market. That's why exact and accurate tools for assessing the oils' quality and purity (adulteration) are needed. One of the tools is registering certain names and foodstuffs in National registers and the Register of European Union. Another tool is the analysis which can help to assess the characteristics of the oil and to classify it in categories. In the field of olive oils, this has been done excellently with the European Commission regulations. In the present work we tried to test few pumpkin seed oils for fatty acids content, trans isomers of fatty acids, composition of sterols and tocopherols. The main goal was to check the purity of the oils and understand the present situation in the field. The analytical results show that some samples are adulterated with seed oils. What can consumers benefit? From the Slovenian olive oil experience it can be concluded that the path towards better quality oils does not strictly follow analytical methods but tries to track well established rules and definitions of quality and purity. The consumers must learn and be aware that the quality and purity can be analytically proven.

**Keywords:** analytical assessment, olive oil, pumpkin seed oil, purity, quality

---

**DIMIĆ, E., ROMANIĆ, R. & VUJASINOVIĆ, V:** Essential fatty acids, nutritive value and oxidative stability of cold pressed hempseed (*cannabis sativa* L.) Oil from different varieties. Pp. 229-236. edimic@uns.ns.ac.yu

The fatty acid composition, nutritive value and oxidative stability of cold pressed oils, obtained from seven different hemp cultivars, were investigated. The results show that the content of gamma-linolenic acid in the oil depends on the cultivar, ranging from 0.80 to 2.46%. The ratio between essential omega-6 and omega-3 fatty acids in the oil was 3.5:1 to 4.2:1, satisfying the demands of modern healthy nutrition regarding lipids. Due to high content of polyunsaturated fatty acids, the oxidative stability of cold pressed hemp oil is poor. The induction period at 100C, determined by accelerated oxidative method - Rancimat test, was 6.4 to 7.6 hours.

**Keywords:** hempseed oil, fatty acids, gamma-linolenic acid, nutritive value, oxidative stability

---

**SZÓKE, E., ZELLES, T., BOROS, I. & FEHÉR, E:** Effects of raw soy diet on the rat parotid gland. Pp. 237-248. feher@ana.sote.hu

Soy is increasingly used as a food additive. In women, it is recommended as an alternative to hormonal replacement therapy or/and a preventive agent against breast cancer and osteoporosis. Previous data revealed that rats fed on raw soybean diet developed pancreas hypertrophy and hyperplasia. An animal model was used in our experiment to examine the effects of raw soybean on parotid gland of rats. The purpose of this study was to light on the role of different neuropeptide-containing nerve fibres on changes in the acinar cells. The morphological structure and the neuropeptide-containing nerve fibers (NPY, GAL, SOM, SP, CGRP, VIP) of the glands were examined by light and electronmicroscopy. Significant increase of the organ weight was detected in the animals fed by raw soybean compared to control samples. Changes in the number of different neuropeptide-containing nerve fibres were various: Significant decrease in the NPY-immunoreactive (IR) and significant increase in the GAL-IR nerve fibres were observed. Slight but not significant increase in VIP-IR-; and no changes in the other IR nerve fibres were found. The electronmicroscopic alterations of acinar cells were manifest, where a large number of undifferentiated glandular cells were seen among the acini. Some of these cells contained two nuclei and their cytoplasm contained only a few secretory granules. These granules were similar to those in the mucous cells but not to the serous ones. The results presented here provide direct morphological evidence for the role of raw soy on the density of different neuropeptide-containing nerve fibres inducing proliferation in the acinar cells of parotid glands from rats. It is suggested that the hypertrophic changes in the glands might be caused by the alterations of nerve fibres.

**Keywords:** soy, parotid gland, neuropeptides, hypertrophy, hyperplasia

---

**KÖRMENDY, I. & KÖRMENDY, P:** Location of the critical point in conduction heated canned food. Pp. 249-264. kormendy.imre@freemail.hu The authors determined the location of the critical point for conduction heated food, involving simplified heat-treatment process. Infinite and finite cylinders have been investigated. Analytical method was applied to compute symmetrical temperatures. The spatial co-ordinates of the critical point were found by searching for the minimum of equivalent time (F-value), as microbial survival is the greatest in the critical point. The introduction of a z value related dimensionless temperature enabled to extend similarity conditions for F values. The locations of the critical points of species or attributes with diverse z-values differed in the same process. The most important factor influencing the critical point's location was the difference between heating and initial food temperatures divided by the z-value. When this difference was sufficiently great, the critical point approached the geometric centre, but reached it only for the infinite cylinder. Decreasing difference shifted it towards the surface either along the axis, or in the median plane.

**Keywords:** critical point; cold point; conduction heated food; heat-treatment; cylinder; cylindrical can; F-value; equivalent time