BEVERAGES (incl. Juices, Tea /Coffee, Yoghurt and other natural soft drinks)

NPARR 1(4), 2010-0551, Changes on flavor compounds throughout cold storage of watermelon juice processed by high-intensity pulsed electric fields or heat

The application of HIPEF processing (35 kV/cm for 1727 µs using bipolar pulses of 4-µs at 188 Hz) on watermelon juice was evaluated as an alternative to conventional heat treatments (90 °C for 30 s or 90 s) in order to achieve better preservation of watermelon aroma compounds for 56 days of storage at 4 °C. HIPEF processing not only induced a rise (roughly 20%) in the concentrations of hexanal, (E)-2-nonenal, nonanal, 6-methyl-5-hepten-2-one and geranylacetone but also achieved less reductions on the retention of volatiles than the thermal treatment at 90 °C for 60 s. In contrast, the content of (Z)-6-nonenal, 1-nonanol and (Z)-3-nonen-1-ol in the untreated and processed juices remained unchanged after processing. Despite the decrease in overall flavor compounds observed during storage irrespective of the treatment applied, HIPEF-treated juices showed better flavor retention than heat-treated samples for at least 21 days of storage. Moreover, changes in aldehydes and ketones during storage of treated watermelon juices were well fitted by a model based on the Weibull distribution function. Therefore, the application of HIPEF may be appropriate to preserve the initial volatile profile of watermelon juices during storage [Ingrid Aguiló-Aguayo, Marta Montero-Calderón, Robert Soliva-Fortuny and Olga Martín-Belloso*(Department of Food Technology, TPV-XaRTA, University of Lleida, Rovira Roure 191, 25198 Lleida, Spain), Journal of Food Engineering, 2010, 100(1), 43-49]

NPARR 1(4), 2010-0552, The influence of beverage composition on delivery of phenolic compounds from coffee and tea

Epidemiological data suggest that consumption of coffee and tea is associated with a reduced risk of several chronic and degenerative diseases including cardiovascular disorders, diabetes, and obesity and neurodegenerative disorders. Both coffee and tea are a rich source of phenolic compounds including chlorogenic acids in coffee; and flavan-3-ols as well as complex theaflavins and thearubigens in tea. Coffee and tea are two of the most commonly consumed beverages in the world and thus represent a significant opportunity to positively affect disease risk and outcomes globally. Central to this opportunity is a need to better understand factors that may affect the bioavailability of specific phenolic components from coffee and tea based beverages. An overview of the phenolic composition of coffee and tea is discussed in the context of how processing and composition might influence phenolic profiles and bioavailability of individual phenolic components. Specifically, the impact of beverage formulation, the extent and type of processing and the influence of digestion on stability, bioavailability and metabolism of bioactive phenolics from tea and coffee are discussed. The impact of co-formulation with ascorbic acid and other phytochemicals are discussed as strategies to improve absorption of these health promoting phytochemicals. A better understanding of how the beverage composition impacts phenolic profiles and their bioavailability is critical to development of beverage products designed to deliver specific health benefits [Mario G. Ferruzzi*(Department of Food Science, and Department of Foods & Nutrition, Ingestive Behavior Research Center, Purdue University, 745 Agriculture Mall Dr, West Lafayette, IN, 47906, United States), Physiology & Behavior, 2010, 100(1), 33-41].

NPARR 1(4), 2010-0553, Traditional Aniseed-Flavored Spirit Drinks

Aniseed spirits are produced by the distillation of pressed fermented grapes, dregs and other fermented raw materials, flavored with aniseed (Pimpinella anisum L), fennel (Foeniculum vulgare) and/or some other plants. All round the Mediterranean basin, there are other similar aniseed spirit drinks such as pastis (France), anesone (Spain), sambuca (Italy), zebib (Egypt), and arak (Syria). However, there are some differences between the production processes of these spirits and their traditional use in Mediterranean culinary cultures. Raki and ouzo appear to be more similar than the others, just like brothers from the two
shores of the Aegean Sea. Turkish raki is a type of traditional aniseed spirit produced by double distillation with aniseed (Pimpinella anisum) of only suma or suma and agricultural based ethanol mixture in different areas of Turkey. Ouzo can be defined as a distillation product of a mixture consisting of ethanol, anise, and other flavorful seeds, with sugar. The amounts and the repartition of the alcoholic fermentation products (fusel alcohols, esters, and aldehydes) are mainly responsible for the flavors and quality of the aniseed spirit. In this review article, Turkish raki, Greek ouzo and some different aniseed spirits were compared in their traditional, cultural roles and in their chemical and analytical structure [R. Ertan Anli and Mustafa Bayram’(Department of Food Engineering, Ankara University, Diskapi, Ankara, Turkey), Food Reviews International, 2010, 26(3), 246 - 269].

NPARR 1(4), 2010-0554, Ozone Processing for Food Preservation: An Overview on Fruit Juice Treatments

This paper reviews the efficacy of ozone an emerging non-thermal food preservation technique for fruit juices and highlights changes in key microbial, quality and nutritional parameters. Ozonation of fruit juices has been identified as a potential technology to meet the United States Food and Drug Administration’s requirement of a 5 log reduction in pertinent microorganisms found in juices. This review suggests that it is important to identify the critical extrinsic and intrinsic control parameters governing both the efficacy and quality effects during ozonation of fruit juices [PJ Cullen, V P Valdravidis, B K Tiwari, S Patil, P Bourke and C P O’Donnell’(UCD School of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland), Ozone Science & Engineering, 2010, 32(3), 166-179].

COSMECEUTICALS

NPARR 1(4), 2010-0555, Cosmeceuticals in day-to-day clinical practice

As one of the hottest and fastest growing segments of the natural, personal care industry, Cosmeceuticals are employed to carry out numerous functions, such as preventing UV damage, reducing free radical formation, improving the skin lipid barrier, brightening and unifying skin tone, smoothing texture and reducing pore size. Vitamins and botanicals encompass a large component of the cosmeceutical market, much of which has yet to be clearly defined or regulated. It can be difficult both for the dermatologist and the consumer with respect to choosing the right regimen from the plethora of over the counter choices as well as being informed regarding potential risks and side effects. In fact, dermatologist receives minimal training with respect to this highly tapped and growing genre of topical products. There is clearly a need to research the composite active ingredients of these over-the-counter materials to further characterize their structures, develop means of deriving purified samples from clarified sources, define interactive mechanisms with the skin, and, ultimately, demonstrate efficacy and safety via evidence based means [Mukta S and Adam F* (Manipul Hospital, Bangalore, India), J Drugs Dermatol, 2010, 9(5 Suppl ODAC Conf Pt 1), s62-6.]

NPARR 1(4), 2010-0556, Modification of skin discoloration by a topical treatment containing an extract of Dianella ensifolia: a potent antioxidant

Skin hyperpigmentation, and the reactions that precipitate it, have been linked to free radicals by the fact that free radical scavengers or antioxidants can slow that hyperpigmentation. Authors have screened several hundred plant extracts for antioxidants and discovered one that is both a strong antioxidant and can reduce skin hyperpigmentation. Extracts of Dianella ensifolia contain 1-(2,4-dihydrophenyl)-3-(2,4-dimethoxy-3-methylphenyl) propane (DP), which was found to inhibit the free radical 1-1-diphenyl-2-picyral-hydrazyl (DPPH) with an EC50 value of 78µm. DP was also found to inhibit Ultraviolet (UV)C-induced lipid oxidation with an EC50 of about 30µm. The reduction of discoloration by different topical treatments has been assessed in human volunteers using an in vivo assay for the rate of fading of UVB-induced tan. Two pharmaceutical formulas containing 4% hydroquinone (HQ) were used as positive controls, and we tested the ability of DP, a plant-derived amphoteric antioxidant, to increase performance of non-HQ cosmetic formulations. It has been found that the cosmetic formula containing DP produced an increase in the rate of fading compared to the two pharmaceutical treatments containing HQ [Thomas Mammon*, Neelam Muizzuddin, Lieve