

Posters from Section II

Proanthocyanidins: content in fruits and influence on health. Jadwiga Wilska-Jeszka.

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Proanthocyanidins — condensed tannins — are an important component of many fruits, and influence the sensory properties of fruits and fruit products. On the other hand, proanthocyanidins, as well as their precursors catechins, are biologically active compounds preventing some diseases of capillary blood vessels, having antioxidant properties and radical scavenger activities and also suppressing the superoxid anion radicals.

Numerous studies have been carried out on the proanthocyanidins' structure and content in grape, but there is little information concerning the occurrence of these compounds in other fruits. In this work the results of the studies of the proanthocyanidins content in different species of fruits, including some wild plant fruits, are reviewed, looking for rich sources of proanthocyanidins. The highest proanthocyanidins content was found in quince (2 g/kg) and in this case the dominant form is dimer — procyanidin B-2. Relatively high condensed tannins contents (0.3–0.9 g/kg) were observed in grape, apple, hawthorn, elderberry, chokeberry, sour cherry and blackcurrant. The lowest level of these compounds (< 0.3 g/kg) is found in the redcurrent, gooseberry, blueberry and raspberry.

The methods used to determine the total content of flavanols and proanthocyanidins are also discussed, as well as the influence of storage and heat treatment. It is concluded that the proanthocyanidins content in food of plant origin should also be determined and taken into account when their influence on health is evaluated.

Phenolic diterpenes from rosemary as antioxidants in linoleic acid, methyl linoleate and corn oil triglycerides. Anu Hopia,^{a*} Shu-Wen Huang & Edwin Frankel.

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Herbs and spices are known to have antioxidant activity in food fats. Because rosemary extracts have exceptionally high antioxidant activity, and are commercially available, they are widely used in food industry. Phenolic diterpenes are considered the most active class of antioxidants in rosemary, of which carnosol and carnosic acid are two major compounds.

To determine the effect of different lipid systems on antioxidant activity, carnosol and carnosic acid were evaluated in bulk and emulsified corn oil triglyceride mixture, methyl linoleate and linoleic acid. Antioxidant activity was followed by measuring the formation of hydroperoxides by conjugated diene measurement and their decomposition by measuring hexanal, a major volatile decomposition product of linoleic acid hydroperoxides.

In bulk methyl linoleate, carnosic acid showed higher antioxidant activity than carnosol and both were more active than equal molar concentration of α -tocopherol. In contrast, in linoleic acid carnosol was more active than carnosic acid and had similar activity than α -tocopherol. In bulk corn oil triglycerides, the diterpenes were less active than α -tocopherol. Also, in emulsified systems, α -tocopherol was more active than the diterpenes.

The antioxidant activity of carnosol and carnosic acid were shown to be highly dependent on the polarity of oxidizing lipid system. Therefore, to better understand the effects of natural antioxidants in foods, it is of high importance to consider the type of lipid system used or testing their activity.

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Food compositions with antimutagenic and immunomodulating properties. Y. Shishkin,^{*} R. Ramanauskaite, A. Sergeev & R. Ramanauskas.

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A new food composition in the form of microgranules on the base of milk protein and beta-carotene was prepared. The high-quality milk protein was obtained according to a new technology of milk processing with help of a pectin. The immunomodulating properties of beta-carotene microgranules were studied in C57Bl/6 mice. Long-term feeding of C57Bl/6 mice with beta-carotene microgranules led to enhanced T cell proliferative response to Con A, which lasted for 15–45 days, and defended the bone marrow chromosomes from experimental cyclophosphamide-induced damage. The beta-carotene microgranules were given orally to patients with cancer in the large bowel, for 10–14 days during irradiation therapy as an immunomodulating agent. After 10–14 days of supplementation, plasma levels of beta-carotene had increased 1.6–2.7-fold. The beta-carotene microgranules prevented the decrease of the lymphocyte proliferation to PHA, cytotoxicity of NK-cells, indomethacin-sensitive suppressor cells, expression as CD7, CD25, CD45, CD50, HLA1 markers