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# **Czech J. Food Sci.**

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## **Changes on storage of peanut oils containing high levels of tocopherols and b- carotene**

Czech J. Food Sci., 21 (2003): 19-27

We compared changes of tocopherols and b-carotene in a traditional peanut oil (cultivar Virginia, 30.5% linoleic acid) with a modified high-oleic peanut oil (cultivar SunOleic, 2.7% linoleic acid), developed in Florida, USA. The initial contents of tocopherols and trace lipid oxidation products, including hydroperoxides, were of the same order in both oils. The stability against oxidation was tested under the conditions of the Schaal Oven Test at 40 and 60° C, in emulsion, using AOM, Rancimat, and the apparatus Oxipres at 100° C. Tocopherols were determined using HPLC with an

electrochemical detection (without previous saponification). The high-oleic peanut oil SunOleic was about 4– 8 times more stable against oxidation than the traditional peanut oil Virginia. The contents of total tocopherols were 303 mg/kg in Virginia oil and 426 mg/kg in SunOleic oil, respectively. Ratios of  $\alpha$ - :  $\gamma$ - :  $\delta$ -tocopherols were rather similar in both oils. Thus, the observed differences in the oxidative stabilities cannot be due to tocopherols only. The decomposition of tocopherols in peanut oils, containing an addition of 500 mg/kg  $\beta$ -tocopherol, on storage was substantially slower in high-oleic SunOleic peanut oil than in Virginia peanut oil. Very similar results were observed in the case of the additions of 50 mg/kg  $\beta$ -carotene to peanut oil. The vitamin value was much better preserved in high-oleic peanut oil than in traditional peanut oil.

### **Keywords:**

antioxidants; autoxidation; carotene; peanut oil; storage; tocopherols

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