

Natural antioxidants from herbs and spices and their effect on the keepability of foods. Jan Pokorny,^a Zuzana Réblova,^a Nguyen Thi Thu Huong,^a Józef Korczak^b & Witold Janitz.^b

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Ascorbic acid, tocopherols (particularly, α -tocopherol), β -carotene, and various phenolics (such as anthocyanins or catechins) are well known *in vivo* antioxidants. We have studied their activities in refined edible oils and in fatty foods. Phenolics isolated from herbs and spices, such as sage or rosemary, are very active in lard, and they possess moderate activities in polyenoic edible oils

as well. Ascorbyl palmitate was found a rather efficient synergist in both rapeseed and sunflower oils. Natural soybean or rapeseed phospholipids are active synergists as well, especially at higher concentrations (permitted for foods). The synergistic activity of phosphatidic acids is lower, but that of their ammonium salts is comparable with natural antioxidants. Moderate synergism was observed in mixtures of sage and rosemary extracts (obtained by extraction with ethyl acetate, hexane or ethanol). In simple (or model) foods, consisting of proteins, polysaccharides and/or dietary fibre, the protein moiety improves the resistance against autoxidation, similar to peptides or amino acids, which are efficient synergists in presence of tocopherols or their mixtures with other phenolics. On the basis of our results, the antioxidants found efficient *in vivo* may be used to stabilize fats, oils and other food products on storage.

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