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Content of Coenzyme Q10 in different Types of Virgin or Cold-Pressed Vegetable Oils

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As a lipid-soluble quinone coenzyme Q10 is available in plant cells with several functions within the biosynthesis. Additionally Q10 has become an interesting antioxidant compound inhibiting lipid peroxidation as well as regenerating other antioxidants such as α-tocopherol. It is also known in the treatment of heart disease and other diseases such as Alzheimer or Parkinson and as a lipid-soluble antioxidant in cosmetics.

Virgin edible oils have the reputation to contain several bio-active and health-promoting components. Examples are vitamin E active compounds or phenolic compounds which show some antioxidant effect. Only little information about the content of Q10 in virgin vegetable oils is available. Therefore the aim of the paper was to investigate the content of Q10 in different virgin or cold-pressed vegetable oils such as argan oil, pumpkin seed oil, walnut oil or rapeseed oil.

The isolation of Q10 was done according to a modified method published by ITERG with basic saponification of the vegetable oil and extraction of unsaponifiable with heptane/ether 50:50. After evaporation of the solvent an aliquot of the residue dissolved in acetonrile/iso-propanol (1:1 v/v) was injected into an HPLC system equipped with a RP-18 column and a DAD detector at 275 nm.

In total 15 different types cold-pressed edible seed oils were investigated regarding the content of Q10. The results revealed a large variation of the content of Q10 between different seed oils but also within one group of seed oil. The highest amounts of Q10 were found in linseed oil (15.7 – 55.2 mg/kg) while pumpkin seed oil (0.6 – 2.2 mg/kg) and sunflower oil (0.1 – 0.6 mg/kg) only contain very low amounts of Q10. The mean value for the content of Q10 over all oil types was 13.3 mg/kg.