

Influence of Processing on Antioxidants Content of Pumpkin Seed Oil

Van Hoed, V.1, Felkner, B.1,3, Bavec, F.2, Grobelnik Mlakar, S.2, Bavec, M.2,
Verhé, R.1

1 Ghent University, Faculty of Bioscience Engineering, Ghent, Belgium

2 University of Maribor, Faculty for Agriculture and Life Sciences, Maribor, Slovenia

3 University of Warmia and Mazury, Faculty of Food Sciences, Olsztyn, Poland

Pumpkin seed oil is obtained from the seeds of *Cucurbita pepo* L. The oil is produced on a large scale mainly in the southern parts of Austria, in Slovenia, Hungary and Germany. It is characterized by a dark-green colour and specific aroma and taste, obtained by the traditional roasting of the seeds before the oil extraction. Furthermore, it is not only of interest because of its particular taste, but also because of its positive influence on the human health, especially considering the presence of antioxidants, such as phenolic compounds, tocopherols and carotenoids.

In this presentation the influence of different roasting conditions on the tocopherol and polyphenol content of pumpkin seed oil will be discussed. Special attention will be paid to the determination of polyphenols, which have a high antioxidative capacity. The optimisation of the extraction procedure will be discussed, followed by the identification and quantification of the individual phenolic compounds.

All samples were rich in tocopherols, with a total tocopherol content varying between 584 and 687 mg/kg, consisting mainly of γ -tocopherol.

Pumpkin seed oil has become a recognized source of phenolic compounds. In the current study, the total phenolics content (TPC) measured in the pumpkin seed oil samples by the Folin-Ciocalteu method ranged from 72.8 to 326.6 μg gallic acid equivalents (GAE) per g of oil (or 70.5-301.2 μg caffeic acid equivalent (CAE) per g). On the other hand, the values obtained by the HPLC-MS method, quantifying only the identified polyphenols, were much lower and varied from 0.59 to 8.71 μg per g of oil. The individual phenolics were protocatechuic acid, tyrosol, vanillic acid, vanillin, *p*-coumaric acid, ferulic acid and apigenin.

Antioxidants contents in oils from non-roasted seeds were different from those produced by the traditional method. It was observed that roasting conditions could be varied to a certain extent, with preservation of the antioxidants content in the oils.