

## **Quality of rapeseed oil from whole and dehulled seeds – A parameter for discrimination?**

Ina Willenberg<sup>1</sup>, Tjark Frantzik<sup>2</sup>, Bertrand Matthäus<sup>1</sup>

1 Max Rubner-Institut, Federal Research Institute of Nutrition and Food, Department of Safety and Quality of Cereals, Schützenberg 12, 32756 Detmold, Germany, Corresponding author: bertrand.matthaeus@mri.bund.de

2 OWL University of Applied Sciences and Arts, Department of Life Science Technologies, Campusallee 12, Lemgo, Germany

Usually virgin rapeseed oil is produced from whole rapeseed by a simple process consisting of pressing by a screw press and filtration or sedimentation of the oil. The result is a yellow colored and slightly rapeseed-like and nutty smelling and tasting edible oil. Since some years some producers use dehulled rapeseed for the production of virgin rapeseed oil with the aim to improve oil quality regarding composition, sensory quality and oil stability. Whole seeds contain between 16 and 20% shells, mainly consisting of fiber but also other compounds can be found on the shells (waxes) or in the shells (tocopherols, phytosterols, phenolic compounds). With a partial removal of the shells also these compounds are removed.

For consumers of such rapeseed oils three questions arise: (1) is the quality of oil from dehulled seed better with regard to the composition, (2) does the oil contain more healthy compounds, and (3) is the oil really obtained from dehulled seeds? Therefore the aim of the present work was to prepare a set of > 25 oils obtained from each whole and dehulled rapeseed of the same batch. Fatty acid and tocopherol composition, oxidative stability and content of the main phenolic compounds were investigated. Additionally, sensory properties and the volatile profile of the oils were characterized by a panel or by dynamic headspace-GC-MS. Results of statistical tools such as ANOVA, Principal Component Analysis or Linear Discriminate Analysis on basis of the analyzed compounds to detect differences between both classes of oil will be presented.