

## Fatty Acid Composition of Cold-pressed Hemp and Grape Seed-oils

Vesna Weingerl<sup>1</sup>, Zdenka Cencič Kodba<sup>2</sup>, Dejan Vrabelj<sup>3</sup>

<sup>1</sup>University of Maribor, Faculty of Agriculture and Life Sciences, Pivola 10, Hoče, Slovenia

<sup>2</sup>Institute of Public Health, Prvomajska ulica 1, Maribor, Slovenia

<sup>3</sup>Lek Veterina d.o.o., Lipovci 251 a, Beltinci, Slovenia

vesna.weingerl@uni-mb.si

Cold-pressed hemp (*Cannabis sativa* L.) and grape (*Vitis Vinifera*) seed oils were evaluated for their fatty acid composition. Hemp oil is one of the few seed oils that contains both of omega-6 and omega-3, gamma-linolenic acid being one of relatively rare fatty acids, and it was proved to be the most rich in phytosterols, been recommended as a functional food. Hemp seed oil contains significantly higher levels of omega 3 (17.3 %), along with a low ratio of n-6/n-3 fatty acids (3.32). The content of omega 3 in grape seed oil is 0.4 % and the ratio of n-6/n-3 fatty acids is 177. The predominant fatty acid was linoleic (18:2n6) acid (70.8 % grape seed oil, 55.8 % hemp seed oil). The presence of other fatty acids ranged in 2-16 % for oleic (18:1n9), stearic (18:0) and palmitic (16:0) acids, respectively. The fatty acid profiles of the seed oils showed an monounsaturated fatty acid (MUFA) content of 13 % and the high content of 76.6 % of polyunsaturated fatty acid (PUFA) for hemp seed oil and 17.5 % MUFA, 71.2 % of PUFA for grape seed oil. Stearidonic acid (18:4n3) was found only in hemp seed oil (1 %), as well as gamma-linolenic acid (2.9 %), behenic acid (0.3 %) and lignoceric acid (0.1 %). There was much higher content of alpha-linolenic acid (ALA) (18:3n3) in hemp seed oil (16.8 %) than in grape seed oil (0.4 %). Both seed oils are rich in essential and other health-benefitting fatty acids, but the hemp seed oil is the oil of the choice in this comparison. Further research is needed to clearly delineate the mechanisms that underlie these observations.

Keywords: Grape-seed oil; *Vitis vinifera*; Hemp-seed oil; *Cannabis sativa* L.fatty acids;