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PUBLICATION
REGISTRATION
SPONSORING &
EXHIBITIONS
SOCIAL PROGRAM
ACCOMMODATION
AND TRAVEL
CONTACT
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On behalf of the Scientific and Organizing Committees, it is our great pleasure to invite scientists, researchers and practitioners of pharmacy and other related professionals to participate in the 6th Congress of Pharmacy in Macedonia with international participation which will be held on June 1-5 2016 in Ohrid, Macedonia. The hosts of the Congress are Macedonian Pharmaceutical Association and Faculty of Pharmacy, St Cyril and Methodius University.

We believe that scientific program including plenary lectures, and presentations and poster sessions will result in enrichment of knowledge and exchange of experience among scientists, researchers and practitioners. The Congress will cover new challenges in all fields of pharmaceutical science and professional practice. It will provide an excellent opportunity for young scientists and researchers as well as experienced researchers and practitioners to exchange opinion, introduce ground-breaking ideas and acquire new practical knowledge.

The exhibition of pharmaceutical companies and other companies belonging to the chain of supplies of medicines and pharmaceutical products will be an integral part of the Congress.

The attractive and rich social program will create a perfect atmosphere for connecting with longtime friends, building long-lasting friendships and memorable friendly gatherings.

We look forward to welcoming you in Ohrid, a beautiful Macedonian pearl, situated along the coast of Ohrid Lake in June 2016.

Please download the general announcement [here](#).

Chair of the Scientific committee

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SPECTRAL ANALYSIS OF EXTRACTS OF CAPSICUM ANNUUM

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Extracts from the seeds, pericarp, placenta and stalk of *Capsicum annuum* L., ssp. *microcarpum longum conoides*, convar. Horgoshka obtained by various extraction methods were analyzed with the help of NMR and ATR-IR spectroscopy.

NMR Spectra

¹H NMR spectroscopy has been extensively used to provide information about the composition and relative content of fatty acid units in triacylglycerols. (Shiao et al., 1989; Barison et al., 2010). NMR spectroscopy is also one of the most informative methods applied for analysis of the capsaicinoids and carotenoids.

The NMR spectra were run on a Bruker AVANCE II+ 600 spectrometer at ambient temperature. About 15 mg of each sample were dissolved in CDCl₃. TMS was used as an internal standard.

It was shown that the samples of extracts from the seeds contain exclusively triglycerides (TG). The calculated percent of unsaturated fatty acids was estimated about 80%. The ratio linoleic : oleic acid was estimated to be about 2:1. N-polyunsaturated fatty acids (Linolenic) were not observed. In this way the composition of TG in the seeds was shown to be similar to the corn and soybean oil. Traces of capsaicinoids were detected. Quantitative determination was not possible. Carotenoids were not detected.

The spectra of the samples from pericarp showed similar composition as these from the seeds. Additionally, the presence of about 25% of n-polyunsaturated fatty acids was detected.

In the samples from the placenta a substantial amount of capsaicinoids was presented. The proportion TG:capsaicinoids was estimated as 1:2. In the region $\delta \sim 1.2 - 1.4$ ppm intense signals appear for long CH₂ chains, probably waxes.

In the samples from stalk intensive signals were obtained due to presence of waxes. The proportion of the TG:capsaicinoids was estimated to be approximately 1:0.15.

It should be noted that NMR is less sensitive than the traditional chromatographic methods. The quantitative measurements depend to some extent on the manually calibration of the integral area. The information from the NMR spectra should be supported with other analysis

ATR-IR Spectra

The ATR-IR spectra were measured in the middle IR region 600-4000 cm⁻¹ on a Bruker Tensor 27 FT spectrometer. The samples were directly deposited on diamond crystal ATR accessory and spectra were recorded by accumulating 64 scans at resolution of 2 cm⁻¹.

The IR spectroscopy has become powerful tool for analysis of vegetable oils and fats (Guillen & Cabo, 1997). It is very suitable for quantitative analysis as the intensities of the IR bands are proportional to concentrations. The changes observed in the frequency data of some bands and also in the ratios of absorbances of the IR spectra could provide useful information on the degree of unsaturation of vegetable oils (Vlachos et al., 2006). The oil composition affects the exact position of the band for the C-H stretching of the *cis*-double bond, and yields higher-frequency

shift when the oil has higher content of polyunsaturated acyl groups (Guillen & Cabo, 1997). On the other hand, the ratio of the absorbance of the bands responsible for the C-H stretching of the *cis*-double bonds and the asymmetric C-H stretching the methylene bonds could be used for quantitative estimation of the degree of unsaturation (Vlachos et al., 2006).

In the ATR-IR spectra of the extracts of *Capsicum annuum* the band for the C-H stretching of the *cis*-double bond is found at 3009 cm^{-1} , which is typical for vegetable oils, rich in linoleic acid, such as soybean and corn oil. According to the ratio of the absorbance at 3009 and 2923 cm^{-1} , the highest degree of unsaturation is found for the seed extracts.

The ATR-IR technique provides also a fast and reliable identification of capsinoids in *Capsicum annuum* extracts. The typical frequencies of the amide C=O stretching and amide N-H bending vibration of capsaicin (Alberti et al., 2008) do not overlap with the IR bands of triglycerides, and therefore allow identification of capsaicinoids even at low concentrations. Among the studied extracts, those obtained from placenta had the highest content of capsaicinoids. However, for exact determination of the capsaicinoid content a calibration curve based on a series of standard mixtures with known amount of triglycerides and capsaicin is required.

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