

April 16-17, 2018 Amsterdam, Netherlands

S S Lyashenko et al., Am J Ethnomed 2018, Volume 5 DOI: 10.21767/2348-9502-C1-005

6th Edition of International Conference on

Pharmacognosy and Medicinal Plants

PULMONARIA MOLLIS WULFEN EX HORNEM SEED OIL — A PROMISING VEGETARIAN SOURCE OF POLYUNSATURATED FATTY ACIDS

S S Lyashenko¹, S G Yunusova², Z Yu Tleptserisheva¹, O N Denisenko¹, M S

Yunusov² and N I Fedorov²

¹Volgograd Medical State University, Russia ²Russian Academy of Sciences, Russia

Statement of the Problem: Polyunsaturated fatty acids (PUFAs) have been the subject of research due to their nutritional and physiological roles. The family, *Boraginaceae* Juss. is one of the sources of PUFAs. The lipids of seeds *Pulmonaria mollis* Wulfen ex Hornem of this family, widespread in the flora of Russia, have not previously been studied.

Methodology & Theoretical Orientation: The object of the study was mature seeds of wild *Pulmonaria mollis* from different climatic zones - Adygea (1) and Bashkortostan (2). Oil from seeds was extracted using the Soxhlet's procedure. Separation and identification of lipid classes was performed using a silica column chromatography, TLC and preparative TLC. The FA composition was determined by converting into FA methyl esters followed by GLC.

Findings: Oil content (%, seed weight) in samples was 33.8 and 19.1%, respectively, content of polar lipids was 0.4 and 0.9, including glycolipids was 0.4 and 0.5 and phospholipids was 0.1 and 0.4. The NL subclasses consisted of sterol esters - 1.7 and 1.7%, triacylglycerols - 92.2 and 86.4, free fatty acids - 0.8 and 6.4; diacylglycerols+ sterols - 3.2 and 3.2; monoacylglycerols – 2.2 and 2.3. FA composition 1 and 2 did not differ. Palmitic acid was the most abundant among the saturated FA (about 31%). Oleic acid was the single dominating among monoenoic FA. The PUFAs found were dominated by FA ω-6 (18:2 linoleic acid up 32%, 18:3 gamma-linolenic acid up 19%) and ω -3 (18:3 alpha-linolenic acid up 15%, 18:4 stearidonic acid up 5%). The amounts of PUFAs in NL were about 65%. The PUFAs was concentrated by the urea complexation method. The total concentration of PUFAs increased by up to 63% % of ω-6 PUFAs and 29% ω-3 PUFAs.

Conclusion & Significance: *Pulmonaria mollis* seeds could be considered potential additional sources of PUFAs and the plant is promising for its introduction.

Recent Publications

- 1. Yunusova S, Lyashenko S, Fedorov N and Yunusov M (2017) Lipids and lipophilic constituents of comfrey (*Symphytum Officinale* L.) seeds. Pharmaceutical Chemistry Journal 50:728–731.
- Guil Guerrero J, Gómez-Mercado F, Ramos-Bueno R and González-Fernández M (2017) Sardinian *Boraginaceae* are new potential sources of gammalinolenic acid. Food Chem. 218:435–439.
- Guil Guerrero J, Gómez-Mercado F, Ramos-Bueno R and Rincón-Cervera M (2014) Restricted-range Boraginaceae species constitute potential sources of valuable fatty acids. J. Am. Oil Chem. Soc. 92:301–308.
- Yunusova S, Khatmulina L, Fedorov N and Ermolaeva N (2012) Polyunsaturated fatty acids from several plant species of the family Boraginaceae. Chem. Nat. Compd. 48:361–366.
- Yunusova S, Yunusov M, Karimova A and Mironov V (2007) Lipids of oenothera seeds from different habitats. Chem. Nat. Compd. 43:525–528.

Biography

S S Lyashenko is a candidate of Pharmaceutical Sciences (PhD in Pharmaceutical Sciences), and Senior Lecturer in the Department of Pharmacy Faculty of Postgraduate Education, Pyatigorsk Medical Pharmaceutical Institute of Volgograd Medical State University. In 2011 she defended her thesis on "Pharmacognosy study of Borage officinalis L.". Since several years (2008 to 2017), she has been performing fragments of scientific work at the Laboratory of Bioorganic Chemistry and Catalysis, Institute of Chemistry, Ufa Scientific Center, Russian Academy of Sciences. As a Researcher, she searches and analyzes plant sources of ω -6 and ω -3 polyunsaturated fatty acids, as well as studies of lipophilic components, exhibiting high biological activity. She investigates promising species of the Russian Federation for its introduction, particularly the family *Boraginaceae* Juss.

lanochka22@yandex.ru