COMPARISON OF ESSENTIAL OILS COMPOSITIONS OF *LEDUM PALUSTRE* OBTAINED BY SUPERCRITICAL CARBON DIOXIDE EXTRACTION AND HYDRODISTILLATION METHODS.

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ABSTRACT

Wild *Ledum palustre* plants were collected from four different places in Estonia. Essential oil of *Ledum palustre* was obtained by supercritical carbon dioxide extraction and hydrodistillation methods. Simultaneous distillation and extraction (SDE) with n-hexane as a solvent was performed using Marcusson type microapparatus. Supercritical fluid experimentation (SFE) was performed on a self-completed equipment which allows the operating pressure up to 30MPa and temperature up to 70ºC. The oils were analysed by capillary gas chromatography using flame ionization and mass spectrometric detections. GC analysis was carried out using a chromatograph on two fused silica capillary columns with bonded stationary phases SPB-5 (poly (5%-diphenyl-95%-dimethyl) siloxane) and SW-10 (polyethylene glycol).

The identification of the oil components was based on the comparison of their retention indices RI on two columns with the corresponding data of our RI data bank and with literature data. The effects of different parameters such as pressure, temperature, modifier (methanol) volume and extraction times (dynamic and static) on the supercritical fluid extraction of *Ledum palustre* oil were investigated. The major components in the samples were palustrol, ledol, myrcene, γ-terpineol, p-cymene, lepalone, lepalol and cyclocolorenone.