INTERNATIONAL E-CONFERENCE CONTEMPORARY PHARMACY: ISSUES, CHALLENGES AND EXPECTATIONS

23rd OF OCTOBER 2020, KAUNAS

ABSTRACT BOOK

2020 autumn

October 23rd, 2020

Kaunas, Lithuania

The international conference "CONTEMPORARY PHARMACY: ISSUES, CHALLENGES AND EXPECTATION. 2020 AUTUMN" is organized by Lithuanian University of Health Sciences, Faculty of Pharmacy, Department of Drug Technology and Social Pharmacy.

ISBN 978-9955-15-669-7

2020, Kaunas

Language of abstracts was not corrected.

Comprehensive HPTLC fingerprinting: A novel scientific approach to evaluating the quality of Sage leaves

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Introduction: According to the Ukrainian /European Pharmacopeias (1,2) requirements, the quality evaluation of Sage leaves (*Salvia officinalis* L.) includes an assessment of the identity (2.2.27. Thin-layer chromatography for essential oils), as well as the determination of the essential oils' content (2.8.12. Essential oils). Meanwhile, depends on further usage of Sage in finished products' composition the evaluation of different groups of bioactive substances could be also important (3–6). The ***goal*** of this work is to propose a new scientific approach for quality evaluation of Sage, based on "comprehensive high-performance thin-layer chromatography (HPTLC) fingerprinting".
Materials and methods: Instruments: CAMAG HPTLC Herbal System – ATC 4, ADC 2, Visualizer 2, Scanner 2, Derivatization Dip/Derivitizer, VisionCats. Reagents: analytical grade. Chromatography conditions: Stationary Phase – HPTLC plates Si 60 F_{254}. Mobile phase for flavonoids identification and quantification of rosmarinic acid – formic acid anhydrous-water-ethylacetate (1:1:8); reference standards – rosmarinic acid, caffeic acid, hyperoside, rutin; derivatization – NP/PEG; detection for the identification. WRT, 254, 366 nm – before derivatization; WRT, 366 nm – after derivatization. Detection for the quantification of rosmarinic acid – 366 nm without derivatization. Mobile phase for essential oils' identification – toluene-ethylacetate (95:5); reference standards – borneol, bornyl acetate, cineole; derivatization – Anisaldehyde reagent; detection: WRT, 254, 366 nm – before derivatization; WRT, 366 nm – after derivatization. Sample preparation for the identification – methanolic extracts (100 mg/ml); for the quantification of rosmarinic acid (10 mg/ml).
Results: Flavonoids and essential oils fingerprints of multiple samples of Sage leaves, plus samples of possible adulterations were evaluated on the same HPTLC plate, proving the specificity of the method for the targeted species. The single HPTLC method for the identification of flavonoids and quantification of marker – rosmarinic acid was proposed.
Conclusions: The presented HPTLC approach for the evaluation of Sage quality offers a powerful alternative to the current existed methods of pharmacopoeial monographs, allowing comprehensive evaluation of multiple samples.

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Edited by: Inga Matulytė 2020

ISBN 978-9955-15-669-7