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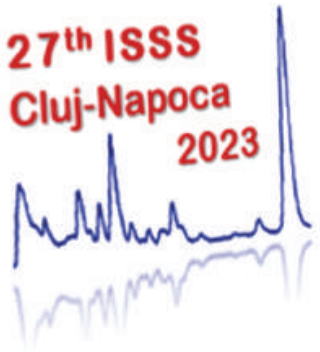

BOOK OF ABSTRACTS

27th International Symposium on Separation Sciences

September 24th – 27th, 2023
Cluj-Napoca, Romania

CASA CĂRȚII DE ȘTIINȚĂ

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UHPLC DAD MS/MS Phenolic Profiles of Grape Seed Extracts of International and Indigenous Grape Varieties

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Grape seeds are proven to be a valuable source of phenolic compounds that display strong biological activities with broad pharmacological and food applications [1]. The biopotential of grape seed extracts depend on grape variety and cultivation conditions [2]. This research aimed to evaluate the potential of seeds from international and indigenous grape varieties as a source of phenolic compounds. Seven grape varieties, four red (Hamburg, Prokupac, Merlot, Cabernet Sauvignon) and three white (Smederevka, Riesling Italian and Tamjanika) were used for assessment. The separation, determination, and quantification of the components of interest were performed using a Dionex Ultimate 3000 UHPLC system equipped with a diode array detector (DAD) and TSQ Quantum Access Max triple-quadrupole mass spectrometer according to the method described by Gašić et al. (2015)[2]. For experiments, two extraction solvents were used for seed extract preparations: aqueous methanol (80:20 v/v) containing 0,1% HCl (80% M) and aqueous ethanol (50:50 v/v) (50% E). The content of total quantified phenolic compounds in the 50% ethanol extracts of seeds was significantly compared to 80% M extracts. The highest content of total phenolic compounds (non-anthocyanin polyphenols and phenolic acids) was assessed in the 50% E extract of Prokupac seeds (2255.5 mg/kg DW). Gallic and ellagic acid are the dominantly quantified phenolic acids while other phenolic acids were found in traces. However, gallic acid content was significantly higher in 50% E extracts then in 80% M extracts, except for Merlot and Cabernet Sauvignon, with similar gallic acid content in both extracts. In contrast, about 2 times higher content of ellagic acid was found in aqueous methanolic extracts. Among the tested samples, the highest content of gallic and ellagic acids was found in the extract of Prokupac seeds for both extraction solvents: 240.5 (80% M) and 267.8 (50% E) mg/kg DW for gallic acid and 640.1 (80% M) and 329.0 (50% E) mg/kg DW for ellagic acid. Among the flavan-3-ols, catechin was dominantly present in all analyzed seed extracts. However, significantly higher catechin content was displayed in the 50% E extracts of all grape varieties. The highest content of catechins was revealed in the extract of the seeds of black grape varieties Muscat Hamburg (1736.8 mg/kg DW) and Prokupac (1626.9 mg/kg DW), and the extract of the white grape variety Tamjanika (1081.1 mg/kg DM). Other flavan-3-ols were only detected in traces in extracts of some grape varieties. Small amounts of quercetin-3-*O*-glucoside and luteolin-7-*O*-glucoside were found in all seed extracts. Other quantified phenolic compounds were found in traces and were specific for some varieties. In summary, seed extracts of the indigenous grape variety Prokupac can be a favourable source of catechin, gallic and ellagic acids.

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