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Isolation of polyphenols from wastes produced by wine industry

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Czech Republic belongs among countries with long winemaking tradition. Unfortunately, wine-processing industry produces large amounts of waste, which is usually burnt or it is used in compost. However, grape marc, stems or wood contains wide variety of biologically active substances which can be used as by-products in food supplementation or in a pharma industry. This work was focused on combination of several extraction techniques suitable for the isolation of polyphenols (resveratrol, viniferins) from wine marc, stems and wood with South Moravia origin. We have observed variations in chemical compositions of isolates obtained by the combination of pressing, maceration, soxhlet and ultrasonic extraction, based on a different process parameters (time, solvent to feed ratio, temperature, solvent, ultrasonic amplitude). Chemical composition of isolated samples were determined by LC-MS. Moreover, we have designed batch laboratory equipment which allows us to combine all of the mentioned isolation techniques. Using the combination of soxhlet and ultrasonic extraction resulted into substantial decrease in processing time with no influence on the yield of polyphenols in the isolate.

Biography

Martin Topiar has completed his Master of Science in Synthesis and Production of Drugs at the University of Chemistry and Technology, Prague. This year he obtained PhD at UTC Prague in cooperation with the Institute of Chemical Process Fundamentals of CAS, v.v.i. He is focusing on the SFE from plants with particular interest in a study of several types of fractionation techniques. He has published five papers in reputed journals and presented his work in many international conferences dealing with extraction techniques and supercritical fluids utilization.

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