

Subcritical Water Extraction of Bioactive Compounds from Red Ginseng Marc

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Red ginseng marc (RGM) is a by-product obtained during manufacturing of various commercial ginseng products. RGM contains various bioactive compounds and have shown to be useful for numerous applications in food, nutraceutical, pharmaceutical products, and biomedicine. Despite of its potential health benefits, RGM has been routinely discarded as a waste. Among of several developed techniques, subcritical water extraction (SWE) is a green and sustainable alternative. However, the recovery of bioactive compounds from RGM using SW has only a few reports. Therefore, the main objectives of this study were to determine the efficiency of the SWE technique in the extraction of biologically active compounds from RGM powder and to gain insight into the mechanism of reactive extraction. We explored a range of extraction temperatures, pressures, times and stirring speeds, particle sizes of RGM, and ratios of RGM to water loading to maximize yield and bioactive activity of the extract.