

Utilizing subcritical methanol extraction for catechin and Epicatechin recovery from peanut skin as agricultural waste

ABSTRACT

Peanut skin as an agriculture waste has poor economic value. Utilizing subcritical methanol extraction (SME) to recover catechin and epicatechin as interest compounds from peanut skin is one of the solutions to valorize the agriculture waste into more valuable products. Therefore, the objective of this research is to examine the parameter impacts on peanut skin extract recovery by subcritical methanol. Extraction was conducted under three independent variables—pressure (6 to 10 MPa), flow rate (2.5 to 7.5 mL/min) and temperature (70 to 100 °C)—with the responses of catechin and epicatechin recovery. The optimum conditions were 8 MPa, 4.39 mL/min and 79.6 °C, with catechin responses of 178.66 µg/g and epicatechin responses of 336.41 µg/g. Conditions of high pressure and temperature are optimal for epicatechin and catechin enhancement. The Chrastil model fits the solubility of catechin and epicatechin in SM effectively since it has the lowest average absolute relative deviation (AARD), which is 4.97% and 5.97%, respectively. Consequently, this method (SME) may substitute for the standard technique in extracting catechin and epicatechin.