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عنوان مقاله:

Comparison of Two Methods of Solvent Extraction of Phenolic Compounds from Pomegranate (Punica granatum L.) Peels

محل انتشار:

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خلاصه مقاله:

The present study aimed to evaluate effectiveness of Superheated Solvent Extraction (SSE) compared with instant Controlled Pressure Drop (DIC) assisted Solvent Extraction (DIC-SE) on total phenolic, flavonoids, and anthocyanins compounds from pomegranate peels. The effects of temperature, extraction time, and water:ethanol ratio for SSE method, and temperature and heating time for DIC-SE were studied. The highest phenolic compounds, flavonoids, and extraction yields by SSE was achieved at ۱۶۰˚C, ethanol: water ۵۰:۵۰ and ۲۰ minutes, subsequently in the DIC-SE, the most effectiveness was approached at ۱۵۰˚C for ۵ seconds (P< ۰.۰۵). The SSE improved the total phenolic compounds (۵۶۳.۱۶±۱.۰۴ mg g-۱), anthocyanins (۲۸۵.۱۱±۱.۰۲ mg ۱۰۰ g-۱), extraction yield (۶۸.۷%) and shortened the extraction times compared to DIC-SE, but flavonoid content was more in DIC-SE extract (۴۳۹.۰۷±۰.۰۵ mg g-۱). Based on HPLC analyses, gallic acid was not detected in any of the obtained extracts, but the amount of ellagic acid and punicalagin A and B in DIC-SE extract was higher than SSE. The current study clearly shows that the SSE is an effective extraction method to obtain phenolic compounds and the DIC is an advantageous pretreatment for extraction of flavonoids from pomegranate peels.

کلمات کلیدی:

Anthocyanins, Bioactive compounds, DIC, Flavonoids, SSE., پوست انار, حلال فوق داغ, پیش تیمار DIC, ترکیبات فنولی

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