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Comparison of Supercritical Fluid and Solvent Extraction of Feverfew (*Tanacetum parthenium*)

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Food Science and Technology Research Institute, Marmara Research Center

P.O. Box 21, 41470 Gebze, Kocaeli-TURKEY

Mark R. SIMMONDS, George DAVIDSON

School of Chemistry, University of Nottingham

University Park, Nottingham, NG7 2RD United-KINGDOM

 [Keywords](#)
 [Authors](#)



chem@tubitak.gov.tr

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Abstract: High performance liquid chromatography (HPLC) and supercritical fluid chromatography (SFC) analyses are used to show that supercritical fluid extraction (SFE) using carbon dioxide is an effective means of extracting a range of components from feverfew samples. It was found that the specific compositions of solvent extracts and SFE extracts are different. The amounts of the presumed active ingredient parthenolide have been confirmed to be very variable. Feverfew seeds were particularly rich in parthenolide, while dried powdered samples contained less and, in one case, none at all. The tunability of SFE has been demonstrated, and it was shown that successive extractions at 100 and 200 atm separate the extracted components into two mutually exclusive groups, with important implications for simplifying subsequent analyses.

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