

Solid-phase extraction of phytosterols from rapeseed oil deodorizer distillates with magnetic graphene oxide nanocomposite

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Abstract

A fast and facile method was employed for the synthesis of magnetic graphene oxide (MGO). The synthesized MGO is characterized by different techniques and used as a solid-phase adsorbent for the extraction of β -sitosterol from rapeseed oil deodorizer distillates (RDOD) followed by gas chromatography-mass spectrometry (GS-MS) analysis. Several parameters affecting the extraction efficiency, including the amount of adsorbent, extraction time and temperature, desorption solvent, and desorption time, were investigated. The procedure exhibited desirable extraction efficiency within 30 min at 35 °C. Recoveries higher than 80% were obtained with acetone as eluent and the method was successfully applied to concentrate the β -sitosterol in RDOD CO₂-supercritical extract. Compared to C18-silica and graphitic carbon, the composite showed satisfactory results for the extraction of β -sitosterol from oil samples.

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