

Antioxidant property, thymoquinone content and chemical characteristics of different extracts from *Nigella sativa* L. seeds

Abstract

In this study, *Nigella sativa* L. seeds were extracted using supercritical carbon dioxide (SC-CO₂) and Soxhlet. Chemical characteristics, fatty acid composition, antioxidant activity and thymoquinone content of *N. sativa* L. extracts obtained through different methods were investigated and compared. It was revealed that antioxidant activity and thymoquinone content could be significantly different for SC-CO₂ and Soxhlet extracts. The results for fatty acid composition indicated that linoleic acid, palmitic acid and oleic acid were the main fatty acids in both extracts. The SC-CO₂ extraction could provide an extract with higher quality and antioxidant activity compared to Soxhlet extraction method and can be considered a more appropriate method for attaining a high-quality extract.

Keyword: Antioxidant activity; Fatty acid composition; *Nigella sativa* L. extract; SC-CO₂ extraction; Thymoquinone