

عنوان مقاله:

Extraction and Purification of Anticancer Thymoquinone from Seeds of *Nigella sativa* by Preparative High-performance Liquid Chromatography

محل انتشار:

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خلاصه مقاله:

Thymoquinone (TQ) is a monoterpene ketone which is an important bioactive substance in *Nigella sativa* L. seed. This important natural compound has many potential medical applications for cardiovascular diseases, diabetes, stroke, neurodegenerative diseases and different types of cancer. To date, no studies have focused on development of a reliable industrial method for purification of TQ from this plant as a major challenge. In this study, an efficient extraction and purification method was developed for preparation of TQ from *Nigella sativa* L. seeds using preparative high-performance liquid chromatography (HPLC). To this end, a two-step procedure was applied for the first time for extraction of TQ: first, maceration using methyl tert-butyl ether (MTBE) was performed; then, liquid-liquid extraction using methanol successfully removed the majority of the impurities. Next, preparative HPLC was carried out for separation and purification of TQ using a C₁₈ column and the mobile phase of methanol and water containing 0.1% trifluoroacetic acid (TFA). The collected peak from preparative HPLC was analyzed by the analytical HPLC as well as GC-MS instrument. Results of HPLC analysis proved the purity of the collected TQ by 97%, while the results of GC-MS identified the main peak appeared at around 15.6 min as TQ by library searching, and determined its purity by 97% based on peak heights. Overall, this method has a potential for industrialization to prepare purified TQ for medicinal applications.

کلمات کلیدی:

Nigella sativa L, Thymoquinone, PURIFICATION, Preparative HPLC

لینک ثابت مقاله در پایگاه سیویلیکا:

