

عنوان مقاله:

One-Step Preparative Separation of Flavone and Isoflavone Glycosides from Sophora Japonica Fruit by High-Speed Counter-Current Chromatography Based on COSMO-RS Model

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خلاصه مقاله:

Background: Sophora japonica L. (Leguminosae), a well-known traditional medicine in Asia, is officially listed in the Chinese and European Pharmacopoeia. Its buds and fruits have been used as medicinal agents with significant biological activity. Pharmacologic studies and clinical practice have demonstrated that they have beneficial effects in the treatment of many diseases. Herein, we developed a simpler and effective separation method of flavones and isoflavones from S. japonica fruit by one-step HSCCC based on the COSMO-RS model. Methods: HSCCC was applied for the preparative separation and purification of five active compounds from S. japonica L. fruit (three flavone glycosides and two isoflavone glycosides). Under the assistance of a COSMO-RS, one-step separation with the two-elution solvent system that was designed. Results: The first elution was conducted with the lower phase of ethyl acetate-n-butanol-water (5:1:5, v/v), and the second elution was performed with the same one containing 4.0 mmol L⁻¹ of NH₃·H₂O. From 200 mg of crude extract, 11.2 mg of kaempferol-3-O sophoroside (I), 3.2 mg of rutin (II), 3.4 mg of kaempferol-3-O-α-L-ramnopyranosyl-(1-6)-β-Dglucopyranoside (III), 11.5 mg of sophorabioside (IV), and 10.1 mg of sophoricoside (V) were obtained. Their purity values were 98.1%, 97.6%, 99.5%, 99.2%, and 98.3%, respectively. Conclusion: The five targets of I-V can be used as reference substances for chromatographic purposes as well as for the further physiological studies. The developed method is instructive for the separation of other flavonoids .too

کلمات کلیدی:

Flavonoid, Glycosides, Sophora japonica, Counter-current chromatography

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