

SIMULTANEOUS ANALYSIS OF STILBENES, CHROMATOGRAPHIC DESIGN AND APPLICATION

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Introduction

Stilbenes are non-flavonoid phenolic secondary metabolites found in various medicinal plants and foods. They possess antioxidant, anti-inflammatory, antitumor, cardioprotective, and antiaging effects. Only a few data are available for analysis of stilbenes such as cis-miyabenol C, kobophenol A, carexinol A, and hopeaphenol in the literature [1]. Furthermore, no analytical method has been reported for the simultaneous analysis of these stilbenes using ultra-high performance liquid chromatography coupled with tandem mass spectrometry (UHPLC-MS/MS).

Experimental

An efficient targeted UHPLC-MS/MS method was developed for the simultaneous determination of stilbene derivatives in the plant extract. For the development of UHPLC separation of stilbenes, a three-dimensional model of the *in-silico* simulation software DryLab®4 was used based on our preliminary UHPLC-MS/MS measurements. The MS/MS detection was performed using optimized electrospray ionization (ESI) multiple reaction monitoring (MRM) mode.

Results and discussion

For ESI of stilbenes, higher ionization efficiency was observed in the negative electrospray mode than in the positive mode. The fragmentation behaviors of stilbenes were studied based on MS/MS measurements, and the proper fragment ions with related optimized collision energies were selected for UHPLC-MS/MS analysis. The software-based chromatographic modeling succeeded in predicting the retention times and the most appropriate conditions of the separation and was confirmed by HPLC-MS/MS measurements

Conclusion

The developed reversed-phase UHPLC-MS/MS method was successfully applied to analyze stilbenes in plant extract.

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References

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