

论文

LC-MS<sup>n</sup>比较分析三种传统中草药中绿原酸及其衍生物组分

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摘要:

利用LC-MS<sup>n</sup>分析了杜仲叶、金银花叶以及鱼腥草叶甲醇提取物中绿原酸及其异构体和衍生物。发现3种样品中都含有3种单咖啡酰奎尼酸(绿原酸), 分别是3-咖啡酰奎尼酸(3-caffeoylquinic acid, 3-CQA)、4-CQA和5-CQA。杜仲叶和金银花叶中5-CQA为主要成分, 但鱼腥草叶中以3-CQA和4-CQA为主要成分。在杜仲叶中首次发现咖啡酰奎尼酸糖苷; 另外还发现金银花叶中有少量5-阿魏酰奎尼酸(5-feruloylquinic acid, 5-FQA); 鱼腥草叶含有少量的3-FQA和4-肉桂酰奎尼酸(4-p-coumaroylquinic acid, 4-pCoQA)。本文首次报道鱼腥草叶中绿原酸异构体成分, 为3-CQA和4-CQA的开发提供了来源(植物中绿原酸的结构一般以5-CQA为主)。

关键词: 杜仲 金银花 鱼腥草 LC-MS<sup>n</sup> 咖啡酰奎尼酸 阿魏酰奎尼酸 肉桂酰奎尼酸 咖啡酰奎尼酸糖苷

Comparison of the profiles of chlorogenic acids and their derivatives from three Chinese traditional herbs by LC-MS<sup>n</sup>

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Abstract:

To investigate the chlorogenic acids resources in *Eucommia ulmoides* Olive leaves, *Lonicera japonica* Thunb. leaves and *Houttuynia cordata* Thunb. leaves, methanolic extracts of these three materials have been analysed qualitatively for chlorogenic acids and their derivatives by structure-diagnostic LC-MS<sup>n</sup>. Three monocaffeoylquinic acids (3-CQA, 4-CQA, 5-CQA) were detected. 5-CQA dominated this subgroup in *Eucommia ulmoides* Olive and *Lonicera japonica* Thunb. leaves, but 3-CQA and 4-CQA dominated this subgroup of chlorogenic acids in the leaves of *Houttuynia cordata* Thunb. Caffeoylquinic acid-glycosides were detected for the first time from *Eucommia ulmoides* leaves. 5-FQA was found in *Lonicera japonica* Thunb. leaves, and 3-FQA and 4-pCoQA have been identified in *Houttuynia cordata* Thunb. This is the first report of the chlorogenic acid profile in *Houttuynia cordata* Thunb. The comparatively unusual profile of caffeoylquinic acids in *Houttuynia cordata* Thunb. makes it a convenient source of 3-CQA and 4-CQA that are not commercially available.

Keywords: *Lonicera japonica* *Houttuynia cordata* LC-MS<sup>n</sup> caffeoylquinic acids feruloylquinic acids p-coumaroylquinic acids caffeoylquinic acid-glycosides *Eucommia ulmoides*

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