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论文

银翘散抗流感病毒有效部位各组分变化及归属分析

石钺;石任兵

1. 中国医学科学院、中国协和医科大学 药用植物研究所， 北京 100094； 2. 北京中医药大学 中药学院， 北京 100102

摘要：

为深入研究银翘散抗流感病毒有效部位的物质组成及其归属，本文利用HPLC及LC-MS/MS提供的色谱及离子碎片信息，对相同实验条件下提取的银翘散抗流感病毒有效部位及其组方各单味药的色谱指纹图谱流出组分进行对比分析，实现了银翘散与其单味药中各组分的归属分析。采用HPLC及LC-MS/MS方法，负离子扫描获得质谱数据。根据保留时间比对、阴性验证、离子碎片解析、添加对照品指认等方法，归属色谱峰来源，并对主要色谱峰进行指认。结果对银翘散抗流感病毒有效部位色谱指纹图谱中的30个共有色谱峰，归属了其中的29个峰。对其中14个主要色谱峰进行了确定，分别为绿原酸、甘草苷、甘草素-4′-*O*-芹糖(1→2)葡糖苷、连翘酯苷、芦丁、4，5-二咖啡酰基奎宁酸、3，5-二咖啡酰基奎宁酸、异甘草素-4-*O*-芹糖(1→2)葡糖苷、3，4-二咖啡酰基奎宁酸、异甘草素-2′-*O*-芹糖(1→2)葡糖苷、牛蒡子苷、醉鱼草苷、染料木素和异甘草素。银翘散抗流感病毒有效部位与组方各单味药有较好的相关性，建立的方法所测得的色谱指纹图谱特征性和专属性较强，可对中药复方及组成该复方的单味药成分的色谱指纹图谱进行快速比较分析，并为复方物质基础的阐明奠定了基础。

关键词： 银翘散 有效部位 中药色谱指纹图谱 归属分析

Relative adscriptions of components in the effective fractions of Yinqiao decoction and its composing individual herbs

SHI Yue; SHI Ren-bing

Abstract:

HPLC and LC-MS/MS were used to establish a comprehensive HPLC analytical method of Yinqiao decoction and identify the chemical constituents of the whole and individual herbs of Yinqiao decoction. YWG-C_{18} (250 mm×4.6 mm ID, 10 μm) column was used; the mobile phase was composed of acetonitrile (A) and water (B, with 3% acetic acid) with gradient elution; the flow rate was 1.0 mL·min^{-1} and the column temperature was set up at 25 ℃. The detection wavelength was 280 nm. The chromatographic fingerprints of Yinqiao Decoction showed 30 main peaks. Peak 2, 14, 15, 17 were from *Lonicera japonica* Thunb, peak 3, 12, 13, 24 were from *Fosythia suspense* (Thunb) Vahl, peak 19, 25, 26, 27 were from *Arctium lappa* L., peak 5, 6, 8, 9, 10, 11, 18, 28 were from *Glycyrrhiza uralensis* Fisch, peak 20, 21 were from *Mentha haplocalyx* Briq., peak 22, 23 were from *Schizonepeta tenuifolia* Briq., peak 1 presented in the chromatograms of *Lonicera japonica* Thunb, *Fosythia suspense* (Thunb) Vahl, *Mentha haplocalyx* Briq., *Schizonepeta tenuifolia* Briq. and *Platycodon grandiflorum* (Jacq.) A. DC., peak 7 presented in the chromatograms of *Fosythia suspense* (Thunb) Vahl and *Glycine max* (L.) Merr., peak 16 presented in the chromatograms of *Mentha haplocalyx* Briq. and *Schizonepeta tenuifolia* Briq., peak 29 presented in the chromatograms of the herbs except *Mentha haplocalyx* Briq. and *Platycodon grandiflorum* (Jacq.) A. DC., peak 30 presented in the chromatograms of the herbs except *Platycodon grandiflorum* (Jacq.) A. DC., peak 4 was not identified, maybe it was a new constituent produced during decoction. By comparison of the standards isolated and MS spectra, 14 peaks were identified as 2 (chlorogenic acid), 9 (liquiritin), 10 (4′-*O*-［*β*-*D*-apiofuranosyl (1→2)-*β*-*D*-glucopyranosyl］ liquiritigenin), 12 (forsythiaside), 13 (rutin), 14 (4,5-*O*-dicaffeoylquiniic acid), 15 (3,5-*O*-dicaffeoylquiniic acid), 16 (4-*O*-［*β*-*D*-apiofuranosyl (1→2)-*β*-*D*-glucopyranosyl］ isoliquiritigenin), 17 (3,4-*O*-dicaffeoylquiniic acid), 18 (2′-*O*-［*β*-*D*-apiofuranosyl (1→2)-*β*-*D*-glucopyranosyl］ isoliquiritigenin), 19 (arctiin), 20 (linarin), 25 (genistein), 28 (isoliquiritigenin). The method could be used to identify the characteristics of Yinqiao decoction, and it could be used to evaluate the quality and quantity of Yinqiao decoction.

Keywords: effective fraction chromatographic fingerprints of Chinese materia medica relative adscription analysis Yinqiao decoction

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通讯作者: 石钺

作者简介:

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