

柴胡舒肝丸的毛细管电泳指纹图谱及其黄芩苷含量的测定

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Capillary electrophoresis fingerprint of Chaihu Shugan Pill and determination of baicalin content in Chaihu Shugan Pill

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摘要	参考文献	相关文章
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摘要 建立了柴胡舒肝丸(Chaihu Shugan Pill, CHSGP)的毛细管区带电泳指纹图谱(capillary electrophoresis fingerprint, CEFP),并采用内标法测定了黄芩苷的含量。以50 mmol/L硼砂-150 mmol/L磷酸二氢钠-50 mmol/L磷酸氢二钠(1:1:1, v/v/v)(含5 mmol/L庚烷磺酸钠)为背景电解质(BGE)溶液,采用未涂层石英毛细管(总长度75 cm,有效分离长度63 cm,内径75 μm),以色谱指纹图谱分离量指数(RF)为目标函数优化实验条件,在紫外检测波长265 nm、运行电压11 kV条件下,以黄芩苷峰为参照物峰,确定了22个共有指纹峰,建立了CHSGP的CEFP,通过对20批样品聚类分析确定用其中13批生成对照CEFP(RCEFP),以此RCEFP为标准用系统指纹定量法鉴别20批柴胡舒肝丸质量。结果其中的4批化学成分数量和分布比例不合格,4批含量明显偏低,其他12批完全合格。采用内标法测定黄芩苷的含量,在5~200 mg/L范围内线性良好(r=0.9999),平均回收率(n=9)为98.2%。该法具有较好的精密度和重现性,为柴胡舒肝丸的质量控制提供了一种新的参考。

关键词: 毛细管电泳 指纹图谱 三角形优化法 四面体优化法 系统指纹定量法 色谱指纹图分离量指数 黄芩苷 柴胡舒肝丸

Abstract: The capillary electrophoresis fingerprint (CEFP) of Chaihu Shugan Pill (CHSGP) was established by capillary zone electrophoresis (CZE), and the baicalin content in CHSGP was determined by internal standard method. The electrophoretic separation was performed by using an uncoated fused silica capillary (75 cm×75 μm i.d., the effective length of 63 cm) with 50 mmol/L sodium borate-150 mmol/L NaH₂PO₄-50 mmol/L Na₂HPO₄ (1:1:1, v/v/v) containing 5 mmol/L sodium heptanesulfonate as the background electrolyte. The chromatographic fingerprint resolution index (RF) was applied to optimize the CEFP conditions. The running voltage was 11 kV while the detection wavelength was set at 265 nm. The CEFPs were produced by the electropherograms from 20 batches of CHSGP and the 22 co-possessing peaks were selected as the fingerprint peaks of CHSGP's CEFP by choosing baicalin peak as the referential peak. According to the results of classification, the referential CEFP (RCEFP) was synthesized from 13 batches of CHSGP. Taking the RCEFP for the qualified model, the whole 20 batches of CHSGP were evaluated by the systematic quantified fingerprint method. Among the 20 batches of CHSGP, 12 batches were completely qualified, the contents of 4 batches were obviously lower while the quantities of the chemical constituents and the distributed proportions of 4 batches were not qualified. The internal standard method was applied to determine the baicalin content in CHSGP and the standard curve was linear within the range of 5~200 mg/L with a correlation coefficient of 0.9999. The average recovery was 98.2%(n=9). The results showed that the methods has good precision and reproducibility, which can be served as a novel reference to identify and control the quality of CHSGP.

Keywords: capillary electrophoresis fingerprint triangle optimization method tetrahedron optimization method systematic quantified fingerprint method chromatographic fingerprint resolution index (RF) baicalin Chaihu Shugan Pill

Received 2010-07-20; published 2010-11-25

Fund:

国家自然科学基金重大研究计划课题(90612002).

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引用本文:

孙国祥*, 闫娜娜, 丁国瑜. 柴胡舒肝丸的毛细管电泳指纹图谱及其黄芩苷含量的测定[J] 色谱, 2010, V28(11): 1077-1083

SUN Guoxiang*, YAN Nana, DING Guoyu. Capillary electrophoresis fingerprint of Chaihu Shugan Pill and determination of baicalin content in Chaihu Shugan Pill [J] Chinese Journal of Chromatography, 2010, V28(11): 1077-1083

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