

非水毛细管电泳测定黄连饮片中5种生物碱

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Simultaneous determination of the five alkaloids in Rhizoma Coptidis by capillary electrophoresis

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摘要

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摘要 建立了一种非水毛细管电泳(NACE)同时测定黄连饮片生品与炮制品中小檗碱、巴马汀、药根碱、木兰碱和黄连碱含量的方法。非水溶剂、缓冲液体系及其浓度和pH、运行电压、运行温度和检测波长等条件对实验结果的影响。在优化的实验条件下,选择非水毛细管电泳模式,以40 mmol/L乙酸钠-40 mmol/L乙酸铵的无水甲醇缓冲溶液(pH 5.8)为电泳介质,未涂渍标准熔融石英毛细管(64.5 cm×长度56 cm)为分离通道,检测波长为254 nm,分离电压为25 kV,压力进样(5 kPa×6 s),柱温为20 ℃。结果显示,5种生物碱在20 r/min基线分离,加标回收率为98.37%~101.03%。该方法简单、准确,重现性较好,可用于黄连饮片内在质量的评价和控制。

关键词: 非水毛细管电泳 小檗碱 巴马汀 药根碱 木兰碱 黄连碱 黄连

Abstract: A method for the simultaneous determination of berberine, palmatine, jatrorrhizine, magnoflorine and coptisine from Rhizoma Coptidis samples based on the nonaqueous capillary electrophoresis (NACE) mode has been developed. The effects of several important factors, such as nonaqueous solvents, running buffer system and concentration and pH, separation voltage, temperature and detection wavelength, were investigated to acquire optimum conditions. The optimum conditions for the separation were as follows: the selected running buffer was a methanol solution (pH 5.8) containing 40 mmol/L sodium acetate and 40 mmol/L ammonium acetate; the separation voltage was 25 kV; detection wavelength was set at 254 nm; the sample was injected at 5 kPa×6 s and the column temperature was maintained at 20 ℃. The analytes can be obtained good baseline resolutions in a 64.5 cm×0.5 mm capillary (56 cm of effective length) within 20 min. The average recoveries of the established method were 98.37% and 101.03%. The method is simple, accurate and reproducible, and can be used for the quality control of Rhizoma Coptidis.

Keywords: nonaqueous capillary electrophoresis (NACE) berberine palmatine jatrorrhizine magnoflorine coptisine Rhizoma Coptidis

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