

研究论文

反相高效液相色谱-蒸发光散射检测法同时测定阿胶中的17种未衍生氨基酸

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摘要 建立了反相高效液相色谱-蒸发光散射检测法(HPLC-ELSD)同时测定中药阿胶中17种未衍生氨基酸含量的方法。采用PrevailTMC18色谱柱(250 mm×4.6 mm i.d., 5 μm),以乙腈-0.7%三氟醋酸溶液(含5.0 mmol/L七氟丁酸)为流动相进行线性梯度洗脱,流速为0.8 mL/min,在漂移管温度115 °C、氮气流量2.5 L/min条件下,在25 min内即可完成对阿胶中17种氨基酸的分离测定。氨基酸质量浓度为0.073~2.327 g/L时,其峰面积的对数值与质量浓度的对数值线性关系良好;17种氨基酸的加样回收率为93.5%~104.8%;信噪比为3时,测得氨基酸的最低检测限介于18.2 mg/L与54.6 mg/L之间。该法快速、简便、准确,可作为阿胶中氨基酸的直接测定方法,亦为其他药物中氨基酸的分析提供了参考。

关键词 [反相高效液相色谱](#) [蒸发光散射检测](#) [未衍生化](#) [氨基酸](#) [阿胶](#)

分类号

Simultaneous Determination of 17 Underivatized Amino Acids in Donkey-Hide Glue by Reversed-Phase High Performance Liquid

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Abstract

An analytical method to determine 17 underivatized amino acids in donkey-hide glue was established with reversed-phase high performance liquid chromatography (HPLC) coupled with evaporative light-scattering detection (ELSD). A PrevailTM C18 column was used with the mobile phase of acetonitrile-0.7% trifluoroacetic acid containing 5.0 mmol/L heptafluorobutyric acid. Under the condition of solvent gradient elution, the temperature of drift tube was 115 °C and the gas flow rate was 2.5 L/min. The 17 amino acids were separated within 25 min. The good linearities between the logarithm of peak area and logarithm of mass concentration of amino acids were obtained in a range of mass concentrations from 0.073 g/L to 2.327 g/L. The recoveries of 17 amino acids were 93.5%-104.8% with the relative standard deviations (RSDs) of 0.58%-2.88%. The lowest detection limits of amino acids were from 18.2 mg/L to 54.6 mg/L with 3 times the signal to noise ratio. This HPLC-ELSD method is rapid, simple and accurate. It can be used for the direct determination of 17 underivatized amino acids in donkey-hide glue. It also serves as a good reference for the determination of amino acids in other fields, such as pharmaceutical analysis.

Key words

[reversed-phase high performance liquid chromatography \(RP-HPLC\)](#) [evaporative light-scattering detection \(ELSD\)](#) [underivatized](#) [amino acid](#) [donkey-hide glue](#)

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