

论文

十五种原小檗碱型季铵生物碱高效液相色谱条件的优选

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摘要:

评价了色谱优化指标的选择,提出用色谱图中组分(i)与参比组分(s)保留体积比值的对数值 $[\ln(V_{R(i)}/V_{R(s)})]$ 来表示各组分的保留行为,以相邻物质对的 $\ln(V_{R(i)}/V_{R(s)})$ 的差值 $[\ln(V_{R(2)}/V_{R(2)})-\ln(V_{R(1)}/V_{R(s)})=\ln(V_{R(2)}/V_{R(1)})=\ln a']$ 为选择性指标;对天然产物中存在的十五种原小檗碱型季铵生物碱的反相色谱条件进行了优选;并根据检测结果,讨论了不同基团在原小檗碱母核上的不同位置与色谱图中保留值的关系。

关键词: 原小檗碱型季铵生物碱 高效液相色谱法 色谱优化

OPTIMIZATION OF HPLC CONDITIONS FOR 15 NATURALLY OCCURRING PROTOBERBERINE TYPE QUATERNARY ALKALOIDS

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Abstract:

The selection of chromatographic optimization criterion is evaluated. Using natural logarithm of the ratio of retention volume of component (i) to reference component (s) in the chromatogram as a function of the retention behavior of each component, the differences between the  $\ln(V_{R(i)}/V_{R(s)})$  of adjacent pairs of substances were proposed as a measure of separation selectivity. Conditions of reversed phase chromatography of 15 naturally occurring protoberberine type quaternary alkaloids were optimized. On Nucleosil 5 C<sub>18</sub> column (25 cm×4 mm) at 45°C with detection at 346nm, isocratic elution with CH<sub>3</sub>CN-H<sub>2</sub>O (30:70) containing 20 mmol/L KH<sub>2</sub>PO<sub>4</sub> at 1.5 ml/min is suitable for the separation of 13 protoberberines. The other two, berberubine and palmatrubine, must be eluted with a mobile phase whose pH value is less than 3.5. Analysis of the data obtained showed the relations between the different functional groups at different positions on protoberberine ring system and the retention values in the chromatogram.

Keywords: HPLC Chromatographic optimization Protoberberine type quaternary alkaloids

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