

论文

中国茄科植物中莨菪烷生物碱的薄层分离和含量测定

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摘要:

本文报道用不含粘合剂的氧化铝薄层,以二甲苯-丙酮-无水乙醇-二乙胺(50:40:10:0.6)为展开剂分离茄科植物中的莨菪碱、东莨菪碱、山莨菪碱、樟柳碱及红古豆碱等五种莨菪烷生物碱,用改良Dragendorff试剂-Wagner试剂(1:1)显色,定量收集莨菪碱、东莨菪碱及山莨菪碱的斑点,莨菪碱和东莨菪碱用氨甲醇洗脱,蒸干洗脱液后分别用pH 5.6及pH 4.5的溴甲酚绿溶液作比色测定;山莨菪碱用4%醋酐氯仿洗脱,蒸干洗脱液后用pH 5.6的溴甲酚绿溶液作比色测定。本法需要样品量小,提取方法简便,测定方法灵敏稳定、重现性好,适用于多种茄科植物样品及其制剂的分析。

关键词:

TLC SEPARATION AND DETERMINATION OF TROPANE ALKALOIDS IN CHINESE SOLANACEOUS PLANTS

Ho Liyi and Zhang Yuzhong

Abstract:

Macerate 1.0g of the powdered sample with 20.0 ml of chloroform plus 0.3ml of 25% NH₄ OH in a glassstoppered flask overnight. Take exactly 10.0 ml of filtrate, evaporate and dissolve the residue in 1.0 ml of chloroform. Spot the resulted solution for thin layer chromatography on a layer of alumina (without binder) with xyleneacetone-absolute ethanol-diethylamine (50: 40: 10: 0.6) as the developing solvent, by which anisodamine, hyoscyamine, scopolamine, anisodine and cuscohygrine can be separated. Locate the alkaloid spots by spraying the layer with modified Dragendorff reagent-Wagner reagent (1: 1). Collect separately the coloured spots from the layer into a collector, for anisodamine elute with 10.0 ml of chloroform containing 4% acetic anhydride, for hyoscyamine and scopolamine, first moisten the alumina in the collector with two drops of conc. ammonium hydroxide, then elute with 10.0 ml of methyl alcohol. Collect the eluates separately and evaporate to dryness on a boiling water bath (in case of anisodamine, evaporate acetic anhydride completely), to the residue add 2.0 ml of buffer solution of 0.04% bromocresol green (pH 5.6 for anisodamine and hyoscyamine, pH 4.5 for scopolamine), 6.0 ml of water, and 10.0 ml of chloroform, shake the mixture for three minutes. After separation of the layers, take exactly 6.0 ml of chloroform layer, add 1.0 ml of 0.006~0.01 N anhydrous alcoholic solution of potassium hydroxide, and calculate the results by comparison with standard curve prepared by the same procedure. The method is Simple and rapid, the results obtained are stable and reproducible, and can be used for various kinds of plant sample and preparations.

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