



## 新疆乌头属植物高效薄层色谱指纹图谱研究

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**摘要** 目的 建立新疆乌头属植物薄层色谱指纹图谱, 并进行分析, 评价其相似程度及亲缘性。方法 采用高效硅胶G薄层板, 以正己烷-乙酸乙酯-甲醇(6.4:3.6:1)为展开剂, 以稀碘化铋钾溶液显色, 获得其显色后的薄层指纹图谱, 经ChemPattern化学指纹图谱分析系统解决方案软件生成共有模式, 进行相似度分析、聚类分析和主成分分析。结果 筛选和优化薄层色谱条件, 斑点清晰, 分离度好; 建立了新疆乌头属植物薄层色谱指纹图谱共有模式, 由6个特征峰组成。相似度分析结果表明, 新疆乌头属植物不同种之间化学成分有一定差异, 大致可分为3类。其中白喉乌头、空茎乌头与草乌、川乌相似度较高。结论 建立的薄层色谱指纹图谱, 为新疆乌头属药用植物指纹图谱的研究奠定了方法学基础, 白喉乌头是与已有国家法定药材标准的川乌、草乌相似度较高、具有潜在药用价值的品种, 值得进一步深入研究。

**关键词:** 新疆乌头属植物 薄层色谱指纹图谱 相似度分析 聚类分析 主成分分析

**Abstract:** OBJECTIVE To establish the HPTLC fingerprint of *Aconitum* plants in Xinjiang and to carry out similarity comparison, cluster analysis and principal component analysis. METHODS Using high performance thin layer silica gel G plate, *n*-hexane-ethyl acetate-methanol (6.4:3.6:1) as developer, diluted bismuth potassium iodide solution as colour-developing agent, of the HPTLC fingerprints were obtained. The common pattern was explored by chemical fingerprint analysis system software. Similarity analysis, cluster analysis and principal component analysis were carried out. RESULTS The conditions for thin layer chromatography were optimized, the spots were clear, and the separation was good; similarity analysis showed that Xinjiang *Aconitum* had some differences in chemical composition between different plant species, which can be broadly divided into three categories. *Aconitum leucostomum* Worosch. and *Aconitum apetalum* (Huth) B. Fedtsch. had high similarity with *Aconitum carmichaelii* Debx. and *Aconitum kusnezoffii* Reichb.. CONCLUSION The established thin-layer chromatographic fingerprints have laid the methodological foundation for the study of the fingerprint of Xinjiang *Aconitum* plants. *Aconitum leucostomum* Worosch., which is a widely distributed and abundantly reserved *Aconitum* species in Xinjiang, has potential medicinal value and similarity with *Aconitum carmichaelii* Debx. and *Aconitum kusnezoffii* Reichb. Which have national quality standard, and is worthy of further studies.

**Keywords:** Xinjiang *Aconitum*, TLC fingerprint, similarity analysis, cluster analysis, principle component analysis (PCA)

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