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# 红花提取物纯化过程的近红外光谱快速测定方法研究

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中文摘要:**目的:** 应用近红外光谱法,实现中药提取物大孔树脂纯化过程中质量控制指标含量的快速检测和吸附终点的快速判断。**方法:** 本研究以红花提取物大孔树脂吸附过程为例,将近红外光谱在线分析技术与偏最小二乘法(PLS)、移动块标准偏差法(MBSD)等方法相结合,以HPLC为参照,构建红花提取物大孔树脂吸附过程的羟基红花黄色素A(HSYA)定量校正模型和吸附终点的定性检测方法。 **结果:** 所建立的HSYA定量校正模型的相关系数*R*达到0.999,校正集RPD和验证集RPD分别为5.54,5.22(RPD>5),模型定量效果良好;同时利用吸附过程采集的近红外光谱,通过MBSD计算和HPLC所获得的吸附终点判断结果接近(仅有1 min偏差)。 **结论:** 该法操作简便、快速无损,能够应用于红花提取物大孔树脂纯化过程中HSYA浓度的快速检测和吸附终点的快速判断。

中文关键词:近红外透射光谱 红花 大孔吸附树脂纯化 定性定量

## Fast measurement method based on near infrared spectroscopy in purifying process of *Carthamus tinctorius* extracts

**Abstract:Objective:** To really realize quality control of Chinese herb purifying process, near-infrared spectroscopy (NIRS) was used not only for fast monitoring quality-control index of the process, but also for fast judgment of absorption endpoint. **Method:** The purification process of *Carthamus tinctorius* extracts with nonionic macroreticular resin was selected as an example. HPLC was used as the reference method to determine the content of HSYA. Quantitative and qualitative detection modes of purification were developed by NIRS combined with partial least squares (PLS) and moving block of standard deviation (MBSD). **Result:** The correlation coefficient of the calibration model was 0.999, and the RPD for calibration and validation were above 5, of 5.54 and 5.22, respectively. Based on acquisition spectra, absorption endpoint calculated by MBSD was close to that by HPLC, Only 1 min deviation. **Conclusion:** The method mentioned above is proved to be convenient, rapid and nondestructive, and is applicable for fast monitoring the content of HSYA and fast judgment of absorption endpoint in purifying process of *C. tinctorius* extracts.

**keywords:**near infrared transmitted spectroscopy *Carthamus tinctorius* purification with macroreticular resin quality and quantity

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