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星点设计-响应面法优选藤梨根中总黄酮的提取工艺研究

Optimal Extraction of Total Flavone from Tengligen by Central Composite Design and Response Surface Methodology

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中文关键词： 藤梨根 总黄酮 星点设计 响应面法

英文关键词:Tengligen total flavone central composite design response surface methodology

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中文摘要:

目的 优化藤梨根中总黄酮的提取工艺。方法 以微波功率、乙醇浓度、料液比、提取时间为自变量，总黄酮含量为因变量，通过对自变量各水平的多元线性回归及二项式拟合，用星点设计-响应面法选取最佳工艺，并进行预测分析。结果 最佳工艺条件为微波功率203.56 W，乙醇浓度80.34 %，料液比1∶13.28，提取时间9.78 min，在此最佳条件下，藤梨根中总黄酮含量的最大估计值为103.152 mg·g^{-1}。实验结果与模型预测值相符。结论 本方法简便合理、稳定、可预测性较优。

英文摘要:

OBJECTIVE To optimize the extraction technology of total flavone extraction from Tengligen. METHODS The independent variables were microwave power, ethanol concentration, sample/solvent ratio and extraction time, the dependent variable was extraction rate of total flavone which was used to estimate the relationship between independent and dependent variables. Central composite design and response surface methodology were used to optimize the process of extraction. The prediction was carried out through comparing the observed and predicted values. RESULTS The optimum technological parameters were as follows: microwave power 203.56 W, ethanol concentration 80.34%, sample/solvent ratio of 1∶13.28 and extraction time 9.78 min. The highest extraction rate of total flavone was 103.152 mg·g^{-1} which was coincided with model predictions. CONCLUSION The extraction technology is simple, reliable and highly predictive.

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