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Box-Behnken设计-效应面法优化调脾和中颗粒的提取工艺

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摘要:

目的: 优选调脾和中颗粒的最佳水提取工艺参数, 为现代工业化生产提供依据。方法: 以总多糖、总黄酮及栀子苷含量为指标, 运用Box-Behnken设计 (BBD)-效应面法 (RSM) 优选影响水提工艺的主要因素, 采用UV-Vis法测定各实验样品中总多糖和总黄酮含量, 采用HPLC法测定栀子苷含量, 对各指标进行归一化处理, 以OD值为响应变量建立二阶多项式模型。结果: 经Design Expert 8.0.6软件分析, 三个影响因素中提取次数对评价指标的影响最显著, 加水量次之。最终确定其最佳提取工艺为加10倍量水煎煮3次, 每次1 h。结论: 优选的提取工艺经放大验证, 重复性良好, 能够为工业化生产提供参考。

关键词: [脾和中颗粒](#) [Box-Behnken设计-效应面法](#) [提取工艺](#) [总多糖](#) [总黄酮](#) [栀子苷](#)

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Optimization of Extracting Technology of Tiaopi Hezhong Granules by Box-Behnken Design-Response Surface Methodology

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Abstract:

Objective: To optimize the water extraction parameters of Tiaopi Hezhong Granules and provide many essential datas for its modern industrial production. Methods: The contents of total polysaccharides, total flavonoids and geniposide were taken as indexes. Box-Behnken design (BBD)-response surface methodology (RSM) was used to optimize the main factors (the amount of water added, the time of each times of extraction and the times of extraction) that affected the extraction procession. The contents of total polysaccharides, total flavonoids and geniposide in many test samples were determined by UV-Vis and HPLC methods. And then these indicators were normalized as the OD value which was used as the response variable to establish a second-order polynomial model. Results: The results of data analysis by Design Expert 8.0.6 software indicated that the times of extraction was the most significant factor among the three variables in influencing the evaluation indexes. However, the amount of water came to the second place. Finally, the best process was established where the formula of Tiaopi Hezhong Granules was added with 10 times distilled water and decocted for an hour for 3 times. Conclusion: The optimized water-extraction was proved to be stable and reliable, and could provide reference for further industrial production.

Key words: [Tiaopi Hezhong Granules](#) [BBD-RSM](#) [extraction process](#) [total polysaccharide](#) [total flavonoids](#) [geniposide](#)

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