

论文

用卡尔曼滤波—紫外分光光度法作盐酸氯丙嗪与盐酸异丙嗪的同时测定

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摘要:

卡尔曼滤波作为强有力的化学计量学方法,可用于改善多元组分分光光度分析法的数据解析功能,本文提出应用卡尔曼滤波算法解析盐酸氯丙嗪与盐酸异丙嗪混合体系的紫外吸收光谱,不经分离精确地测定出该二组分的含量;平均回收率:盐酸氯丙嗪99.91±0.96%,盐酸异丙嗪99.58±0.97%(95%置信度)。滤波过程的新息序列能提供有关被测样品中可能存在未知吸光物质的重要信息,后者在例如被分析的药品试样发生变质等情况时是结果可靠性的有效判据。方法准确、简便,适用于药物质量控制分析。

关键词: 卡尔曼滤波 紫外分光光度法 盐酸氯丙嗪 盐酸异丙嗪

KALMAN FILTERING—UV SPECTROPHOTOMETRIC SIMULTANEOUS DETERMINATION OF CHLORPROMAZINE HYDROCHLORIDE AND PROMETHAZINE HYDROCHLORIDE

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Abstract:

Kalman filtering as a powerful chemometrics tool for state estimation can be used to improve data interpretation ability of the spectrophotometric method of multicomponent analysis. In this paper, a UV-spectrophotometric procedure based on Kalman filtering is proposed for determination of chlorpromazine and promethazine hydrochlorides in synthetic mixtures and pharmaceutical preparations without preliminary separation. The average recoveries calculated at 95% confidence level for chlorpromazine and promethazine were 99.91±0.96% and 99.58±0.97%, respectively. The innovation sequence obtained by the filtering algorithm can provide valuable information about the unknown absorbing species possibly present in the analyzed sample. This information is a very useful criterion for judging the reliability of the results, eg, in the analysis of the deteriorated drug preparations. The proposed method provides an accurate and simple tool for drug quality control.

Keywords: UV spectrophotometric method chlorpromazine hydrochloride Promethazine hydrochloride Kalman filtering

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