

研究论文

PLS-ANN算法-NIR光谱非破坏性Norvasc药物有效成分的定量分析

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摘要 采用偏最小二乘(PLS)结合人工神经网络(ANN)算法解析Norvasc(络活喜)药片的近红外(NIR)漫反射光谱, 实现了对其中有效成分苯磺酸氨氯地平的非破坏定量测定. 设计了最佳的PLS-ANN模型, 分别讨论了最佳波长范围、导数光谱及输入层和隐含层节点数对预测结果的影响. 以HPLC法的测定结果作标准, 苯磺酸氨氯地平浓度预测值的相对误差RE < 3.5%, 该方法可用于Norvasc药品实际生产中的质量控制.

关键词 [偏最小二乘](#) [人工神经网络](#) [近红外漫反射光谱](#) [非破坏定量分析](#) [Norvasc药片](#)

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Nondestructive Quantitative Analysis of Norvasc in Medicine Tablets by PLS-ANN Arithmetic Combined with NIR Spectroscopy

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Abstract Artificial neural network(ANN) algorithm combined with partial least squares(PLS) was used to parse near infrared(NIR) reflectance spectra of Norvasc medicine in tablets. The nondestructive and quantitative determination of the contents of amlodipine besylate, which is an effective component in the Norvasc tablets, were accurately carried out. The best model of PLS-ANN was designed. The effect of the best wavelength range, derivative NIR spectrum, input nodes and hidden nodes on the predicted results was discussed respectively. Compared the results with those of HPLC, the relative errors(RE) of amlodipine besylate are less than 3.5%. The analytical results could be applied to the quality control of Norvasc medicines in practical manufacture.

Key words [Partial least squares](#); [Artificial neural network](#); [Near infrared reflectance spectrum](#); [Nondestructive and quantitative analysis](#); [Norvasc in tablets](#)

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