论文

基于高效液相色谱的中药材模式识别新方法

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摘要
该文提出了一种基于高效液相色谱的中药材模式识别新方法。此方法采用一种新的自组织模糊神经网络识别中药材。网络由2级神经网络构成:第1级为子类自动聚类结构自组织模糊神经网络;第2级为有监督子类分类神经网络。整个网络既有神经网络的学习能力,又有模糊系统的基于规则的推理能力,特别是对子类的自动聚类能力。因为中药材会由于产地、采摘时间和处理方法的不同而有较大的区别,所以子类的自动聚类能力对中药材模式识别尤其有意义。另外整个网络还能适应特征维数不等的模糊模式识别问题。经大量中药材样本和实际测试表明,网络抗平移、形变和适应新产地药材的能力都很强,达到了预期效果。

关键词　中药　模式识别　模糊神经网络　色谱

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The New Pattern Recognition Method of Traditional Chinese Medicine Based on HPLC

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Abstract

The new pattern recognition method of traditional Chinese medicine based on High Performance Liquid Chromatogram(HPLC) is presented. While a new self-organizing fuzzy neural network is also proposed in order to recognize the traditional Chinese medicine. This network is composed of two levels neural network: the first level is a self-organizing fuzzy neural network which has the automatic clustering structure for sub-class; the second level is supervised sub-class classification neural network. The whole network has not only the learning ability to neural network, but also the logic ability to fuzzy system based on rules, especially the automatic clustering ability to sub-class. The automatic clustering ability for sub-class has great meaning to the pattern recognition of traditional Chinese medicine because the traditional Chinese medicine will be very different under the condition of different place come from, different time picked up and different method dealt with. In addition, the whole network can also adapt to the fuzzy pattern recognition problem when the feature dimensions are not equal. It is manifested after abundant of traditional Chinese medicine samples have been used to test the network's abilities. The results show that the resistance to parallel removal, deformation and the adaptability to the medicines coming from new places are very strong, thus the goals expected are achieved.

Key words　Traditional Chinese medicine　Pattern recognition　Fuzzy neural network　Chromatogram

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