

Classification of multicomponent analytical data of olive oils using different neural networks

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Abstract

A comparison of classification abilities of two different neural network methods, namely, back-propagation of errors and Kohonen learning is made and discussed. The classification is performed on a set of 572 Italian olive oils on the basis of an analysis of eight fatty acids. The comparison of methods is carried out by different neural network architecture for each learning strategy separately. It was found that for the applied classification problem Kohonen learning is superior to the back-propagation of errors. Additionally, the levels of weights in the Kohonen neural network can be exploited to give more detailed information about the separation ability of each individual variable, i.e., of each individual fatty acid in our case.

Keywords: neural networks, back-propagation of errors, Kohonen network, classification, complex analyses.

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