

**Classification of Serum Protein Profile using Learning Vector Quantization Neural  
Network in Oral Cancer Diagnosis**

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**Abstract:**

The work presented in this paper aims at improving the status with regards to the classification of protein profiles of serum samples between healthy volunteers and oral cancer patients recorded using HPLC-LIF method designed and assembled in our laboratory. We have used a prototype-based supervised classification algorithm called LVQ .We found that the deciding factors in optimizing accuracy is the number of attributes, their range and data scaling methodology. A specific post processing procedure was developed to enhance the percentage of recognition of the testing data. The classifications made by the networks (with or without the post processing procedure) for 20 samples were compared. High rates of agreement (>98%) between our spectroscopy data classification and standard laboratory data classifications were obtained. Programming has been done using ANN tools box, MATLAB 7.0.

**Keywords:** ANN, LVQ, HPLC-LIF, Oral cancer.