**COMPARISON OF VARIABLE SELECTION METHODS FOR WATER QUALITY PREDICTION USING ARTIFICIAL NEURAL NETWORK**

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Abstract

Selecting predictive variables is one of the most important issues significantly affecting the results of the study. The research objective evaluates different variable selection methods to improve the predictive efficiency of the artificial neural network models. In this study, the authors used three techniques selecting variables including the multiple linear regression, the factor analysis, and the cluster analysis integrated principle component analysis to select predictors for water quality of the Dong Nai River, Vietnam. The artificial neural networks were used such as multi-layer perceptron and generalized regression networks. The results of the study demonstrated that all three selection methods were obtained the good results for the ANN model. However, the multiple linear regression was the best performance with model errors in the MLPNN respectively 1.7 and 2.8.

**Keyword:** *Comparison, variable selection, water quality, prediction, artificial neural network*