



Modelling Dissolved Oxygen Concentration Using Artificial Neural Networks

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Abstract: An attempt was made to study the suitability of water for drinking based on various water quality parameters in Guntur, Andhra Pradesh, India. Parameters that were considered for water quality assessment includes pH, turbidity (T), electrical conductivity (EC), salinity (S), total dissolved solids (TDS), total alkalinity (TA), total hardness (TH), chloride (Cl) and dissolved oxygen (DO). All the above parameters were modelled using artificial neural network (ANN) and multiple linear regression (MLR) techniques to compute DO. The performance of the ANN models was assessed based on root mean squared error (RMSE), mean absolute error (MAE), coefficient of determination (R^2), and Willmott index (WI). The results of the analysis showed that the pH, EC, S, TDS, DO are within BIS permissible range as compared to TA, TH, and Cl. It was found that the DO values computed by the ANN model were in close agreement with their respective observed values as compared to MLR.

Keywords: Alkalinity, Dissolved oxygen, Water quality, ANN, Guntur
