ARTIFICIAL INTELLIGENCE BASED MODELING FOR WATER TREATMENT

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Abstract

In this work, two computational methods are developed to predict the photocatalytic removal of AY23 in the presence of Ag-TiO2 nanoparticles prepared under desired conditions. One is artificial neural network (ANN) approach, another is genetic algorithm (GA) modeling approach. To develop the models, a total of 100 data were used, wherein four parameters, such as initial concentration of dye, UV light intensity, initial dosage of nano Ag-TiO2 and irradiation time were used as the input variables and removal of AY23 as output variable. The predictive and generalization abilities of the models were comprehensively evaluated using several statistical tests. The comparison between the predicted results by designed models and the experimental data prove that modeling of the removal process of AY23 by using ANN and GA are precise methods to predict the extent of AY23 removal under different conditions. ANN model performed relatively better than the GA model.

Keywords: , Artificial neural network, Genetic algorithm, Modeling.

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