

Abstract

The aim of this research was to use a low price and environmentally friendly adsorbent with the abundant of source to remove methylene blue from water samples. Sawdust solid-phase extraction coupled with high performance liquid chromatography was used for the extraction and determination of methylene blue. In this study, an experimental data based artificial neural network model is constructed to describe the performance of sawdust solid-phase extraction method for various operating conditions. The pH, time, amount of sawdust and temperature were the input variables, while the percent of extraction of methylene blue was the output. The optimum operating condition was then determined by genetic algorithm method. Under the optimum conditions, the detection limit and relative standard deviation were $0.067 \mu\text{gL}^{-1}$ and $<2.4\%$, respectively. The method was applied to the removal and determination of methylene blue from water samples.

Keywords: Methylene blue; Sawdust; Solid-phase extraction; Artificial neural network; Genetic algorithm.



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Solid - phase extraction of methylene blue from water samples using sawdust

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