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## **OPTIMIZATION OF BATCH PROCESS VARIABLES USING RESPONSE SURFACE METHODOLOGY FOR Cu<sup>2+</sup> REMOVAL FROM AQUEOUS SOLUTION BY PEAT ADSORBENT**

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### **Abstract**

The removal efficiency of Cu<sup>2+</sup> from aqueous solutions was investigated using Sphagnum peat as adsorbent. A 2<sup>4</sup> full factorial central orthogonal design was successfully employed for experimental design and analysis of the results. The combined effect of initial concentration of Cu<sup>2+</sup> in aqueous solution (C<sub>0</sub>, mg/L), peat dose (G, g/L), pH and time (t, min) was studied and optimized using Response Surface Methodology (RSM). The optimum C<sub>0</sub><sup>\*</sup>, G<sup>\*</sup>, pH<sup>\*</sup> and t<sup>\*</sup> were found to be 57.163 mg/L, 34.198 g/L, 4.72, 69.44 min respectively, in this point the removal efficiency is the maximum one (100% given by empirical model and 98.32 % verified experimentally).

*Keywords:* batch adsorption, copper, peat, optimization, Response Surface Methodology

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