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The feasibility of using *Rosa canina* galls as an effective new biosorbent for removal of methylene blue and crystal violet

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ABSTRACT

In this study, removal of two cationic dyes, basic blue 9 (BB9) and basic violet 3 (BV3) with *Rosa canina* galls (RCG), was investigated. The parameters that affect the biosorption process such as pH of the solution, amount of biosorbent and initial dye concentration were studied. The kinetic and thermodynamic parameters of biosorption were calculated with batch systems. The optimum pH for the adsorption system was 5.0 and 7.0 for BB9 and BV3, respectively. The adsorption process followed the Freundlich model and pseudo-second-order kinetics. The maximum adsorption capacities were 107.53 mg g^{-1} and 312.50 mg g^{-1} for BB9 and BV3, respectively. The thermodynamic study indicated that the adsorptions of these cationic dyes were spontaneous and endothermic. The results show that RCG has a potential as an effective low-cost biosorbent for removal of cationic dyes.

Keywords: Rosa canina gall; Biosorption; Dye removal