

Binding Mechanisms of Reactivity of Reactive Dyes toward the *Corynebacterium glutamicum* Biomass

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Various binding mechanisms of reactive dyes toward the protonated waste biomass of *Corynebacterium glutamicum* were investigated. Reactive Blue 4 (RB 4), Reactive Orange 16 (RO 16), and Reactive Yellow 2 (RY 2) were used as model dyes in this study. The solution pH strongly influenced the uptake of reactive dyes by *C. glutamicum*. At acidic pH, the electrostatic interaction was found to be a major binding mechanism. The maximum uptakes of RY 2, RO 16 and RB 4 were estimated to be 155.0 ± 14.1 , 156.6 ± 6.7 , and 184.9 ± 16.4 mg/g at pH 2, respectively. Under alkaline condition, the reactivity of each reactive dye played an important role in the binding between the biomass and reactive dye. It was found that chemical bonding formed between biomass surface and dye molecules under basic pH conditions.