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降解酸性蓝B的镰刀菌(*Fusarium* sp.)HJ01的分离和降解特性研究

Isolation of acid blue B-degrading *Fusarium* sp.HJ01 and the studies on its degradation characteristics

关键词: [镰刀菌](#) [脱色](#) [酸性蓝B](#)

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摘要: 从膨润土中分离出一株对酸性蓝B具有降解效果的镰刀菌(*Fusarium* sp.)HJ01,研究了其生长特征和动力学模型模拟、降解酶的性质以及对酸性蓝B的脱色效果.结果表明:菌株生长的适宜条件为:pH范围为6~7,蔗糖为碳源,NH₄Cl为氮源.菌体生长符合改进的logistic law模型.SDS-PAGE分析HJ01菌株所产漆酶的相对分子量约为66×10³,在低氮条件下漆酶活性高达431~812U·mg⁻¹·s⁻¹.菌体培养96h后加入到含100mg·L⁻¹酸性蓝B的培养基中,再培养96h,酸性蓝B的脱色率达100%.紫外光谱分析表明,酸性蓝B的发色基团蒽醌环被漆酶破坏.

Abstract: An acid blue B-degrading strain (*Fusarium* sp.)HJ01 was isolated from bentonite. The growing characteristics and kinetics, the characteristics of enzymatic biodegradation of *Fusarium* sp. HJ01 were analyzed. And the effects of biomass on decolorization of acid blue Bin aqueous samples were reported. The results showed that the pH range between 6 and 7 for growth of *Fusarium* sp. HJ01 was feasible, and the sucrose and NH₄Cl is also feasible for carbon source and nitrogen source respectively. The growth kinetics of *Fusarium* sp. HJ01 was fitted by the modified logistic law model. The molecular weight of laccase from *Fusarium* sp. HJ01 was approximately 66kDa analyzed by SDS-PAGE, and laccase activity was up to from 431 U·mg⁻¹·s⁻¹ to 812 U·mg⁻¹·s⁻¹ at the condition of low nitrogen source. The *Fusarium* sp. HJ01 incubated for 96 h at 25 °C were added to the liquid medium containing acid blue B (100 mg·L⁻¹). And when cultured continuously for another 96 h, the decolorization rate of acid blue B was up to 100%. The ultraviolet-visible spectrum showed that the chromophore anthraquinone ring of acid blue B was broken down by laccase.

Key words: [Fusarium](#) [decolorization](#) [Acid blue B](#)

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