

**Yanchun Li, Liwen Zheng, Yuping Li, Jun Dong**

**THE SIMULTANEOUS BIOREMOVAL OF Cr(III) AND DYE  
BY IMMOBILIZED *PHANEROCHAETE CHRYSOSPORIUM***

Qilu University of Technology, China  
lyc@qlu.edu.cn

*To attain better removal efficiency and higher toxic resistance, the alginate was used to immobilize Phanerochaete chrysosporium BKM-F-1767 in this study. And according to the characteristics of tannery wastewater, inhibitory effect of Cr(III) to the decolorization was investigated and adsorption kinetics of Cr(III) by the immobilized P.chrysosporium had been established. Furthermore, the Acid Violet 7 and Basic Fuchsin contributed as the experimental dyes in the paper, the removal studies were performed at an initial pH of 4.5. The combined effects of Cr and dyes on the simultaneous removal properties were determined in a batch system at different levels of Cr and dyes. Moreover, the dose-response relationship and a kinetic equation describing the simultaneous removal properties had been established. The results have proved that the immobilized P. chrysosporium has the ability to treat the tannery wastewater.*

**Keywords:** white-rot fungi, immobilized cell, tannery wastewater, dyes, chromium.

### **Introduction**

Although dyes provide various colors to the leather products, the discharge of these wastes into the effluent affects significantly photosynthetic activity in aquatic life. In recent years, numerous articles have reported new techniques handling the dyeing wastewater in the tannery. The authors [1] combined biodegradation and ozonation to treat dyes and tannins, and in [2] enzymatic and electrochemical treatments were used to decolorize the leather effluent.

Because of formation of hazardous by-products and intensive energy requirements, however, the use of biological systems for the treatment of the dyestuffs is the main stream of industrial process to control the tannery effluent. Conventional wastewater treatment systems employed anaerobic bacteria to

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