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BRILLIANT BLUE R AND REMAZOL BRILLIANT BLUE R BIOREMEDIATION BY THERMOPHILE *CYANOBACTERIUM APONINUM*

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Abstract

Brilliant Blue R (BBR) and Remazol Brilliant Blue R (RBB R) bioremoval capacity of thermophile *Cyanobacterium aponinum* was investigated. Trials were carried out at pH 9.5 corresponding to the highest pollutant bioremediation. *C. aponinum* removed 97.6% of the applied 9 mg/L BBR; the highest bioremoval was 85.6% in samples with 10.1 mg/L RBBR. Removal capacities of *C. aponinum* raised with an increase in temperature and inoculum concentration; the highest yield was 70% in RBBR samples with 65.1 mg/L at 35 °C. Maximum specific dye removal (q_m) was 41.1 mg/g in media with 62.7 mg/L BBR at 45 °C. There are apparently no other studies investigating dye bioremediation capacity by *C. aponinum* under different environmental conditions. It can be concluded that removal capacity could be increased by temperature through stimulation of the inoculum production in samples with RBBR. Optimum conditions for the most effective RBBR bioremoval by *C. aponinum* were pH 9.5, 35 °C, and the usage of 20% (v/v) inoculum. The data indicated that *C. aponinum* is a suitable biosorbent for effective treatment processes of wastewaters, containing dyes.

Key words: bioremediation, *Cyanobacterium aponinum*, pollutant, thermophile, wastewater

Received: November, 2020; *Revised final:* April, 2021; *Accepted:* October, 2021
