Trichoderma atroviride as a bioremediator of Cu pollution: an in vitro study

Abstract

Isolated Trichoderma atroviride from Cu-polluted river sediment at the Serdang Industrial Area was studied under in vitro conditions to understand the mechanisms that allowed the fungi to thrive in the Cu-polluted freshwater ecosystem. From this study, adsorption was recognized as the main mechanism of Cu tolerance with 50–85% adsorption during the in vitro experiment. The uptake capacity of the isolate in liquid medium ranged from 0.8 to 11.2mg g1 in the potato dextrose broth medium with increasing Cu concentrations from 25 to 300mg L1. It was found that 2.7–5.0% of Cu was lost due to washing. The high percentage of Cu adsorption and the high uptake capacity of Cu by T.atroviride suggest that it is a potential bioremediator of Cu. However, further studies are needed to confirm its practical use as a bioremediating agent for Cu under field conditions.

Keyword: Trichoderma atroviride; Bioremediation; Adsorption; Cu absorption