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Biosorption of copper ions from aqueous solutions by *Spirulina platensis* biomass

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Heavy metal pollution of the aquatic environment has been considered as a major global environmental problem; due to their toxicity through food chains. Copper is one among the metals that cause serious problems through pollution. Hence, it is necessary to remove copper from wastewater prior to its disposal. In this context, the economically important micro-alga (cyanobacterium) *Spirulina platensis* dry biomass was used as biosorbent for the removal of copper from aqueous solutions. The biomass was exposed to various concentrations of copper and adsorption of copper by the biomass was evaluated under different conditions that included pH, contact time, temperature, concentration of adsorbate and the concentration of dry biomass. Increased adsorption of copper by the non-living biomass was recorded with gradually increasing pH, and a maximal uptake by the biomass was observed at pH 7. The adsorption of copper was found to increase gradually along with decrease in biomass concentration. Biosorption was found to be at a maximum (90.6%), in a solution containing 100 milligram copper/L, at pH 7, with 0.050 g dry biomass and at 37˚C with 90 minutes of contact time. Analysis of the spectrum obtained with atomic absorption spectrophotometer (AAS), indicated that the adsorbent has a great potential to remove copper from aqueous media contributing to an eco-friendly technology for efficient bioremediation in the natural environment.

Biography

Ali A. Al-Homaidan is Professor of Phycology and Environmental Pollution and director of research and postgraduate studies at the College of Science, King Saud University, Riyadh, Saudi Arabia. He received his BSc (Hons.) degree from the University of Riyadh in 1976. In 1982 he gained an MSc from Colorado State University, USA. In 1986 he obtained his Ph.D. from the Department of Botany and Microbiology of the University of Wales, Swansea, UK. Since then, he worked as assistant, associate and full professor at KSU. He supervised many MSc and Ph.D. students and published more than 50 papers in reputed journals.

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