

## Assessment of the Effect of Cu and Zn on the Growth of Two Chlorophytic Microalgae

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**Abstract :** Heavy metals are metallic elements with a relatively high density, at least five times greater compared to water. The sources of heavy metal pollution in the environment include industrial, medical, agricultural, pharmaceutical, domestic effluents, and atmospheric sources, mining, foundries, smelting, and any heavy metal-based operation. Although some heavy metals in trace quantities are required for biological metabolism, their higher concentrations elicit toxicities. Others are distinctly toxic and are of no biological functions. Microalgae are the primary producers of aquatic ecosystems and, therefore, the foundation of the aquatic food chain. A study investigating the effects of copper and zinc on the two chlorophytes-Chlorella vulgaris and Dictyosphaerium pulchellum was done in the laboratory, under different concentrations of 0mg/l, 2mg/l, 4mg/l, 6mg/l, 8mg/l, 10mg/l, and 20mg/l. The growth of the test microalgae was determined every two days for 14 days. The results showed that the effects of the test heavy metals were concentration-dependent. From the two microalgae species tested, Chlorella vulgaris showed appreciable growth up to 8mg/l concentration of zinc. Dictyosphaerium pulchellum had only minimal growth at different copper concentrations except for 2mg/l, which seemed to have relatively higher growth. The growth of the control was remarkably higher than in other concentrations. Generally, the growth of both test algae was consistently inhibited by heavy metals. Comparatively, copper generally inhibited the growth of both algae than zinc. Chlorella vulgaris can be used for bioremediation of high concentrations of zinc. The potential of many microalgae in heavy metal bioremediation can be explored.

**Keywords :** heavy metals, green algae, microalgae, pollution

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