

<b>Algal Biomass Extract as Mediator for Copper Oxide Nanoparticle Synthesis: Applications in Control of Fungal, Bacterial Growth, and Photocatalytic Degradations of Dyes</b>		
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<p><b>Abstract:</b> This study explores the use of algae biomass to synthesize copper oxide nanoparticles (CuONPs) and their applications. High-performance liquid chromatography identified daidzein and ellagic acid as key components in the algal biomass. The biomass extract efficiently reduced CuONPs at temperatures up to 50°C. Transmission electron microscopy revealed CuONPs with sizes between 5 and 17 nm. The nanoparticles showed significant antifungal activity, with inhibition zones ranging from 1.00 to 2.42 cm against various fungi, and antibacterial activity with inhibition zones of 22 to 26 mm against several bacteria. CuONPs also effectively degraded methyl orange and methyl green dyes, indicating their potential for controlling microbial growth and treating dyes.</p>		