

Green Synthesis of CuO Nanoparticles from Macroalgae *Ulva lactuca* and *Gracilaria verrucosa*

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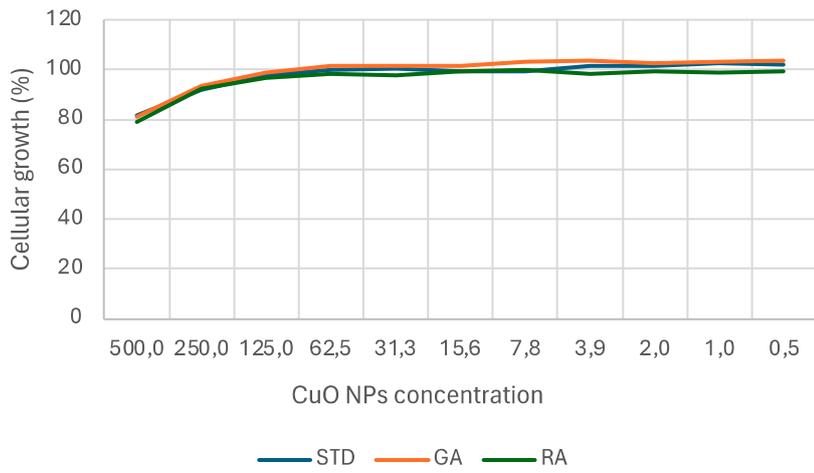
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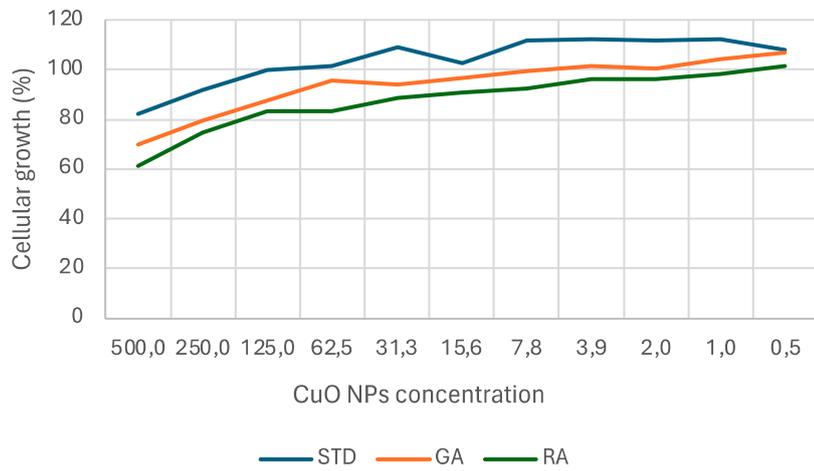
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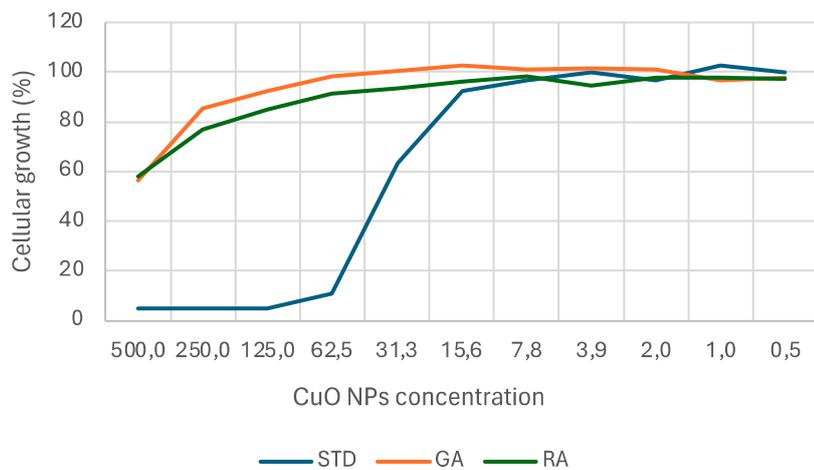
Candida albicans



Saccharomyces cerevisiae



Bacillus subtilis



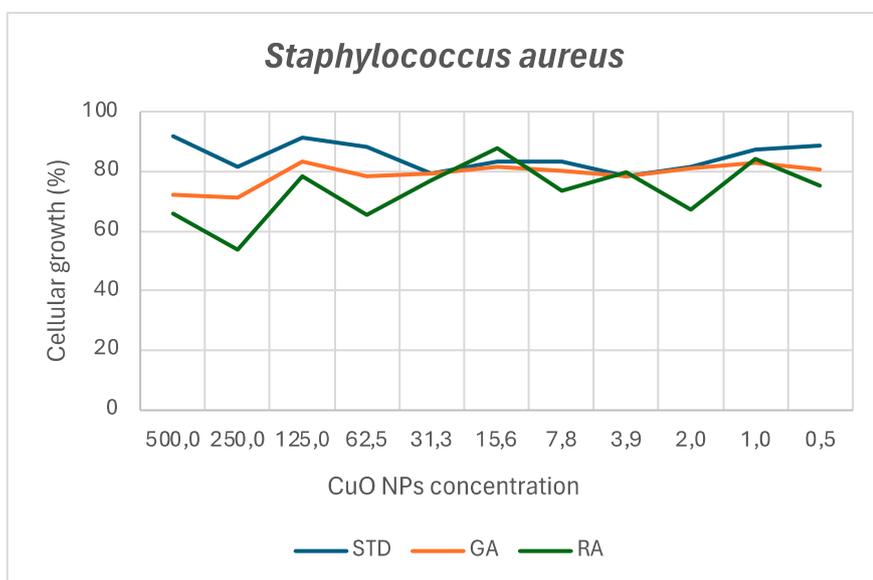
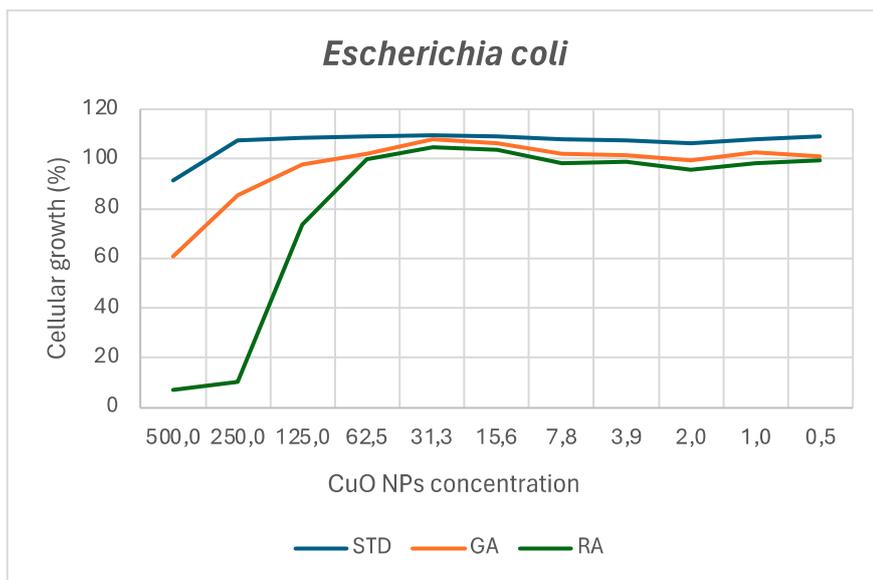
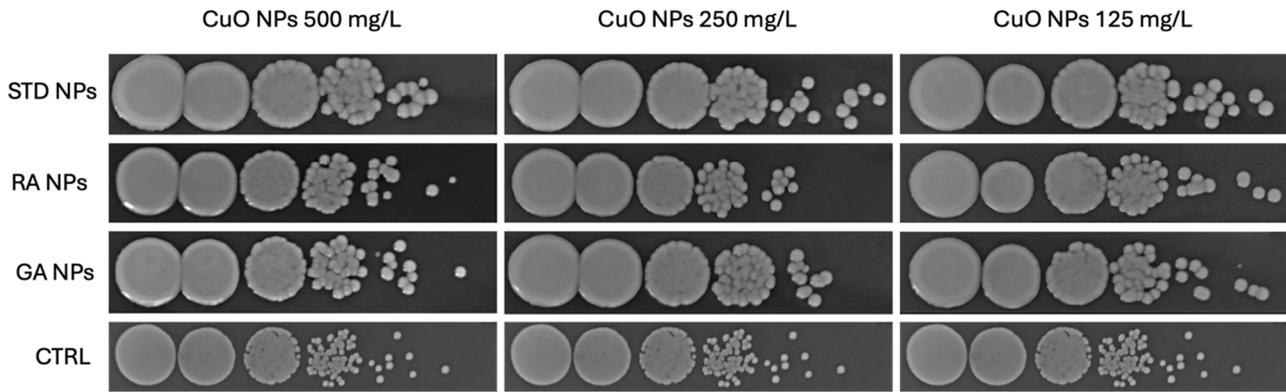
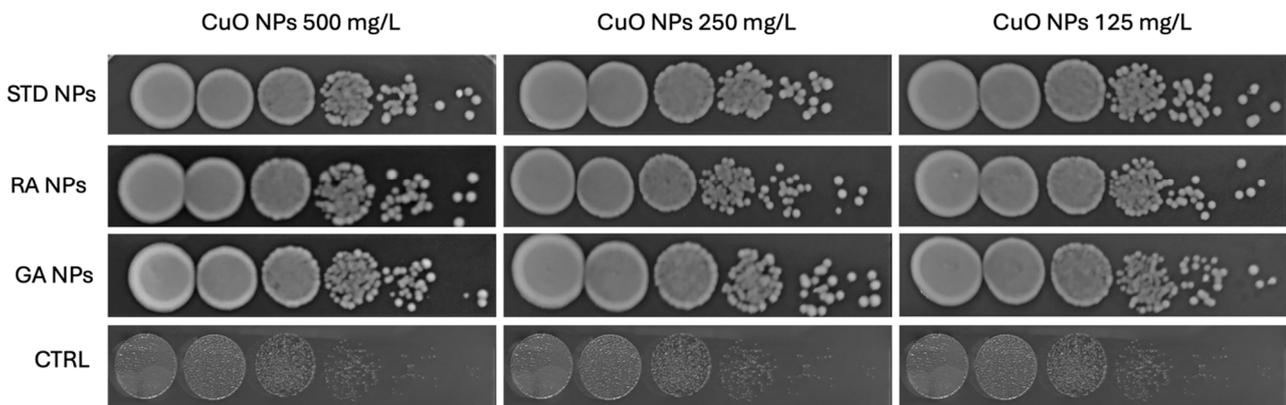


Figure S1. The plots represent the variation of microorganism's cellular growth with decreasing CuO NPs concentrations (mg L^{-1}), which is reported in detail in Table 1. The cellular growth is represented as the growth percentage of CuO NPs treated microorganisms compared to the untreated control, where untreated control cellular growth is 100% and sample cellular growth is calculated as $(\text{OD}_{600 \text{ sample}} * 100) / \text{OD}_{600 \text{ control}}$.

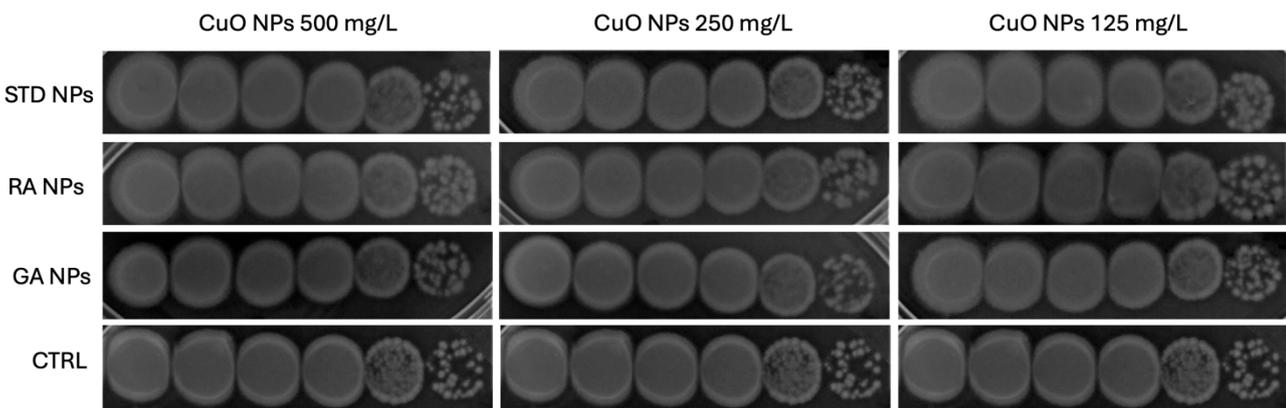
Candida albicans



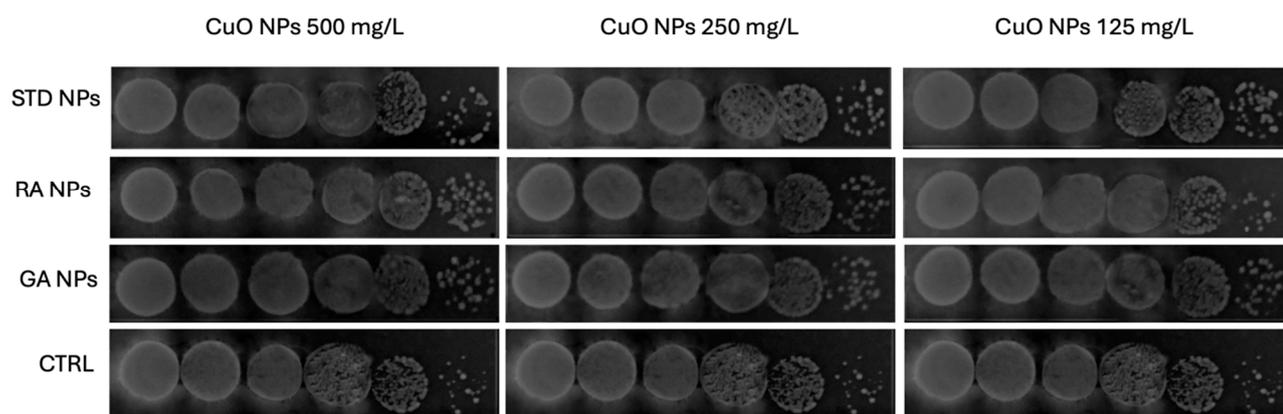
Saccharomyces cerevisiae



Bacillus subtilis



Escherichia coli



Staphylococcus aureus

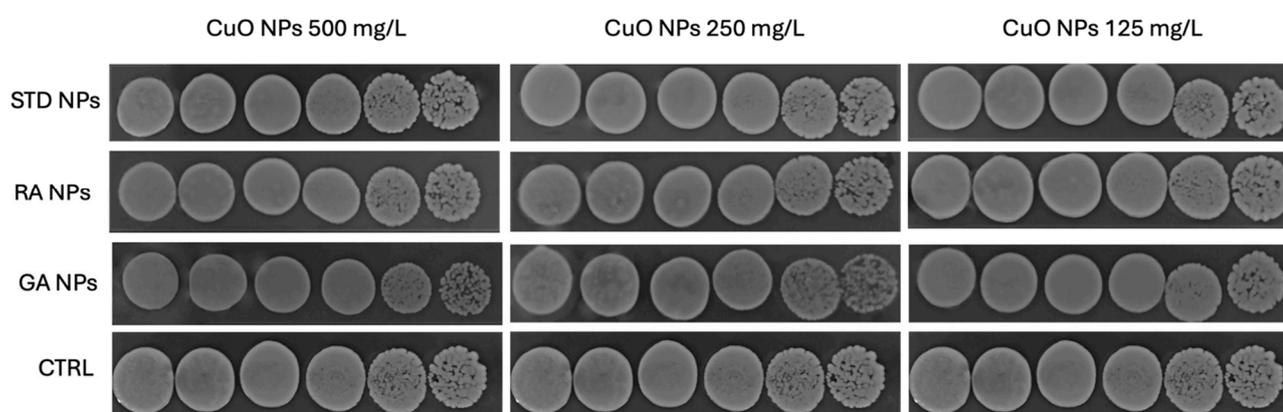
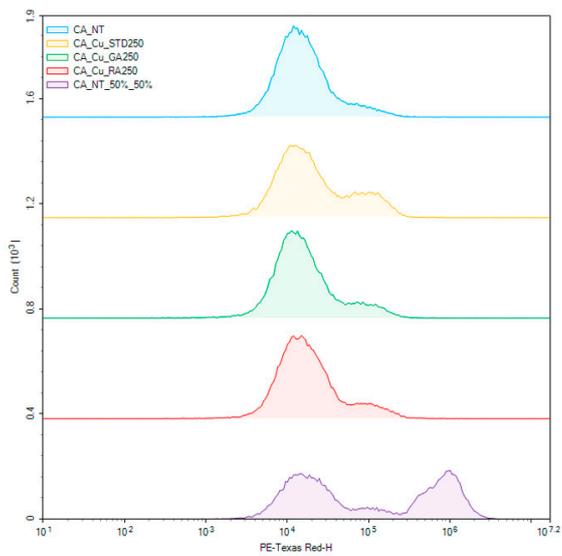


Figure S2. Spot assay of serial dilution of microorganisms treated with CuO NPs on solid media. First concentration (left) represented a concentration of 1 OD, serial dilutions (factor 1:10) have been performed. STD= standard CuO NPs, GA: CuO NPs synthesized from green algae, RA: CuO NPs synthesized from red algae, CTRL: untreated microorganisms (0 mg L^{-1}). $10 \mu\text{L}$ of cell culture were plated on agar medium after 24 h of incubation at $28 \text{ }^\circ\text{C}$ with the NPs treatments under analysis.

Candida albicans



Saccharomyces cerevisiae

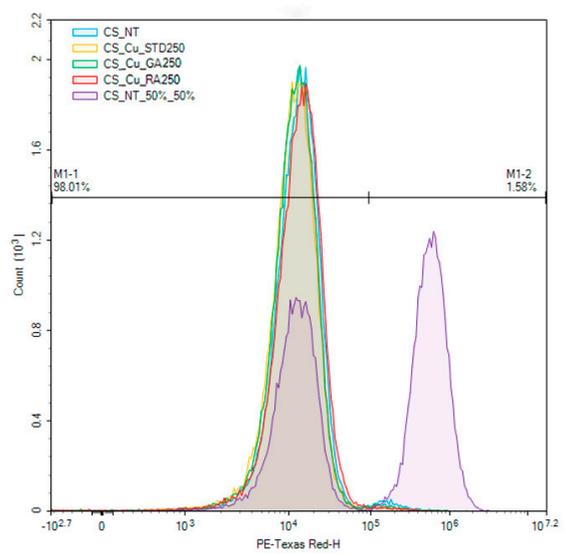
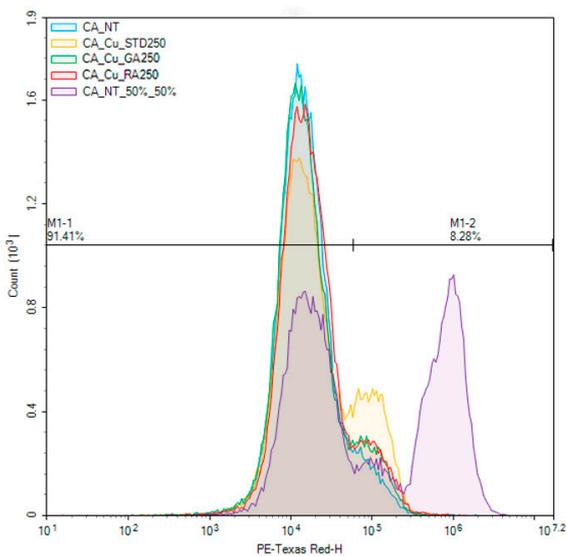
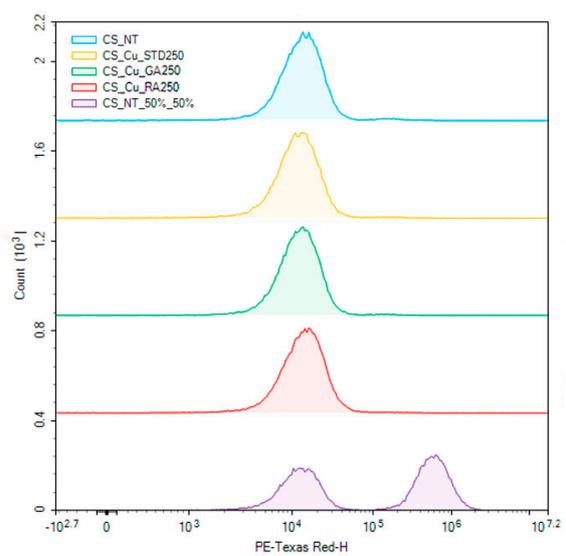
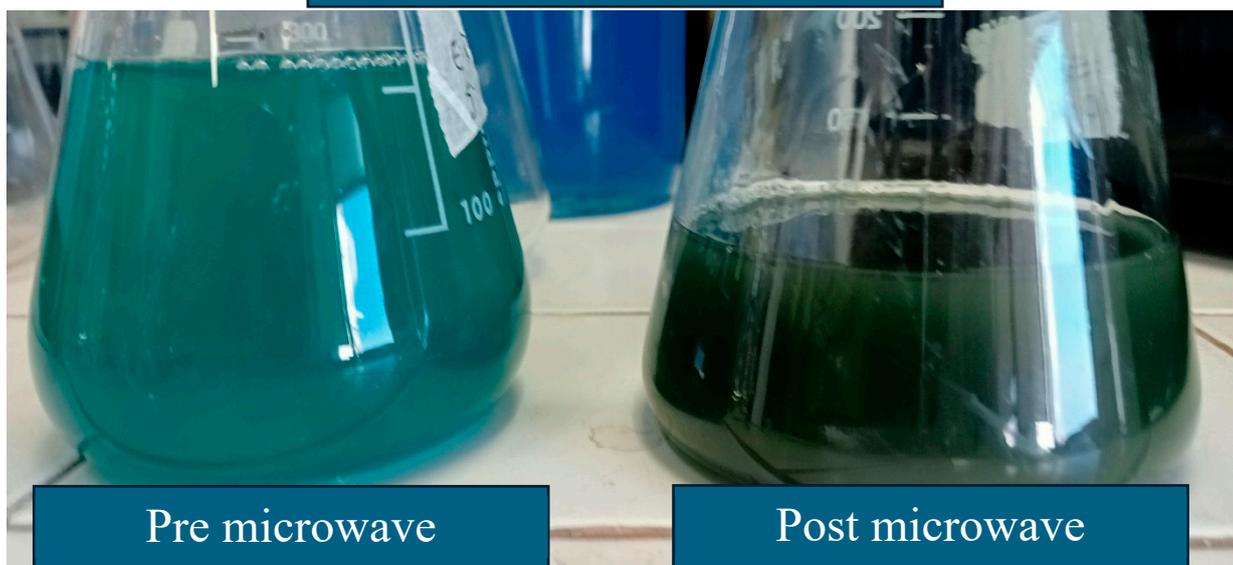


Figure S3. Distribution diagrams of flow cytometer PI signal for cell mortality of *C. albicans* and *S. cerevisiae* treated with 0 and 250 mg L⁻¹ of commercial CuO NPs (STD) and CuO NPs biosynthesized for green (GA) and red algae (RA). As an internal standard, a sample with induced 50% cell mortality, has been included



Figure S4. Algae during the desiccation phase

CuNPs green algae



CuNPs red algae

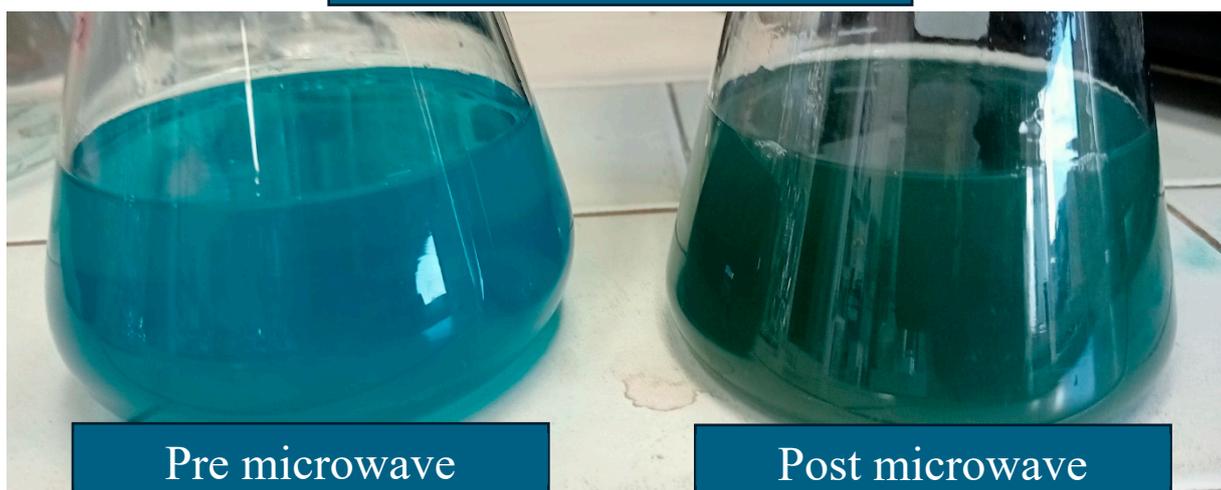


Figure S5. Change in color of the algae extracts before and after microwave treatment.