Discovering New Bioactive Compounds Through Cyanobacterial Co-Culture

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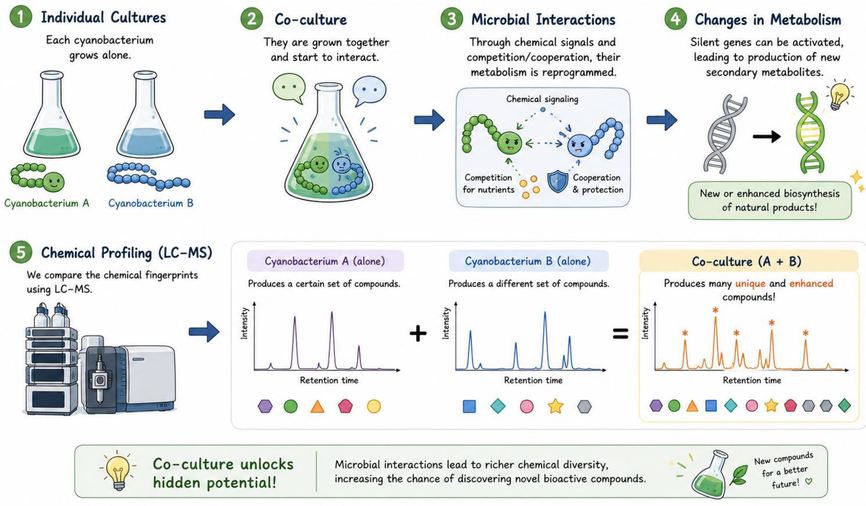
✦**Co-culturing cyanobacteria explores natural microbial interactions to uncover novel bioactive compounds with the potential to advance future medicines, while supporting sustainable healthcare and environmentally friendly biotechnology.**

Why Co-Culture?

Most microbial biosynthetic gene clusters stay silent in monoculture — genomic studies consistently show far more biosynthetic potential than compounds actually detected under normal lab growth condition [1]

How Does Co-Culture Change Cyanobacterial Chemistry?



Findings

- Co-culturing different cyanobacteria species together changes the chemical profiling of the culture. Some upregulation or downregulation of compounds were observed in the LCMS data.
- These co-culture–specific metabolites are the priority targets for isolation, structural characterization, and downstream bioactivity testing (antifungal, anticancer, antibacterial).
- In addition, co-culture serves as a low-cost, genetics-free strategy for expanding the chemical diversity accessible from an existing strain collection.

Future Plan

- Isolate and elucidate the structures of compounds unique to the co-culture condition
- Screen purified compounds properties by doing bioassay.