

Analysis Tutorial Prospectus

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1. Title: Using faceted line plots to visualize the effects of microcystin production on amoebic grazing
2. Research question(s): Does microcystin production impact amoebic grazing? How can a faceted line plot displaying changes in photopigment concentration help visualize grazing behavior of 7 strains of amoeba on 6 strains of *Microcystis*?
3. Objective(s): Communicate methods for coding a faceted line plot to visualize changes in phycocyanin and chlorophyll-a photopigment measurements as a proxy for *Microcystis* biomass over a 16-day time-period. Produce two faceted line plots to illustrate potential grazing by 7 amoeba strains on 6 *Microcystis* strains.
4. Approach: A faceted plot consists of multiple subplots, all sharing the same axes for easier comparison between the different experimental conditions. I will construct two facet grids using the `facet_grid()` function from the `ggplot2` R package. The first will display changes in chlorophyll-a concentrations, while the second will display changes in phycocyanin concentrations. These pigment concentrations serve as proxies for *Microcystis* growth. Each facet grid will contain seven subplots, one for each amoeba strain co-cultured with six *Microcystis* strains. Within each subplot, *Microcystis* growth, measured over 16 days, will be displayed as a line plot, with different colors distinguishing the six strains. The x-axis will represent time (days), while the y-axis will represent pigment concentration. Additionally, I will generate a line plot demonstrating the growth of the six *Microcystis* strains in the absence of amoeba. This graph will serve as a baseline for comparison with the facet grids.
5. Selected References

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