OPTICAL DENSITY AS A TOOL FOR MEASURING DIATOM GROWTH IN VIVO

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In our study we investigate the possibility of applying optical density (OD) for diatom growth measurement. There are several techniques for estimating diatom abundances, however, for chain-forming diatoms; the most commonly applied techniques are manual cell counting and chlorophyll *a* absorbance. Both of these methods require time consuming counting or preparation of the samples and also loss of sample volume.

OD (600nm) is commonly used for estimating bacterial and yeast growth cultured in microtiter plates. This method allows for easy measurements of large sample sizes, as well as *in vivo* measurements.

We have tested the application of OD as an alternative method to estimate diatom growth. For this, OD measurements and traditional manual cell counting was compared for three diatom species, the chain-forming *Skeletonema marinoi* and the two solitary species, *Cylindrotheca fusiformis* and *Ditylum brightwellii.* The results from the two types of estimation methods show significant correlation for all of the species. We report on adjustments (relative to bacterial and yeast culture) and experimental setting for further maximizing the efficiency of OD as a measurement method for estimating growth rate of diatoms, with additional focus on *S.marinoi*. Our anticipation is to be able use OD as a more effective way of measuring diatom growth, especially in situations when dealing with larger number of replicated samples for performing *in vivo* experiments.