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Chaetoceros calcitrans: Nitrogen and Phosphorus starvation effect on cell growth and lipid accumulation

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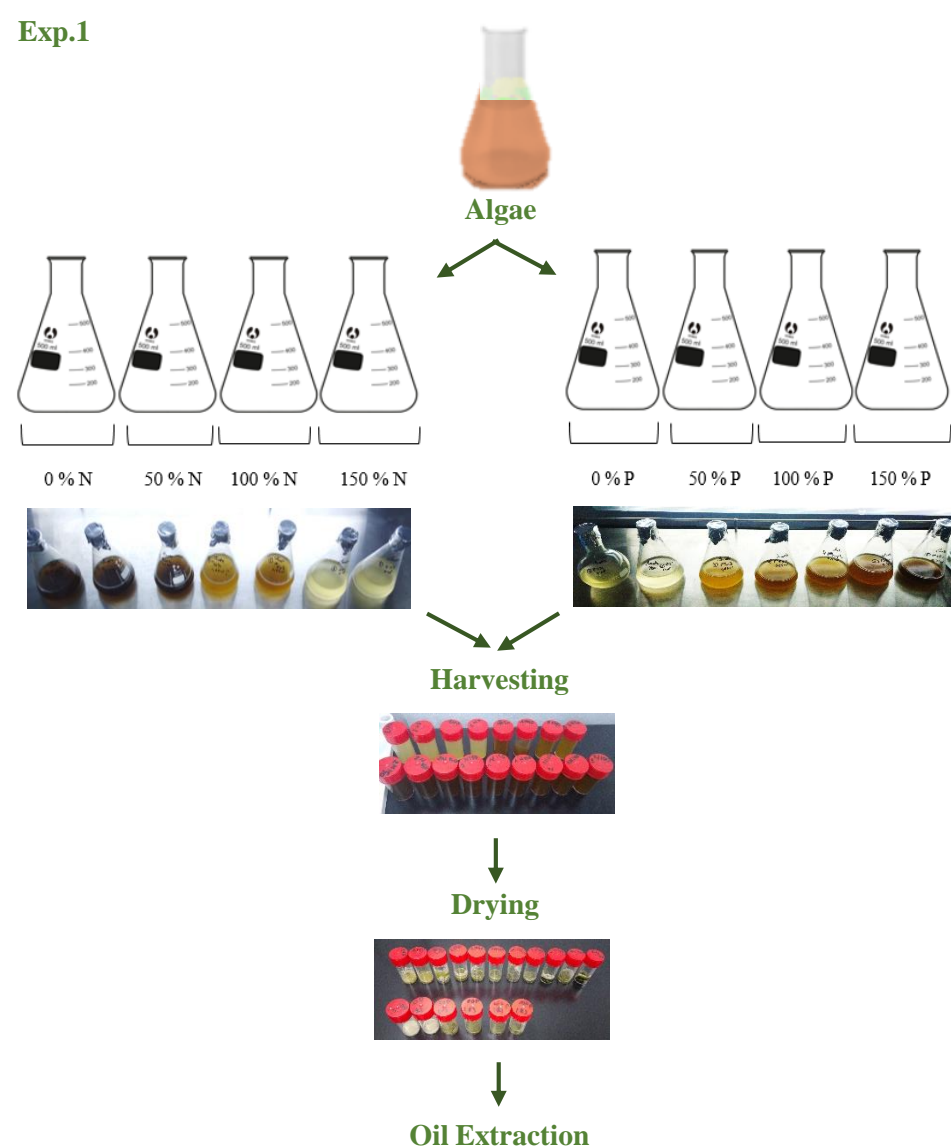
Introduction

The world has been deeply worried about the harmful consequences of petroleum fuel use, as well as the risk of a petroleum crisis. A way is to provide a safe and environmentally sound electricity source.

Microalgae have a variety of properties that make them an ideal alternative for use as a renewable energy source. These species can produce significant amounts of oil, often exceeding the yields of agricultural crops commonly used in biofuel production. Many studies have recently focused on obtaining lipids from microalgae, with the reduction in the availability of nutrients in culture media, particularly nitrogen and phosphorus, enhancing microorganisms and affecting cell growth, resulting in lipid accumulation. This is a key step in the extraction of biodiesel feedstocks from microalgae that needs to be better understood, which is the goal of this review.

Methodology

Exp.1



Results

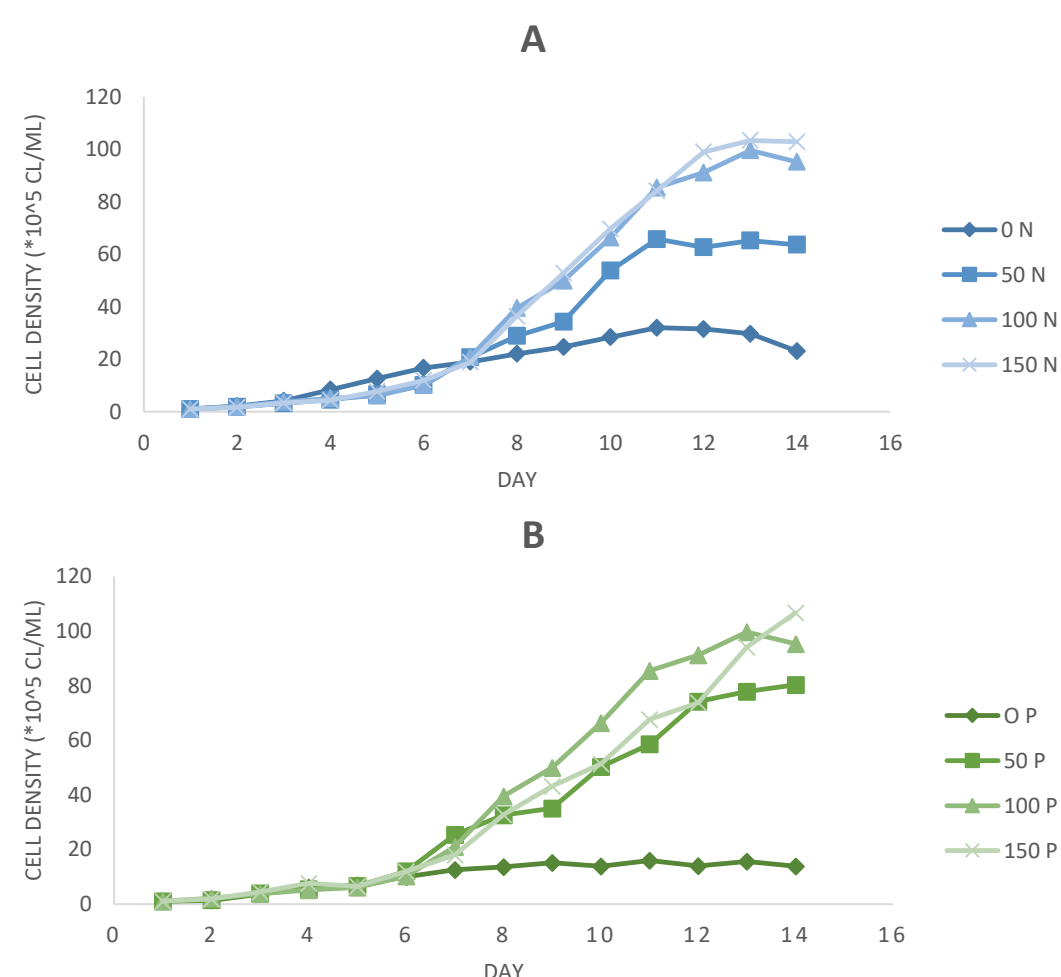


Figure 1: The effect of Nitrogen (A) and Phosphorus (B) on cell density of Chaetoceros calcitrans

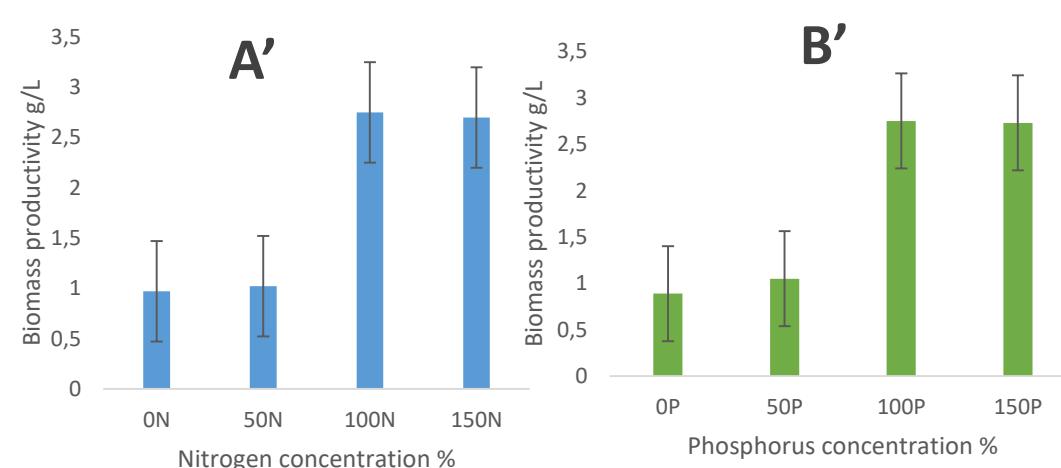


Figure 2: The effect of Nitrogen (A') and Phosphorus (B') on Biomass productivity of Chaetoceros calcitrans

Conclusion

According to the findings, a high concentration of nitrogen and phosphorus sources aided in the concentration of biomass. If the nitrate or phosphorus concentrations in the medium declined, so did biomass activity. The next phase is to investigate the impact on lipid content and decide the most efficient method for increasing lipid in Chaetoceros calcitrans for biodiesel output.