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Abstract:

Botryococcus braunii (*B. braunii*) is an example of a microorganism that can produce up to 86% of its dry weight as hydrocarbon oils. Although the hydrocarbon productivities of different *B. braunii* strains have been assessed, the machinery that drives the conversion of light energy into chemical energy for the synthesis of organic compounds via photosynthesis, also known as the photosynthetic apparatus, remains unresolved. We plan to characterize the biophysical and biochemical properties of the protein domains and subunits present in photosystem I (PSI) of the photosynthetic apparatus of *B. braunii*. Also, we will study how the biophysical features identified relate to the biochemical factors that may induce a shift in ROS production and antioxidant activity, photosynthetic efficiency, photosynthetic activity, and in pigments, carbohydrates, lipids and biomass production.