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Alterations of the lipid content and fatty acid profile of *Chlorella protothecoides* under different light intensities

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Abstract:

Chlorella protothecoides is a valuable source of lipids that may be used for biodiesel production. The present work shows analysis of the potential of photoheterotrophic cultivation of *C. protothecoides* under various light intensities aiming to identify the conditions with maximal biomass and lipid content. An increase in light intensity was associated with an increased specific growth rate and a shortened doubling time. Also, the relative total lipid content increased from 24.8 to 37.5% with increase of light intensity. The composition of fatty acid methyl esters was affected by light intensity with the C16-18 fatty acids increased from 76.97% to 90.24% of total fatty acids. However, the content of linolenic acids decreased with the increase of the culture