Optimal Algae species for Efficient use in photobioreactors

Study	Citation (APA 7th Edition)	Key Focus/ Notes
Advances in Chlorella Microalgae for Sustainable Wastewater Treatment and Bioproduction.	Yazan Abuhasheesh, Ghazal, A., Ying, D., Banat, F., Hasan, S. W., & Show, P. L. (2025). Advances in Chlorella Microalgae for Sustainable Wastewater Treatment and Bioproduction. *Chemical Engineering Journal Advances*, 100715–100715. https://doi.org/10.1016/j.cej a.2025.100715 (Yazan Abuhasheesh et al., 2025)	This study highlights the potential of Chlorella microalgae for efficient wastewater treatment and bioproduction, emphasizing its role in nutrient removal, biomass recovery, and sustainability in engineered systems.
Recent Developments on the Performance of Algal Bioreactors for CO2 Removal: Focusing on the Light Intensity and Photoperiods	Shareefdeen, Z., Elkamel, A., & Babar, Z. B. (2023). Recent Developments on the Performance of Algal Bioreactors for CO2 Removal: Focusing on the Light Intensity and Photoperiods. *BioTech*, *12*(1), 10. https://doi.org/10.3390/biot ech12010010	This study explores how light intensity, and photoperiod**s** affect the performance of algal bioreactors for CO_2 removal, offering insights into optimizing lighting conditions for enhanced algal growth and carbon capture efficiency.

These citations help in brainstorming ideas and solutions for materials and set up processes in low-income regions.

Bioreactor Design Studies in Low-income areas

Study	Citation (APA 7th Edition)	Key Focus/ Notes
Development of thin-film photo-bioreactor and its application to outdoor culture of microalgae (2013)	Jae Jun Yoo, Seung Phill Choi, Kim, Won Seok Chang, & Sang Jun Sim. (2013) Development of thin-film photo-bioreactor and its application to outdoor culture of microalgae. *Bioprocess and Biosystems Engineering (Print)*, *36*(6), 729–736. https://doi.org/10.1007/s00449-013-0898-2 (Jae Jun Yoo., 2013)	Research shows thin film photobioreactors made from polypropylene are effective for outdoor cultivation of *Chlorella vulgaris*. This design supports efficient light penetration and algae growth in a compact, low-cost setup, which could be adapted for low-income community applications.
A simple and low-cost airlift photobioreactor for microalgal mass culture (2002)	Xu, Z., Baicheng, Z., Yiping, Z., Zhaoling, C., Wei, C., & Fan, O. (2002). *Biotechnology Letters*, *24*(21), 1767–1771. https://doi.org/10.1023/a:1020648919331 (Xu et al., 2002)	A simple, low-cost airlift photobioreactor uses air bubbles for mixing and CO_2 supply, enabling efficient microalgae cultivation without mechanical stirring.
Development of a photobioreactor for microalgae culture (2016)	Ugwuishiwu, B., Obi, O., & JN Nwakaire. (2016). DEVELOPMENT OF A PHOTOBIOREACTOR FOR MICROALGAE CULTURE. *Nigerian Journal of Technology*, *32*(1), 148–151. https://doi.org/10.4314/njt.321.622 (Ugwuishiwu et al., 2016)	A low-cost, 12-chamber photobioreactor using poultry dung as a nutrient source and powered by solar and rechargeable battery illumination, designed for continuous algae growth in rural or off-grid settings.