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ENERGY EFFICIENT CULTIVATION OF MICROALGAE USING PHOSPHORESCENCE MATERIALS AND MIRRORS

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Highlights

- A novel optimized annular photobioreactor based on energy consumption was designed.
- A higher light-to-biomass conversion efficiency was achieved using mirror and phosphorescence materials.
- The optimum light/dark cycle of *C. vulgaris* were determined.
- The specific growth rate could be increased by 25% and 9% in photobioreactor with mirrors and phosphorescence materials, respectively.

ABSTRACT

In the present study, two novel annular photobioreactors (PBR) were developed to enhance microalgae growth. One of these photobioreactors used mirrors outside the PBR, while the other one utilized phosphorescence materials inside the PBR. The results of the study suggested that the use of mirrors and phosphorescence materials led to 70% and 30%

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