

LEARNING THE PHOTOSYNTHESIS EQUATION WITH MICROALGAE

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BASIS

Method → Photorespirometry via Dissolved oxygen tracking.

Reaction → $6CO_2 + 6H_2O + \text{light} \rightarrow C_6H_{12}O_6 + 6O_2$

Light pase → Photosynthesis → **O2 production**

Dark pase → Respiration → **O2 consumption**

OBJETIVE

- **Analyse** the biological balance between photosynthetic oxygen production and respiratory consumption in microalgae.
- **Evaluate** kinetics and determine how light intensity limits the process.
- **To develop** core laboratory skills

MATERIALS

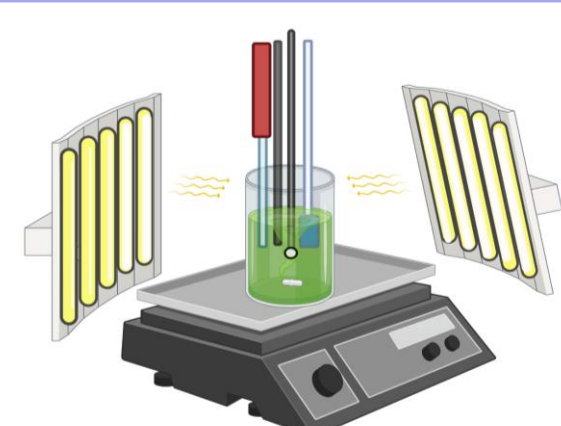
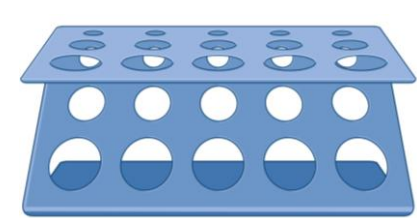


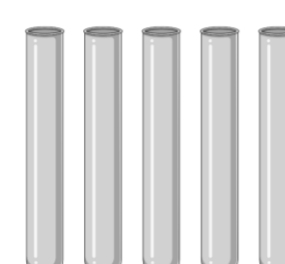
Photo-respirometer



Beaker



Rack



Test tubes



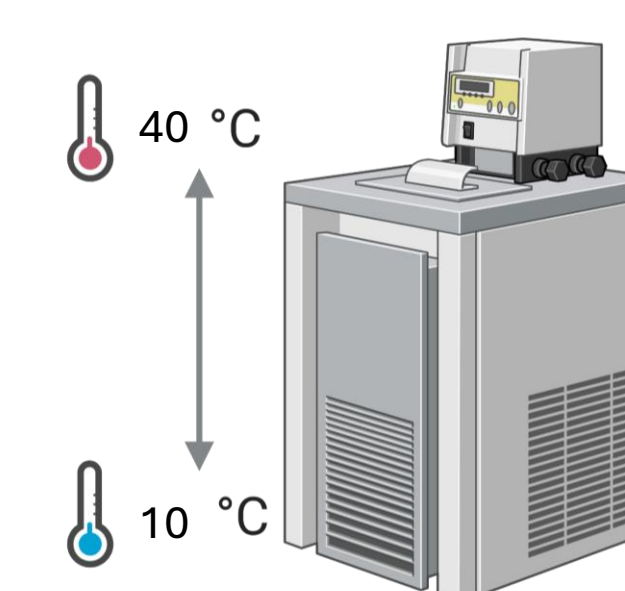
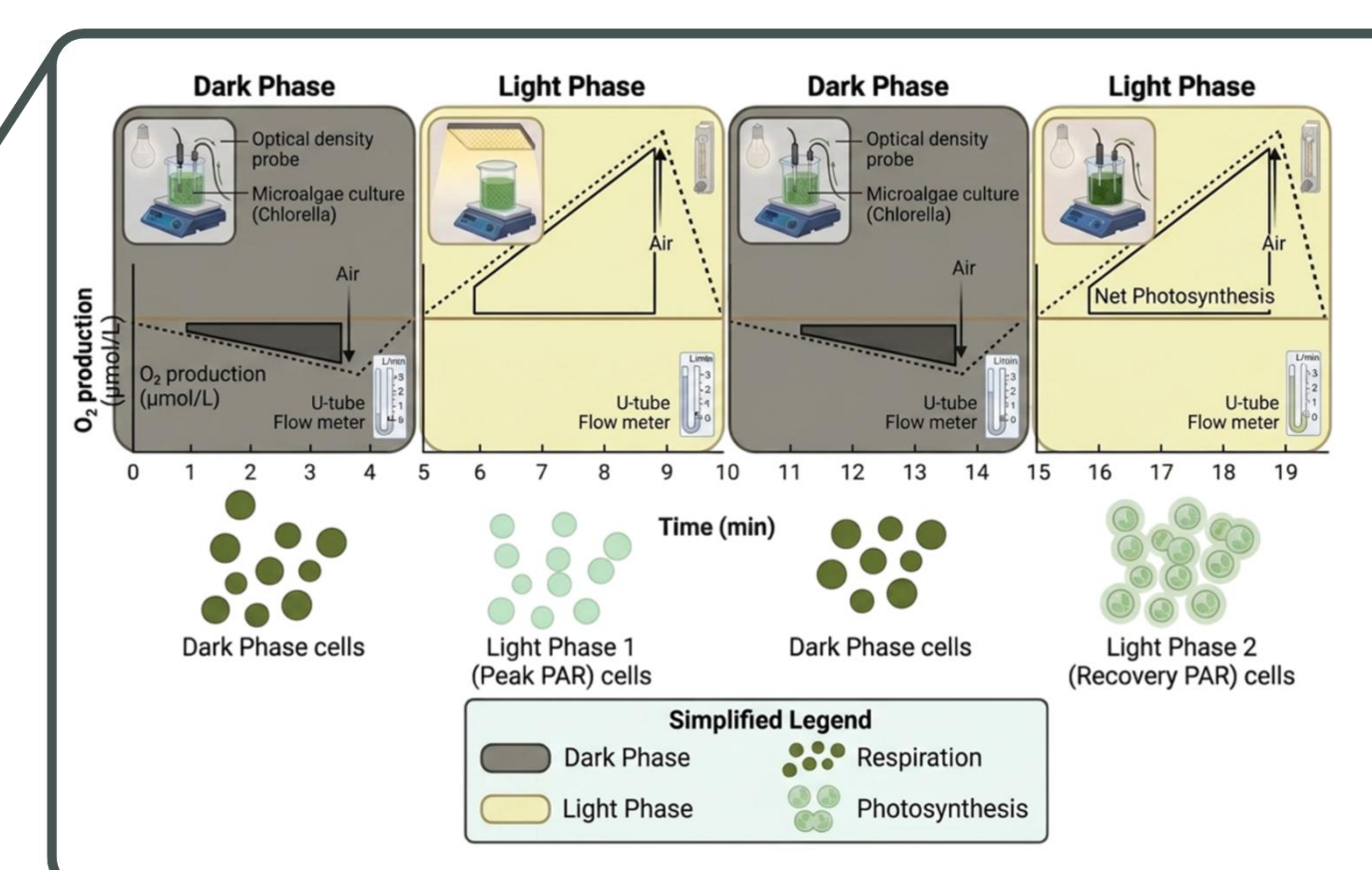
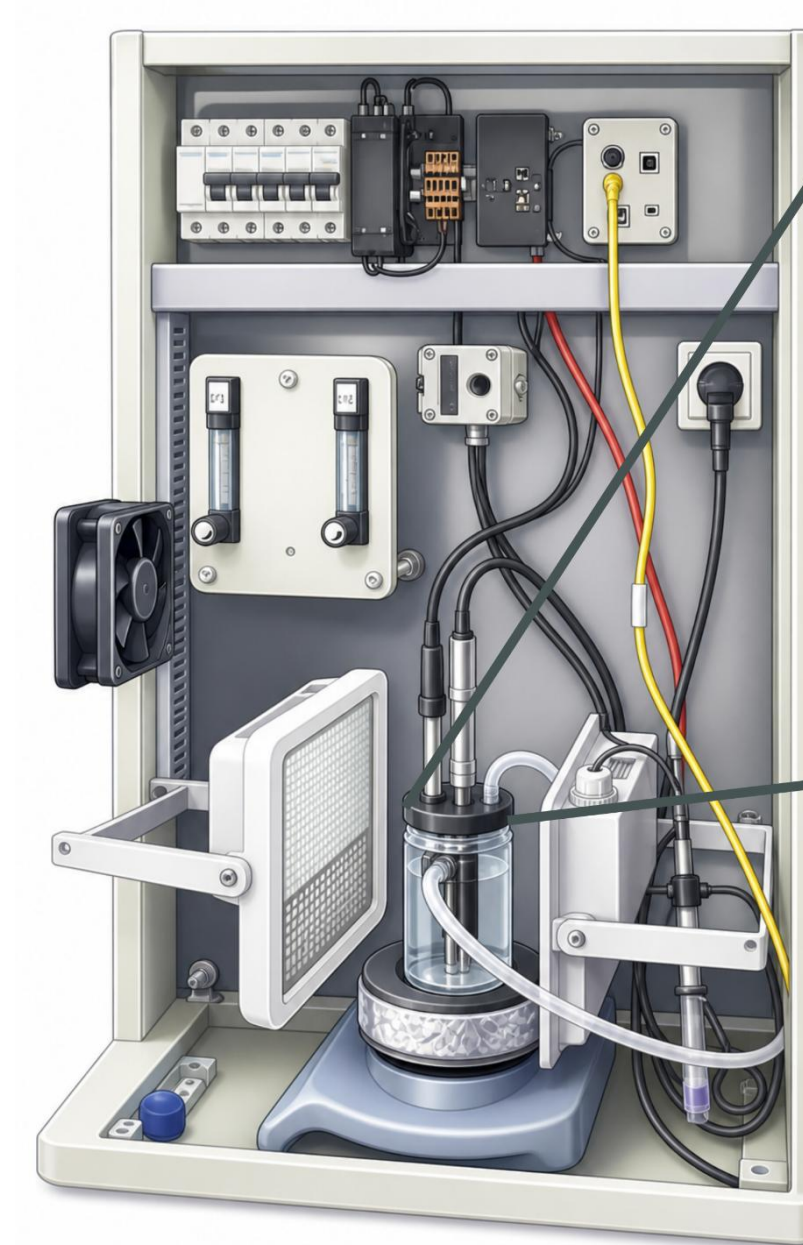
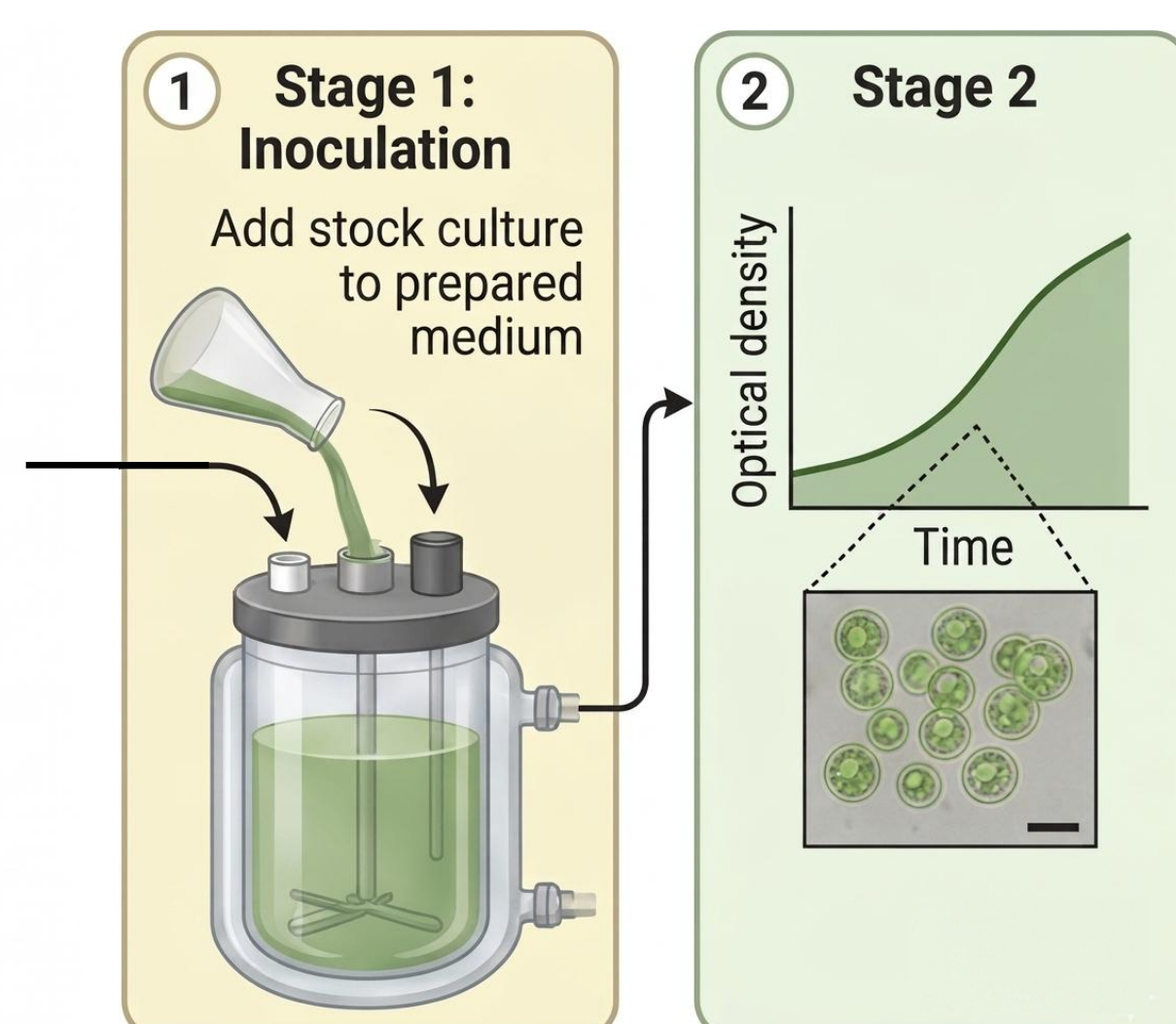
Pipette pasteur

Laboratory equipment



Dissolutions and culture media

PROTOCOL

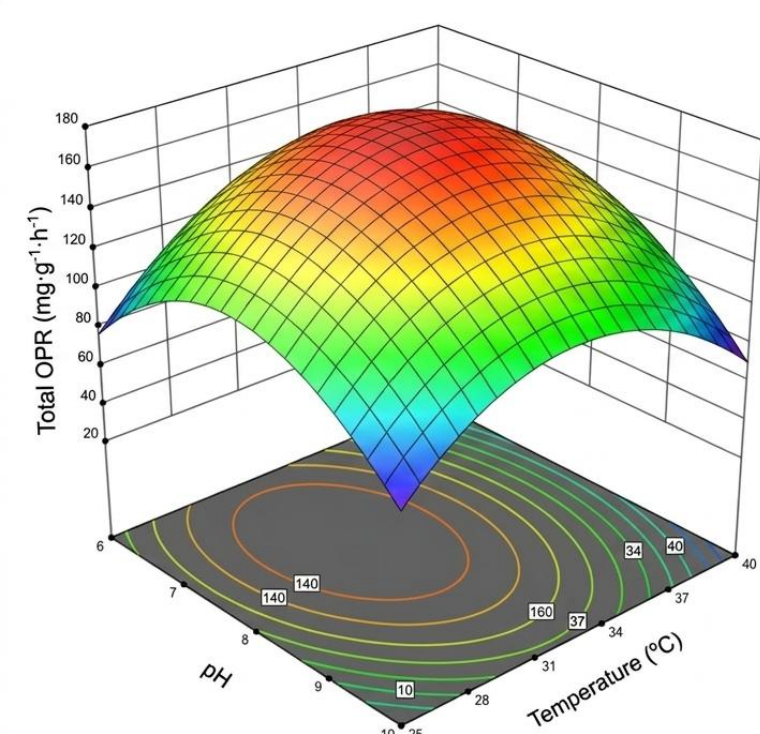


RESULTS

$$OPR_L = \frac{1}{Cb} \cdot \left(\frac{d[DO]}{dt} \right)$$

$$OCR_D = \frac{1}{Cb} \cdot \left(\frac{d[DO]}{dt} \right)$$

Microalgal photosynthesis rate
 $MPR = OPR_L - OCR_D$



CONCLUSION

- Successfully bridges theoretical kinetics with real-time biological data collection.
- Consolidates quantitative and essential laboratory skills.
- Demonstrates light intensity as a limiting factor.

ACKNOWLEDGEMENTS

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