

MICROALGAE INFOGRAFICS

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RESULTS TABLE



MICROALGAE

MICROALGAE ARE PHOTOSYNTHETIC MICROSCOPIC MICROORGANISMS. THEY ARE ALSO POLYPHYLETIC AND EUKARYOTIC, WHICH CAN GROW AUTOTROPHICALLY OR HETEROTROPHICALLY.

OPTIMIZING GROWTH CONDITIONS

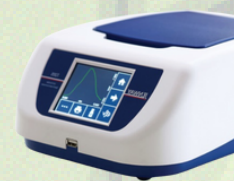
- OPTIMAL PHOTOPERIOD: 10-12 HOURS OF DAILY LIGHT
 - CONTINUOUS MOVEMENT OF MICROALGAE WITHIN THE REACTOR FOR LIGHT AND SHADOW CYCLES FOR ENTIRE ALGAL POPULATION
- CONTROLLED TEMPERATURE: 16-27°C
 - OPTIMIZES GROWTH RATE AND METABOLIC ACTIVITY
- EFFECTIVE AERATION:
 - NUTRIENT HOMOGENIZATION
 - PREVENTION OF MICROALGAE SEDIMENTATION
- ESSENTIAL NUTRIENTS:
 - MINERAL SALTS (NITRATE, AMMONIUM)
 - MEDIUM USED: Z8*

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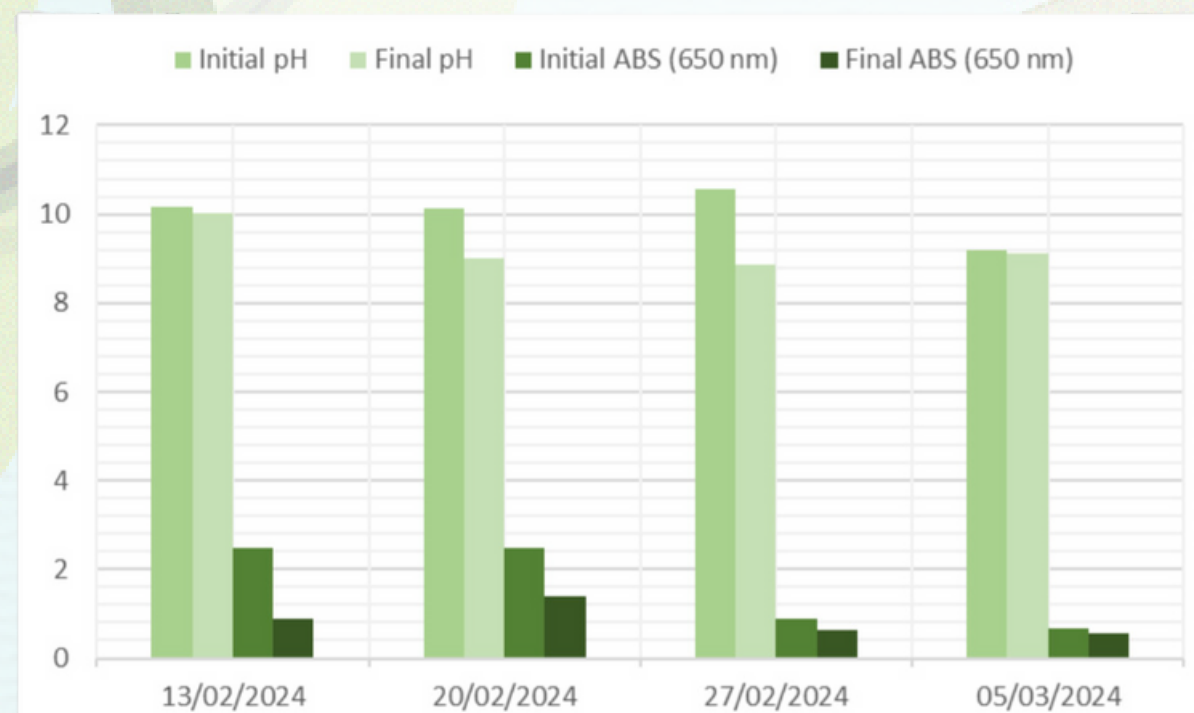
MgSO ₄ ·7H ₂ O	0.25 g
NaNO ₃	0.467 g
Ca(NO ₃) ₂ ·4H ₂ O	59 mg
NH ₄ Cl	31 mg
Na ₂ CO ₃	0.02 g
FeEDTA solution	10 ml
Gaffron micronutrients	1.0 ml
Deionized water to	1.0 L

GROWTH TRACKING PARAMETERS

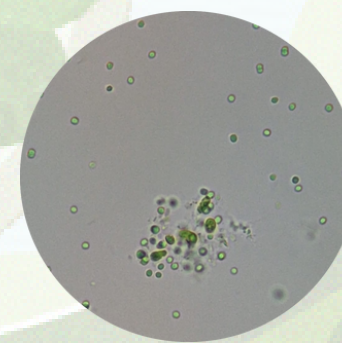
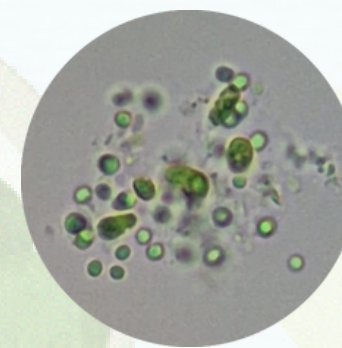
- CONCEPT: COLOR
 - EXPRESSION OF LIGHT.
 - MATERIALS ABSORB AND REFLECT SPECIFIC WAVELENGTHS OF VISIBLE LIGHT.
 - PERCEPTION BY THE HUMAN EYE.
- ABSORBANCE:
 - MEASUREMENT REFLECTING RADIATION ATTENUATION.
 - USED IN MICROALGAE TO MEASURE MEDIUM DENSITY.
 - CHLOROPHYLL A HAVING ITS PEAK ABSORPTION AROUND 660 NM.
- pH:
 - MEASURES ACIDITY BY ASSESSING PROTON CONCENTRATION.
 - AFFECTS MICROORGANISM GROWTH
 - VARIATION ARISES FROM:
 - ORGANIC METABOLITE SECRETION.
 - RESIDUES, AND RESPIRATORY PROCESSES ALTERING H⁺ ION CONCENTRATION.



REPRESENTATION OF MEASURED PARAMETERS



MICROSCOPIC OBSERVATION



CONCLUSIONS

- PH DECREASE FROM 10.18 TO 9.19
- REDUCED PHOTOSYNTHETIC ACTIVITY DUE TO:
 - NUTRIENT AVAILABILITY IMPACT
 - PHOTOSYNTHETIC PIGMENT STRUCTURE CHANGES
- ALKALIZATION OF MEDIUM OVER TIME DUE TO NUTRIENT CONSUMPTION
- DECREASED LIGHT ABSORPTION AND PHOTOSYNTHETIC EFFICIENCY
 - IMPLICATIONS FOR MICROALGAE PRODUCTIVITY

