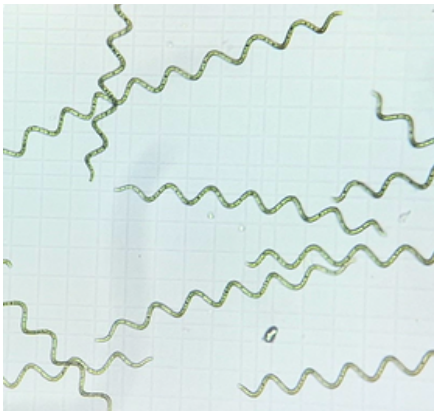
Microalgae Culture

Microalgae are unicellular photosynthetic organisms that belong to the group of algae and are found in different aquatic habitats such as oceans, lakes, rivers, and ponds.

Spirulina arthrospatensis

Is a microalga with significant commercial potential due to its nutritional value, diverse applications in food, medicine, and cosmetics, and its capacity for sustainable and efficient production.



COMPOSITION OF THE Z8 MEDIUM

Macroelements:

$NaNO_3$, K_2HPO_4, $MgSO_4 \cdot 7H_2O$

Micronutrients:

Iron ($FeCl_3$), Manganese ($MnSO_4$), Zinc ($ZnSO_4$), Copper ($CuSO_4$), Molybdenum (Na_2MoO_4), Cobalt ($CoCl_2$), Boron ($Na_2B_4O_7$)

Vitamins:

Thiamine (vitamin B1) ,Biotin (vitamin B7)

Other substances:

Na_2SeO_3 , EDTA

Absorbance at 650 nm:

The evaluation parameter for monitoring microalgae growth includes absorbance at 650 nm, which correlates with cell density, providing a measure of growth. *S. arthrospatensis* typically shows higher absorbance due to its dense cell concentration.

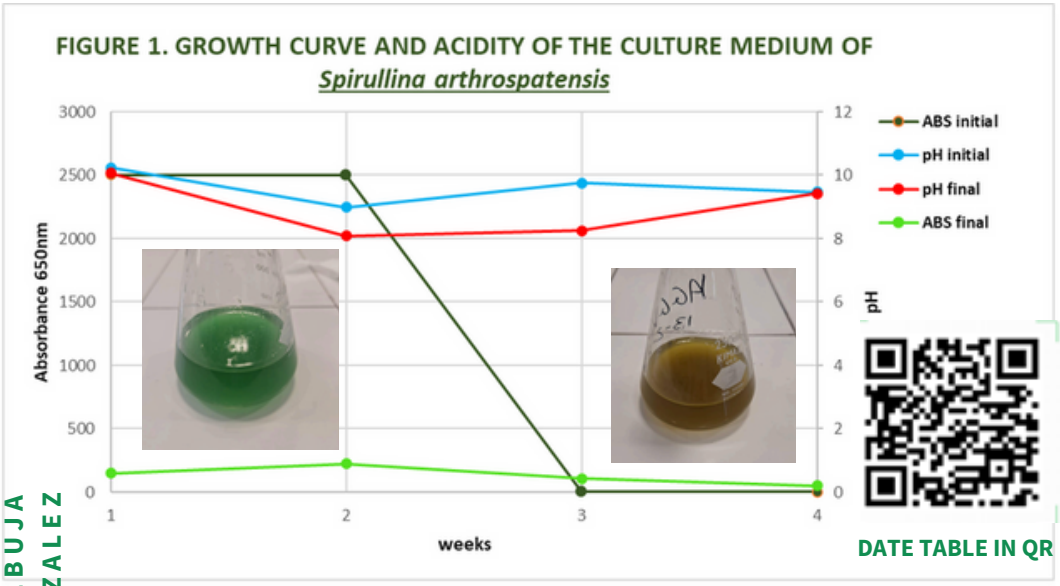
pH:

Another crucial parameter is pH, which affects growth. Maintaining an alkaline pH, ideally between 8.0 and 11.0, promotes healthy growth. Spirulina arthrospatensis thrives within this pH range.

Color of the culture:

The color of the culture reflects photosynthetic pigments. *S. arthrospatensis* presents a characteristic bluish-green color due to the presence of phycocyanin, indicating healthy photosynthesis.

FIGURE 1. GROWTH CURVE AND ACIDITY OF THE CULTURE MEDIUM OF *Spirullina arthrospatensis*



DATE TABLE IN QR

Conclutions:

- **Over a four-week period, a microalgae culture was evaluated using absorbance at 650 nm and the pH of the medium, along with considering chlorophyll concentration.**
- **It was observed that the pH remained within the optimal range for S. arthrospantensis (8-11).**
- **High initial absorbances in weeks 1 and 2 (2500) indicated a high density of microalgae, reflecting a vigorous and green culture due to a higher chlorophyll concentration.**
- **Weekly dilutions (1:5) were performed to control excessive growth, resulting in a decrease in absorbance.**
- **However, in weeks 3 and 4, a significant drop in initial absorbance was observed, along with a change in the color of the culture to brownish tones, suggesting a decrease in cell density and viability.**
- **This decline highlights the importance of carefully managing cultivation conditions to ensure healthy and continuous growth of microalgae.**

KEVIN GALVIS
GABRIELA ALBUJA
GLEYNI GONZALEZ
ADAN SAAD