

IMPORTANCE OF CYANOBACTERIA TARA

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This project allowed us to highlight the bacterial diversity, and to see its importance on our planet. We particularly studied cyanobacteria and their metabolism. Our objectives were to discover and use new scientific techniques (use of oil-immersive microscope, IT experiment with oxygen and carbon dioxide sensors, Gram staining), to get a scientific approach and to increase our scientific knowledge about cyanobacteria



Description of cyanobacteria

Using a light microscope and a camera, we are now able to state that these filamentous cyanobacteria are composed with rectangular (or round) cells. As they do not have any nucleus or organelles, we can add these cyanobacteria are prokaryotic. They also have a cell wall (Gram-negative) and a cell membrane containing a cytoplasm into which we can find

molecules of chlorophyll.

Measurement of metabolism (gaseous exchanges)

We measured the concentrations of O2 and CO2 in a solution made up of cyanobacteria. In order to make these measurements, we used CO2 and O2 sensors. We made these measurements in alternatively dark and lightened conditions (to look at the graph below).



Working groups in the lab

Thanks to the data collected, we were able to distinguish a decrease of O₂ concentration and an increase of CO₂ concentration in dark conditions highlighting a process of cellular respiration :
C6H12O6 + 6O2 → 6CO₂ + 6H2O
We were also able to distinguish an increase

of O₂ concentration and a decrease of CO₂ concentration in light conditions highlighting a process of photosynthesis : 6CO₂ + 6H₂O → C6H₁₂O6 + 6O₂

As we know there is a lot of cyanobacteria in the oceans, we can say as a conclusion that the molecular oxygen in our atmosphere is mainly produced by the cyanobacteria. Moreover, these microscopic oceanic living beings could reduce the CO₂ level in the atmosphere which could imply a reduction of the actual global warming. Thanks to the huge amount of these bacteria, in constant multiplication, we can consider them as being one of the "lungs" of the Earth.



http://grainesdexplorateurs.ens-lyon.fr

