

# CHLOROPHYLL A VARIATION IN THE NORTH LAGOON OF TUNIS (SOUTH MEDITERRANEAN LAGOON)

Nadia Ben Hadid <sup>1\*</sup>, Naceur Ben Maiz <sup>2</sup> and Abdesslem Shili <sup>1</sup>  
<sup>1</sup> Institut Nationale Agronomique de Tunisie - benhadid\_nadia@yahoo.fr  
<sup>2</sup> Société de Promotion du Lac de Tunis

## Abstract

In order to characterize the water quality and the trophic state of the north lagoon of Tunis during early and late spring 2014, a specialized study of water chlorophyll *a* variation was monitored. Different zones were identified throughout the area of lagoon, in the basis of their content of this essential pigment. That made us able to identify the areas which are the most affected by the eutrophication in the lagoon. Chlorophyll *a* levels oscillated between 2.06 µg/l to 9.25 µg/l in early spring session and between 0.64 µg/l to 7.47 µg/l in late spring session.

**Keywords:** *Algae, Algerian-Tyrrhenian Trough*

The photosynthetic component (chlorophyll *a*) is one of the most important representative of the trophic chain first link. The chlorophyll *a* is used as an indicator of water phytoplankton biomass and that can help us to identify the degree of eutrophication which can show us the disturbance in the lagoon. All algae contain chlorophyll *a*, therefore, the measure of its water concentration can provide a good estimation of the living vegetable materials [1]. The study and the quantification of the chlorophyll *a* are necessary to identify the ecological state of the aquatic ecosystems. The north lagoon of Tunis is really known for the fragile situation that has been through before its restoration. Nevertheless, this lagoon is known for its important position, and its necessary role on conserving sea-birds, for that reason, the study of the chlorophyll *a* variation can help us to keep this important wetland in Tunisia under supervision. We have been able to cover 35 positions throughout the lagoon to study the variation of the chlorophyll *a* concentration. We have started our prospectations at the opening of the "kheirredine" channel gates which are situated in the north of the lagoon, to follow the water entering quality encircling the lagoon. In early spring, the chlorophyll *a* average value recorded is of about 1.19 µg/l. the gap between the average and extreme values vary between 8.06 µg/l and 0.87 µg/l. The Northeast sector, which is the area in direct contact with marine flows, is where chlorophyll *a* production is the highest with a value of about 9.25 µg/l. We can mention here that the presence of the dam fishing nets in the Northeast sector can contribute in increasing the chlorophyll *a* rate in this zone.

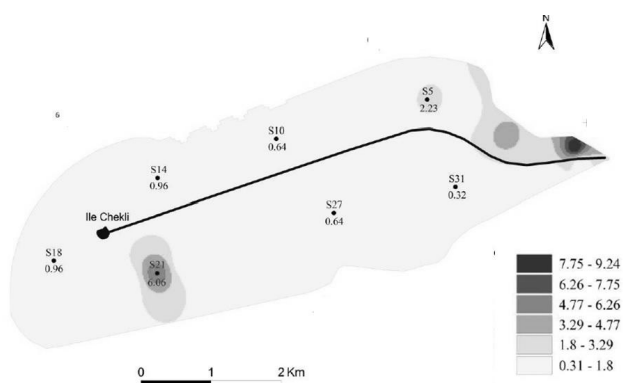


Fig. 1. Cartography of the chlorophyll *a*'s distribution during early spring 2014 in the North lagoon of Tunis (concentration in µg/l)

The average of water chlorophyll *a* content in late spring, is of about 1.79 µg/l. It's lightly higher than in early spring, this can be explained by the change in weather conditions (temperature increase) that causes seaweeds proliferation and so, increasing the rate of chlorophyll *a*. The chlorophyll *a* variation has shown some fluctuations depending on the areas. We have recorded a maximum of about 7.47 µg/l in the Northwest sector of the lagoon which is the area where a high seaweeds biomass could be present. Some dam fishing nets set near to "Chikly" island can contribute to macrophytes proliferation and the increase of chlorophyll *a* levels. A minimum of about 0.64 µg/l was recorded at the North

center and Southeast sectors of the lagoon.

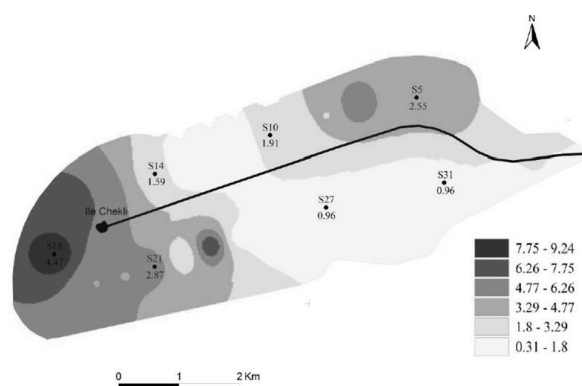


Fig. 2. Cartography of the chlorophyll *a*'s distribution during late spring 2014 in the North lagoon of Tunis (concentration in µg/l)

We can mention, that before the clearness process held in 1987, The ecosystem was marked by a high chlorophyll *a* concentration (an annual average of about 60 µg/l) [2]. Currently, The production of chlorophyll *a* in the entire lagoon has fallen significantly since the restoration work, showing clearly a big improvement in water quality. Also, we can add that the variability in chlorophyll *a* concentration between the lagoon sectors had decreased. Before 1987, the variability in the north lagoon of Tunis used to be very remarkable with a big difference in the water quality between east sector and west sector.

## References

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