

# TRACE ELEMENTS LEVELS IN RHODOPHYTA ALGAE FROM TENERIFE, CANARY ISLANDS (NORTH ATLANTIC OCEAN REGION)

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## Introduction

Canary Islands, located in the North Atlantic Ocean, stand out for its great algae diversity and its climatic conditions. However, anthropogenic activities could increase the marine pollution. Some trace elements could pose a risk to biodiversity. *Asparagopsis* spp and *Liagora* spp algae, both from Rhodophyta or red algae group, are frequent in the

Canary Islands' coasts. So, the trace elements determination in both algae genera is interesting because due to their abundance these algae could be effective bio-indicators of marine pollution. The content of trace elements (B, Ba, Co, Cr, Cu, Fe, Li, Mn, Mo, Ni, Sr, V, Zn, Al, Cd, Pb) was determined in 30 samples of red algae (*Asparagopsis* spp and *Liagora* spp) from Porís de Abona (Arico, Tenerife, Spain) using inductively coupled plasma atomic emission spectroscopy (ICP-OES).

## Material & Methods

30 samples of algae of the genera *Asparagopsis* spp and *Liagora* spp collected in Porís de Abona (Tenerife, Canary Islands) during the months of April - June 2017 were analysed.



3 g of each sample were weighed in porcelain crucibles

They were dried in an oven for 24 h at 80°C

The samples were subjected to acid digestion with 65% HNO<sub>3</sub>

The capsules were placed in a muffle furnace with a time-temperature program of 425°C-24 h

The white ashes were dissolved in 1.5% nitric acid

The metal content was determined by ICP-OES

## Results & Discussion

Table 1. Mean element concentration (mg/kg wet weight) found by species

	<i>Asparagopsis</i> spp.	<i>Liagora</i> spp.
Co	0.37 ± 0.20	0.18 ± 0.14
Cr	1.10 ± 0.41	0.70 ± 0.16
Cu	4.90 ± 1.73	6.60 ± 4.71
Fe	320 ± 125	1190 ± 1545
Mn	22.4 ± 11.4	14.9 ± 9.92
Mo	0.20 ± 0.19	0.20 ± 0.07
Zn	7.80 ± 4.09	4.30 ± 3.18
B	77.9±39	80.2 ± 34.2
Ba	7.20±2.8	23.7 ± 12.3
Li	1.28 ± 0.11	4.30 ± 2.67
Ni	1.54 ± 0.40	3.70 ± 3.02
V	2.97 ± 0.80	5.41 ± 5.37
Al	288 ± 157	256 ± 179
Cd	0.07 ± 0.01	0.20 ± 0.21
Pb	3.10 ± 0.67	3.92 ± 3.71

*Liagora* spp recorded the highest mean concentrations of Fe (1190 1545 mg/kg dry weight) and B (80.2 34.2 mg/kg dw). Al (288 157 mg/kg dw) stands out in *Asparagopsis* spp. The high concentrations found indicate a high level of contamination of the collected area.

## Conclusions

The high concentrations of trace elements found in the algae analysed indicate a high contamination level on the Porís de Abona coast. Coinciding with the fact that this area is subject to anthropogenic pollution, due to the presence of obsolete marine outfalls, high occupancy in uncontrolled camping areas and currents that carry various pollutants towards its coast. Considering that the Porís de Abona coast is an area of great diversity of marine species, these data should be considered to take actions to reduce pollution in this area of touristic and environmental interest.