QUANTIFICATION OF CAROTENOIDS AND CHLOROPHYLLS IN ALGAE

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Abstract: Chlorophylls (Chl) and carotenoid intake has been correlated with a chemoprotective effect (Ferruzzi and Blakeslee, 2007; Tanaka et al., 2012). They are abundant pigments in algae and were quantified in extracts from macroalgae mix biomass and pure strain of *Lobophora variegate* (*L. variegate*) collected from Las Canteras Beach (Gran Canaria). The contents of Chl a and b, β-carotene and lycopene were determined by extracting 500 mg of biomass with 5 mL of acetone-hexane (2:3) and measuring the absorption at 453, 505, 645 and 663 nm; Chl a and b, and total carotenoids were also quantified by extracting 500 mg of biomass with acetone-water (4:1), and recording the absorbance at 663.6 nm for Chl a, 646.6 nm for Chl b and 470.0 nm for total carotenoids. The effect of sonication on extraction yield was also studied (Branisa et al., 2014). Therefore, samples prepared as described above were sonicated before extraction. The results are summarized in the following table:

	Solvent: acetone-hexane			
	Chl a	Chl b	β-carotene	Lycopene
L. variegate	51,1±0.1*	7.07±0.3*	-	6.8±0.1*
	39.6±1	3.2±0.7	2.47±0.06	4.09±0.03
Mix biomass	30±2*	2.9±0.1*	2.1±0.2*	2.73±0.1*
	20.3±0.7	2.0±0.2	1.23±0.08	1,94±0.09
	Solvent: acetone-water			
	Chl a	Chl b	Total carotenoids	
L. variegate	50.1±0.1*	5,625±0.003*	15,9±0.3*	
	48±2	3.73±0.01	15.28±0.02	
Mix biomass	40.2±0.5*	11±1*	13,05±0.03*	
	35.4±0.8	7.2±1	12.9±0.4	

*Samples were sonicated before extraction
The results are expressed as μg $g^{-1}$of biomass

Sample sonication increased the extraction yield of natural pigments. *L. variegate* strain showed higher content of pigments than the mix biomass. These pigments have great commercial value.

Key words: Algae, Chlorophylls, Carotenoids, Commercial value.

Acknowledgments: Our thanks to the Spanish Bank of Algae (BEA) in Gran Canaria for providing algal strains. Ana Mª Baracaldo thanks the scholarship ref.21AE1/195628. The participation of Paula Santiago was funded through a PhD scholarship from the Universidad de Las Palmas de Gran Canaria (PIFULPGC-2019) to join the Ph.D. Program in Oceanography and Global Change (DOYCAG). This Ph.D. Program is promoted by the Institute of Oceanography and Global Change (IOCAG).

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