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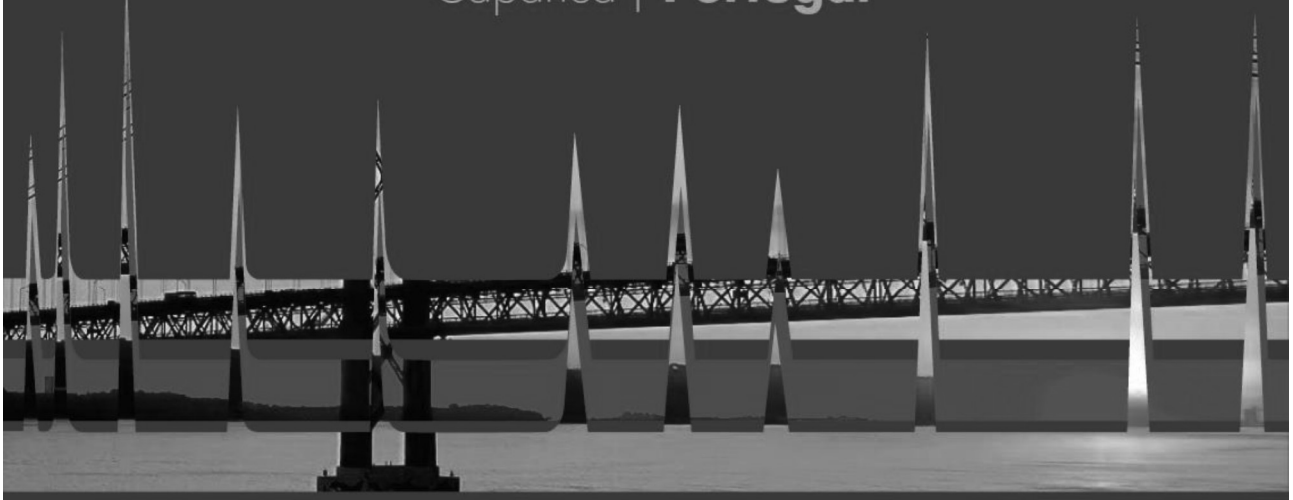

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Ciências ULisboa

P52 The chemical profile of *Lobophora variegata* chloroform extract by GC-MS

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Although macroalgae have promising applications within the food, cosmetic and health industries,[1] there are no commercial applications for *Lobophora variegata*, a small brown seaweed of large geographic distribution that occurs along the Macaronesia coast, and in great quantities on Gran Canária island. The only way to evaluate and propose some application to this biomass imply its chemical and biological characterization. The first results showed the cytotoxic and antiaging activities of some extracts of beach-cast *Lobophora variegata* biomass.[2] The present study analyses the chloroform extract of the *Lobophora variegata* by GC-MS, to establish its chemical profile and identify new or known bioactive compounds, in order to evaluate the potential of this seaweed as source of value added phycometabolites.

The gas chromatography coupled to mass spectrometry allowed the identification of several compounds present in this *Lobophora variegata* chloroform extract which chromatogram is present in the **Figure 1**. Several fatty acids such as lauric, myristic, hydroxymyristic, palmitic, myristoleic, linoleic and oleic acids, gamma- and delta-tocopherol and a 1,2-benzenedicarboxylic acid ester derivative were identified easily, based on the comparison with the mass spectra of data base Wiley and NIST. However, various extract constituents like cyclic ketones, fatty lactones, sterols and phytol derivatives were identified based on the deep study of fragmentations pattern. More detailed information about extract GC-MS analysis and compounds identification will be presented and discussed.

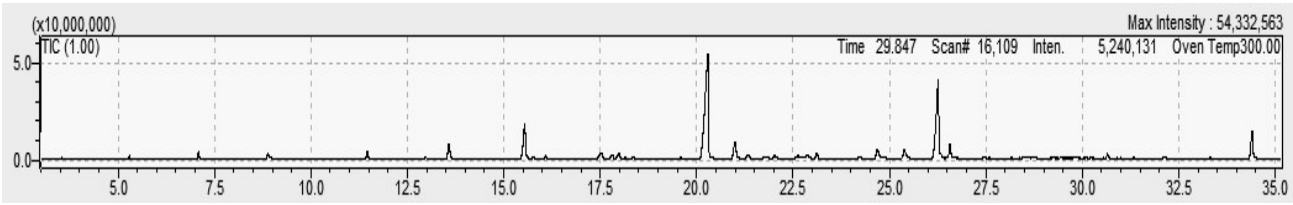

Figure 1: GC-MS chromatogram from chloroform extract of *Lobophora variegata*.

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References:

1. P. Kiuru, M.V. D'Auria, C.D. Muller, P. Tammela, H. Vuorela, J. Yli-Kauhaluoma, Planta Med. 80 (2014) 1234–1246.
2. G. Rosa, N. Nunes, S. Ferraz, M.A. Carvalho, A.M.L. Seca, M.C. Barreto, 1st Seaweed for Health Conference, 24-27 June, Galway, Ireland **2018**, pp 8.

The chemical profile of *Lobophora variegata* chloroform extract by GC-MS

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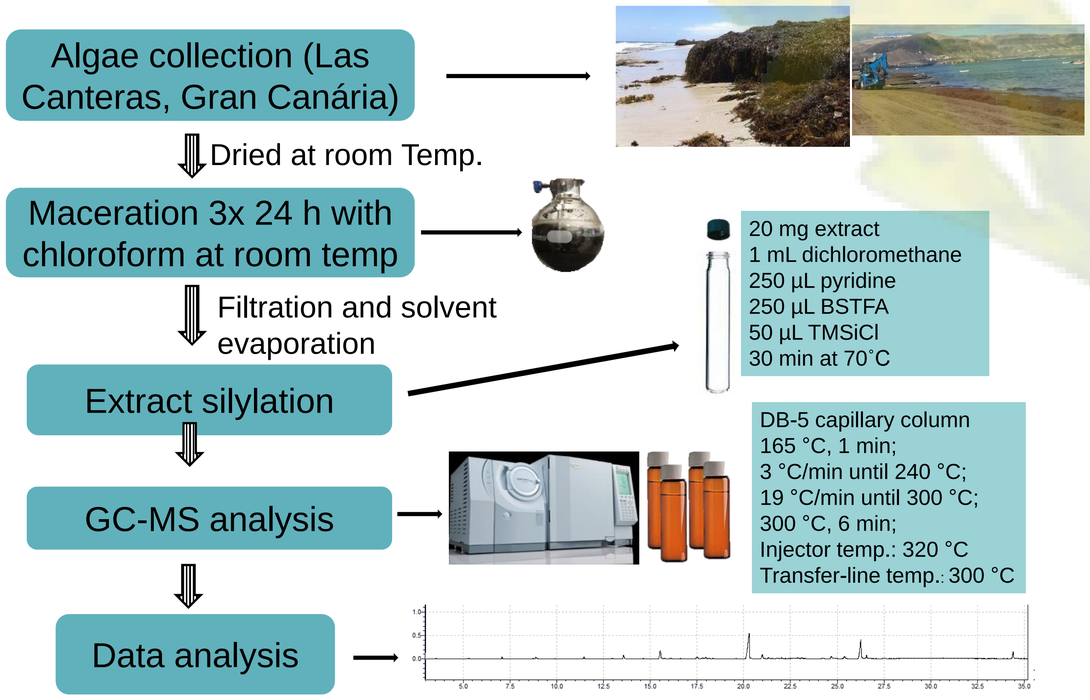
Introduction

Although macroalgae have promising applications within the food, cosmetic and health industries [1], there are no commercial applications for *Lobophora variegata* (Fig. 1). In order to evaluate and propose some application to this biomass its chemical and biological characterization is being carried out. The first biological assessment showed the cytotoxic and antiaging activities of some extracts of beach-cast *Lobophora variegata* biomass [2]. The present study analyses the chloroform extract of the *Lobophora variegate* by GC-MS, to establish its chemical profile and identify new or known bioactive compounds, in order to evaluate the potential of this seaweed as source of added-value compounds.

Figure 1: *Lobophora variegata.*

Methods



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Bibliography

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Results and discussion

The gas chromatography coupled to mass spectrometry allowed the identification of several compounds (Table 1).

Table 1: Relative proportion (%) of the identified compounds.

Compounds	Relative abundance (%)	Compound	Relative abundance (%)
Dodecanoic acid	0.43	**ϒ-Lactone**	8.03
Pentadecanone	0.07	**1-Tridecanol**	0.61
Cyclopentadecanone	1.06	**9,12-Octadecadienoic acid (Z,Z)**	0.98
Phytol acetate	0.16	**9-Octadecenoic acid (Z)**	1.62
Tetradecanoic acid	1.03	**Bis(2-ethylhexyl) phthalate**	21.96
Pentadecanol	0.09	**Hydroquinone derivative**	2.62
3-Hydroxy tetradecanoic acid	0.40	**δ-Tocopherol**	0.16
Hexadecanoic acid	3.26	**ϒ-Tocopherol**	0.48
9-Tetradecenoic acid (E)	0.04	**Fucosterol**	5.51
6-Undecyl-5,6-dihydro-2*H*-pyran-2-one	0.43		

- **Fatty acids** such as lauric, myristic, hydroxymyristic, palmitic, myristoleic, **linoleic and oleic acids**, γ- and δ-tocopherol and a 1,2-benzenedicarboxylic acid ester derivative were identified with the mass spectra data base Wiley and NIST.
- However, various extract constituents like **cyclic ketones**, **fatty lactones**, **sterols** and **phytol derivatives** were identified based on the deep study of fragmentations pattern.

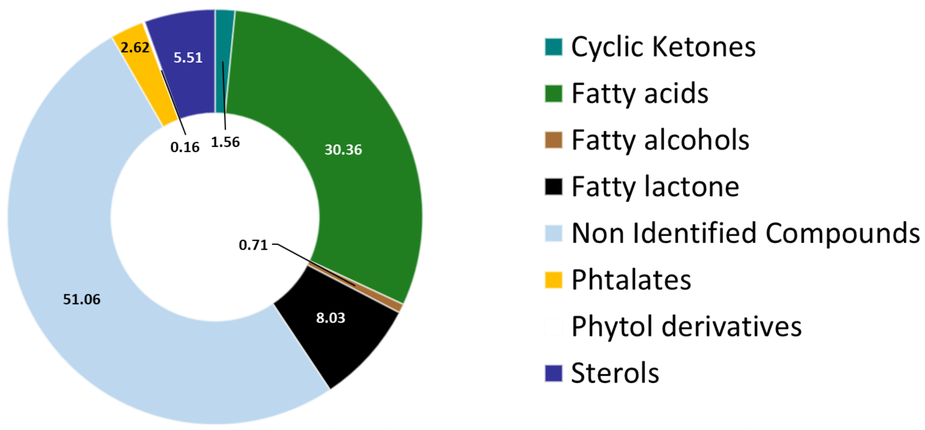

Figure 2: Organic compounds families in chloroform extract of *L. variegata*

- Fatty acids and fatty lactone are the two most abundant compound families in the analyzed extract (Fig. 2).
- A significant percentage of the extract composition is yet to be identified (Fig. 2).