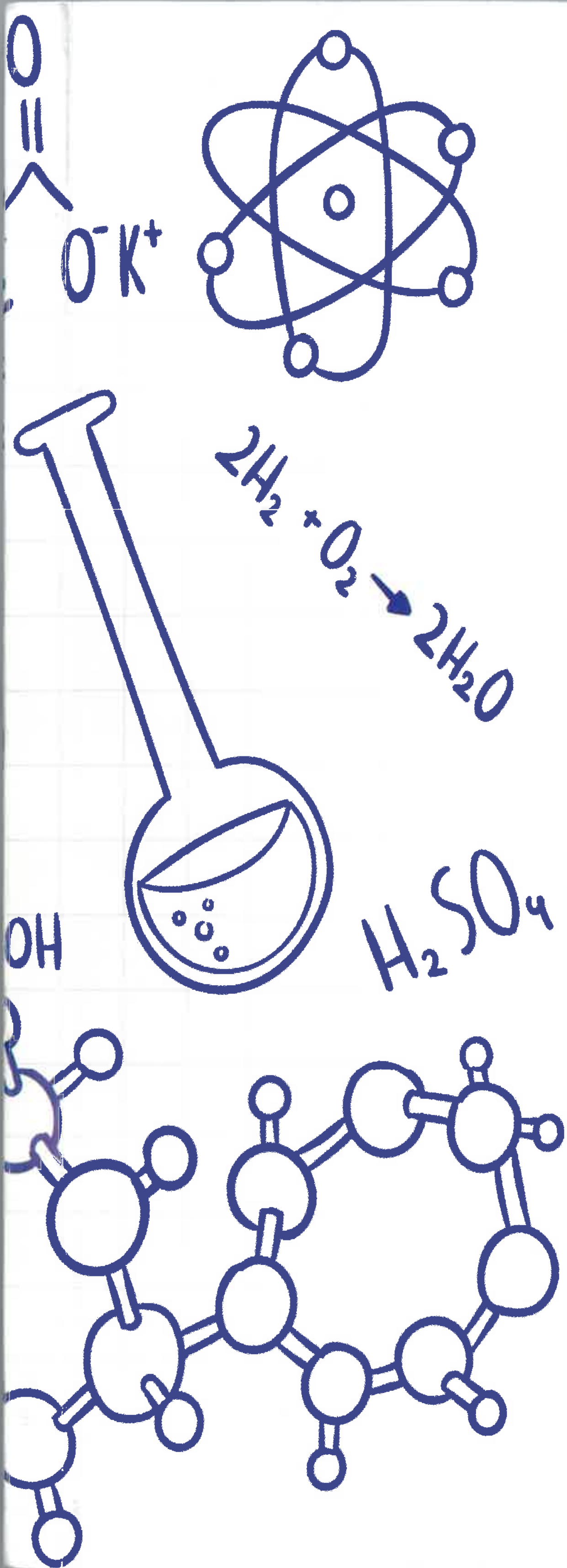

XXIII ENCONTRO GALEGO PORTUGUÉS DE QUÍMICA

Ferrol

2017

ALM08

A chemometric study on the chemical and nutritional profile of *Fucus spiralis* L. juvenile and mature life-cycle phases

Diana C. G. A. Pinto[1,*], Vera L. M. Gouveia[2], M. Carmo Barreto[3], Artur M. S. Silva[1], Ana M. L. Seca[1,3]

[1]Department of Chemistry & QOPNA-Organic Chemistry, Natural Products and Food Stuffs, University of Aveiro, Campus de Santiago, 3810-193 Aveiro, Portugal

[2]Department of Biology, Faculty of Sciences and Technology, University of Azores, Rua Mãe de Deus, 9501-801 Ponta Delgada, Portugal

[3]cE3c- Centre for Ecology, Evolution and Environmental Changes/Azorean Biodiversity Group & University of Azores, Rua Mãe de Deus, 9501-801 Ponta Delgada, Portugal

diana@ua.pt

Fucus spiralis L. is an edible brown macroalga with a wide distribution range, including coastal Europe, Atlantic Islands, North America, Morocco and Western Sahara [1]. It is very rich in fibre, minerals, phlorotannins, sterols and fatty acids, which are associated with its nutritional value [2], and exhibits significant pharmacologic proprieties, presenting not only antioxidant and anti-inflammatory activities but also cardio protective, anti-obesity and antidiabetic effects [3]. Nevertheless, the chemical profiles of *F. spiralis* life-cycle phases have not been explored. Therefore, the main goal of this research was to assess the *F. spiralis* chemical composition in juvenile and mature phases by GC-MS analysis, and to identify the differences and/or similarities using the principal component analysis (PCA) tool.

The GC-MS profiles of each life-cycle phase as well as important data to improve the use of *F. spiralis* are disclosed. In both phases, alkanes, fatty acids, alditols, sterols, monoglycerides and δ-tocopherol were identified, although the content of each compound and/or class of compounds is life-cycle phase dependent. For example, desmosterol and stearic acid are produced exclusively in the juvenile phase and the sterol content in the juvenile phase is statistically lower than in mature phase. Moreover, the content of 1-palmitoylglycerol and 1-oleoylglycerol in *F. spiralis* is higher in juvenile phase being these compounds reported for the first time in this seaweed. Simultaneously, PCA allowed the differentiation between the analysed *F. spiralis* life-cycle phases along with the detection of the compounds that contribute to this distinction (Fig. 1). Our study confirms that *F. spiralis* is a source of phytochemicals with recognised health benefits so its use in dietary is recommended. But, its life-cycle phase should be considered before the collection moment.

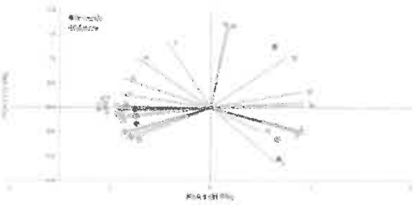

Fig.1. Score plot of the PC 1 *vs.* PC 2.

Acknowledgments:

This study was financed by Portuguese National Funds, through FCT – Fundação para a Ciência e a Tecnologia, and as applicable co-financed by the FEDER within the PT2020 Partnership Agreement by funding the Organic Chemistry Research Unit (QOPNA) (UID/QUI/00062/2013) and the cE3c centre (UID/BIA/00329/2013). We would like to thank also to A. I. Neto by harvesting and identify seaweed and Paulo Silveira for PCA results.

References

[1] M. D. Guiry, G. M. Guiry, AlgaeBase. World-wide electronic publication, National University of Ireland, Galway 2016, http://www.algaebase.org (assessed on 21 March 2017).

[2] M. S. Tierney, A. Soler-Vila, D. K. Rai, A. K. Croft, N. P. Brunton, T. J. Smyth, Metabolomics, 10, 2014, 524.

[3] G. Lopes, C. Sousa, J. Bernardo, P. B. Andrade, P. Valentão, J. Phycol. 47, 2011, 1210.

Impact of ion exc

Rita Borges[1], Cele

[1]Mountain Research (

[2]AEB Bioquímica

[3]CQ-VR, Centro de Quím

[4]CQ-VR, Centro de Quím

Ion exchange resins pr
groups, electrically neut
Cationic resins in acid cy
Wine for wine treatmen
in order to get an equilib
percentage of untreated
In this study was used
exchange resin. The aim c
phenolic composition, mi
The experiment was carri
30% (total of 1000L). Con
chromatic characteristics
phenols, flavonoids and n
the phenolic profile was d
was performed by a train
aroma (aroma intensity, f
bitterness, flavour intensit
(ISO 4121, 2003).
Red wine treated with ion
compared to untreated or
ion exchange resin (Table
resins seems to improve sc

Wine Sa
Control
Resin

Table 1. Calcium, magne

Different letters for statistic

Acknowledgements

This work was partially funded
Bioquímica Portuguesa and Gra

References

[1] OIV Resolution OENO 43/2000
[2] OIV. Récueil de Méthodes Intern
[3] T. E. Kramling, V. L. Singleton. Am
[4] R. Guise, L. Filipe-Ribeiro, D. Nasc

A chemometric study on the chemical and nutritional profile of *Fucus spiralis* L. juvenile and mature life-cycle phases

Diana C. G. A. Pinto

Vera L. M. Gouveia, M. Carmo Barreto, Artur M. S. Silva, Ana M. L. Seca

universidade de aveiro · FCT Fundação para a Ciência e a Tecnologia · COMPETE · QREN Quadro de Referência Estratégico Nacional · Portugal 2020 · União Europeia Fundo Europeu de Desenvolvimento Regional · www.fppt.info

Acknowledgments

- This study was financed by Portuguese National Funds
- Organic Chemistry Research Unit (QOPNA) (UID/QUI/00062/2013)
- cE3c Centre (UID/BIA/00329/2013)

Besides the authors of this work

I would like to thank also to A. I. Neto by harvesting and identify the seaweed and Paulo Silveira for PCA results.

University of Aveiro

University of Azores

universidade de aveiro · FCT Fundação para a Ciência e a Tecnologia · COMPETE · QREN Quadro de Referência Estratégico Nacional · Portugal 2020 · União Europeia Fundo Europeu de Desenvolvimento Regional · www.fppt.info