



Blue Bioeconomy in Action:

Macroalgae Extracts as Natural Antioxidants for Food Preservation

Beatriz Rodrigues¹, Francisca Santos¹, Cristina Soares¹, Valentina F. Domingues¹, Ana Cação², Helga Augusto², Cristina Delerue-Matos¹

¹REQUIMTE/LAQV, Instituto Superior de Engenharia do Porto, Instituto Politécnico do Porto, Porto, Portugal

²Cofisa, S.A, Figueira da Foz, Portugal

Agri-food Waste Management
for Sustainable bio-economy
through Higher Education
curricula and upskilling

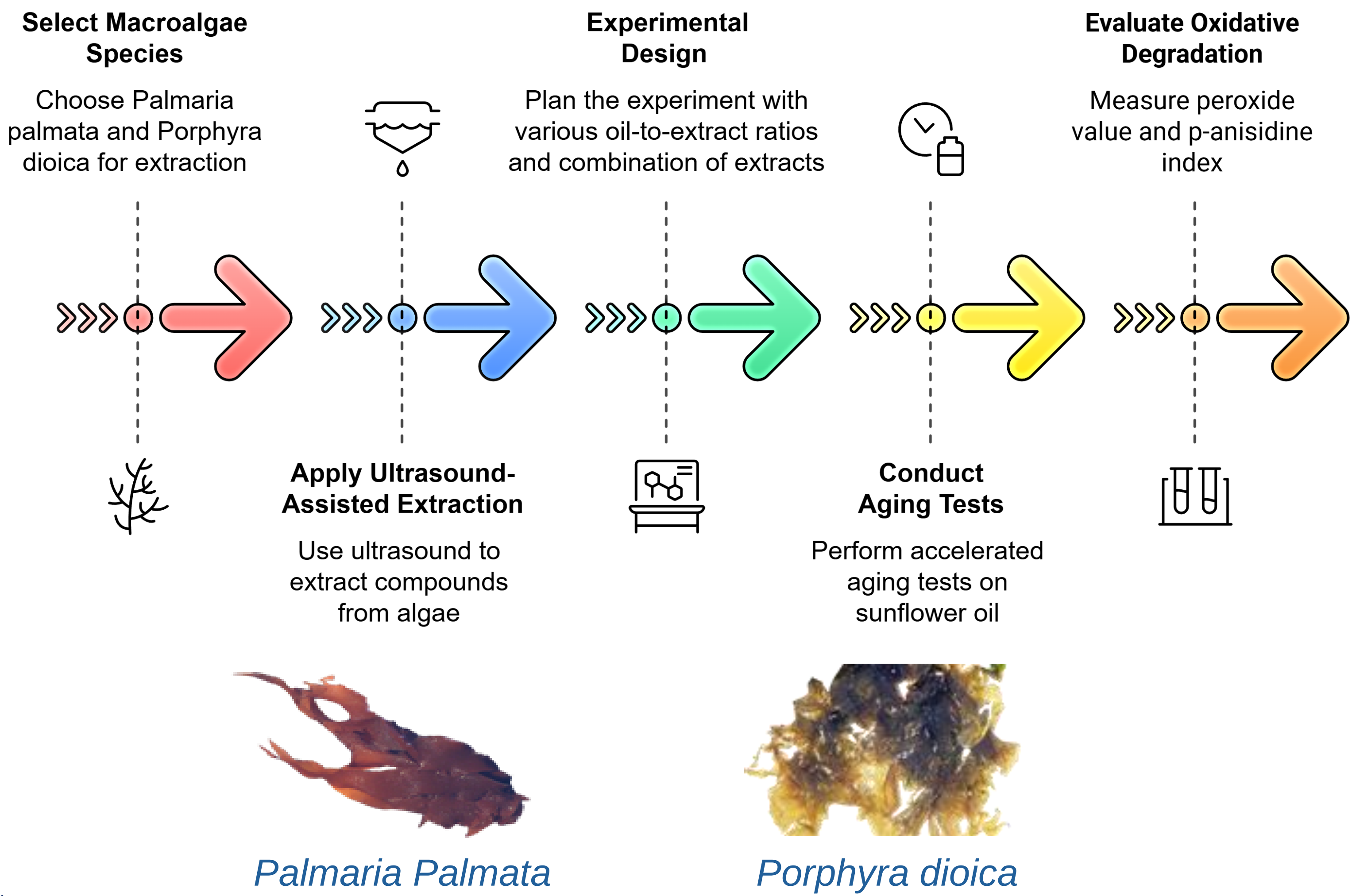


INTRODUCTION

Fish canning is a process used to extend the shelf life of the product. However, quality losses and nutrient breakdown can occur due to the multistep nature of this process and the use of pretreatments. Lipid oxidation leads to the formation of rancid flavours that lower the sensory quality of canned fish. As a result, it significantly contributes to food waste and economic losses in high fat.

As part of the AGRIMA program for sustainable bioeconomy solutions, this study investigates macroalgae-based antioxidants as environmentally friendly alternatives to synthetic preservatives to reduce lipid peroxidation.

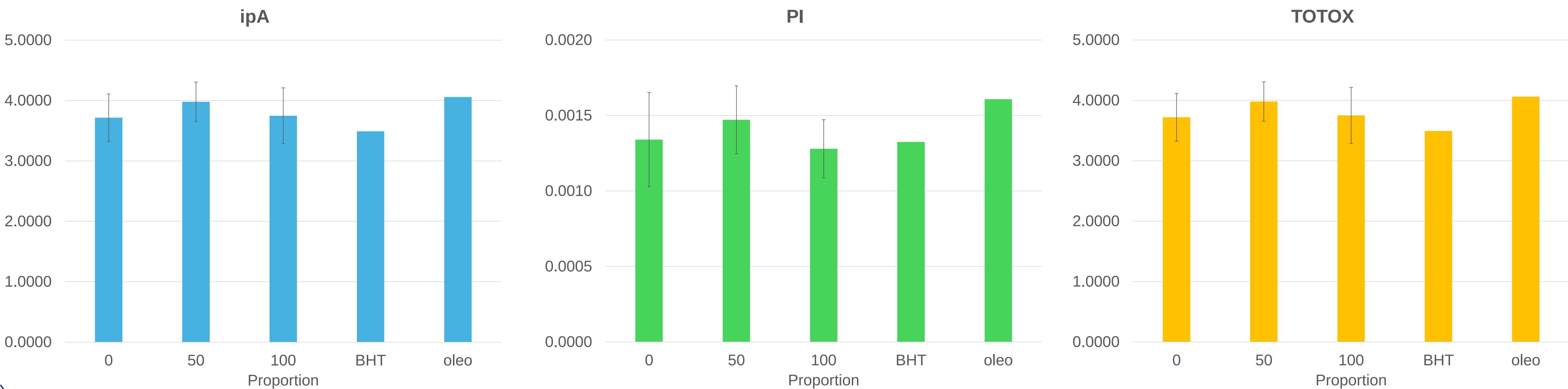
MATERIALS & METHODS



RESULTS & DISCUSSION

Preliminary tests show that both types of algae inhibit significantly lipid oxidation. It also shows that the most effective between the two types of algae is *Palmaria palmata*.

Regarding the quantity of extract, the preliminary tests don't show a significant correlation.



CONCLUSIONS

By enhancing oxidative stability naturally, seaweed extracts potentially provide a sustainable solution to extend shelf life and minimize spoilage-related food losses. This follows circular bioeconomy principles by increasing the value of marine biomass for food preservation. Further research will examine their application in canned fish, contributing to low-waste agri-food systems.

Disclaimer

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Portuguese National Agency for Erasmus+, Education and Training (PNA). Neither the European Union nor the PNA can be held responsible for them. Call 2024 Round 1 KA2 - KA220-HED (2024-1-PT01-KA220-HED-000243242)