

MONITORING OF PERSISTENT AND EMERGENT POLLUTANTS IN BLACK SCABBARD FISH *APHANOPUS CARBO* BY-PRODUCTS AND PROTEIN HYDROLYSATES

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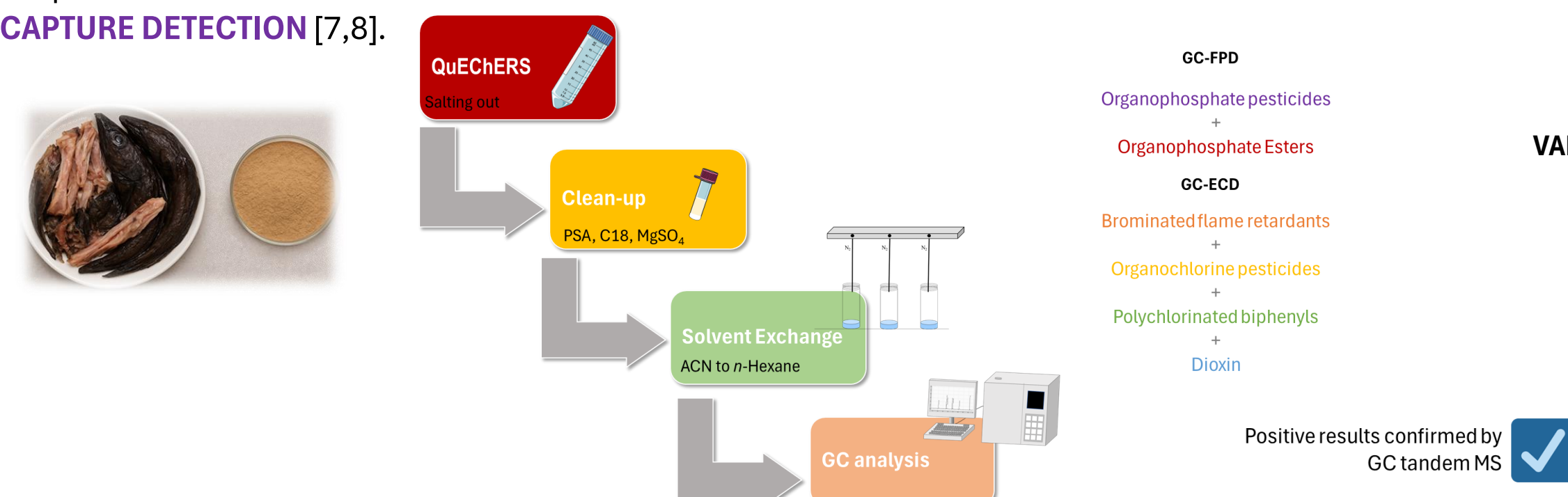
INTRODUCTION

The **PORTUGUESE POPULATION** consumes approximately **2.5 TIMES MORE FISH** than the European Union average [1,2]. **BLACK SCABBARD FISH** (*Aphanopus carbo*) is a popular by fish species. During processing, approximately **30-40% BY-PRODUCTS ARE GENERATED** (e.g., heads, bones, and skins) [3,4]. These by-products are often discarded or undervalued, although they can be a valuable **SOURCE OF BIOACTIVE INGREDIENTS** with many applications.

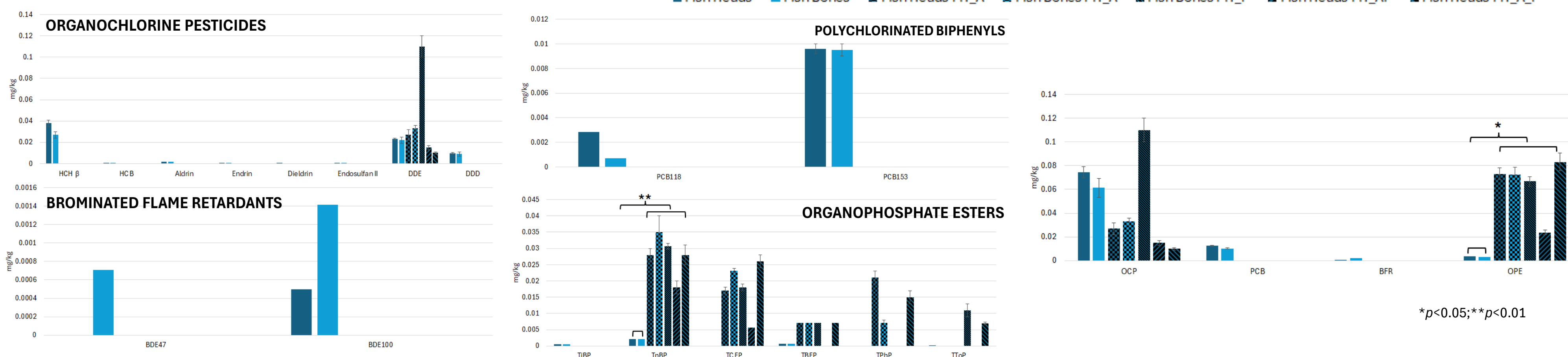
The production of **PROTEIN HYDROLYSATES (PHs)** is of great interest as they exhibit a variety of **IMPORTANT BIOACTIVE AND TECHNOLOGICAL PROPERTIES**, making them potential ingredients for **NEW FUNCTIONAL FOODS AND SUPPLEMENTS** [5], yet by-products **CAN ALSO CARRY ENVIRONMENTAL POLLUTANTS** [6].

EXPERIMENTAL

A single **QuEChERS EXTRACTION** followed by dispersive solid-phase extraction clean-up was employed, coupled with **GAS CHROMATOGRAPHY USING EITHER FLAME PHOTOMETRIC DETECTION OR ELECTRON CAPTURE DETECTION** [7,8].



RESULTS



CONCLUSIONS

Trace amounts of **ENVIRONMENTAL POLLUTANTS** were detected in all by-products and PHs analysed. Most concentrations remained **BELOW** the **EUROPEAN COMMISSION'S** maximum residue **LIMITS** [9], **except for DDE** in the **PH** one-stage enzymatic hydrolysis with **Protana Prime®**. These findings suggest that **PHs** from black scabbardfish by-products can be **SAFELY** incorporated into **FOOD PRODUCTS AND ANIMAL FEED** (PH_P up to 30% due to DDE [9]).

TAKE HOME MESSAGE

Nonetheless to promote a **BLUE CIRCULAR ECONOMY** aligned with **OneHealth** principles, it is crucial to:

CONTINUED SURVEILLANCE

Regular monitoring of emerging contaminants is crucial to assess potential risks.

REGULATORY ACTION

Establishing regulations for emerging contaminants is vital to ensure food safety.

References

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Acknowledgements

This work received support and help from FCT/MCTES/LA/P/0008/2020-DOI 10.54499/LA/P/0008/2020, UIDP/50006/2020-DOI10.54499/UIDP/50006/2020 and UIDB/50006/2020-DOI 10.54499/UIDB/50006/2020, through national funds. This work has been developed within the scope of the BLUE BIOECONOMY INNOVATION PACT(Project N°C644915664-00000026), financed by NextGenerationEU, under the incentive line "Agendas for Business Innovation" of the Recovery and Resilience Plan. Images generated by IA