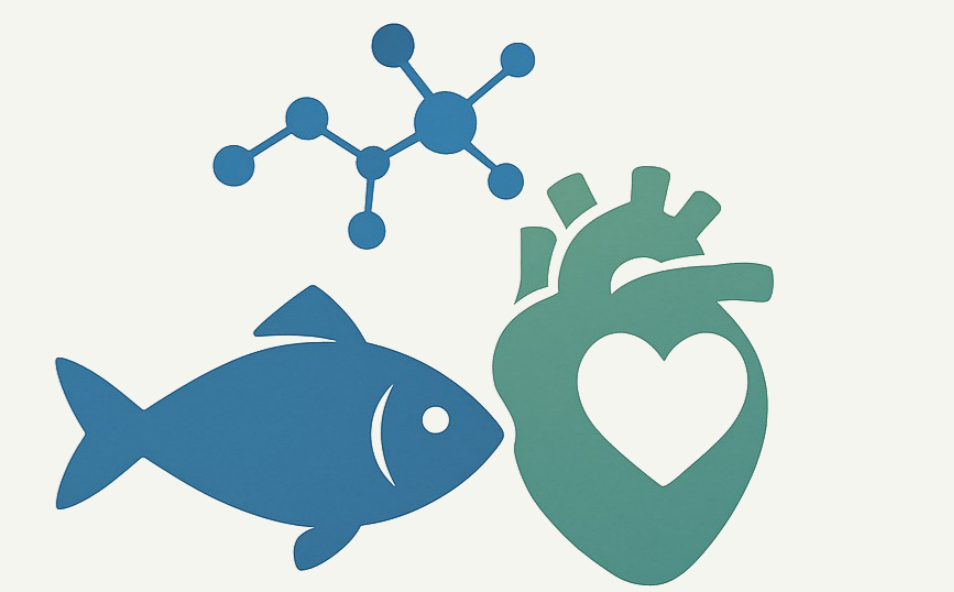


Metabolite Profiling of Post-Biotics Obtained from Fish By-Products

Sara Silva, Eduardo M. Costa, [Manuela Machado*](#)

*mmachado@ucp.pt

Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Rua Diogo Botelho 1327, 4169-005 Porto, Portugal



FERDINAND

CATOLICA

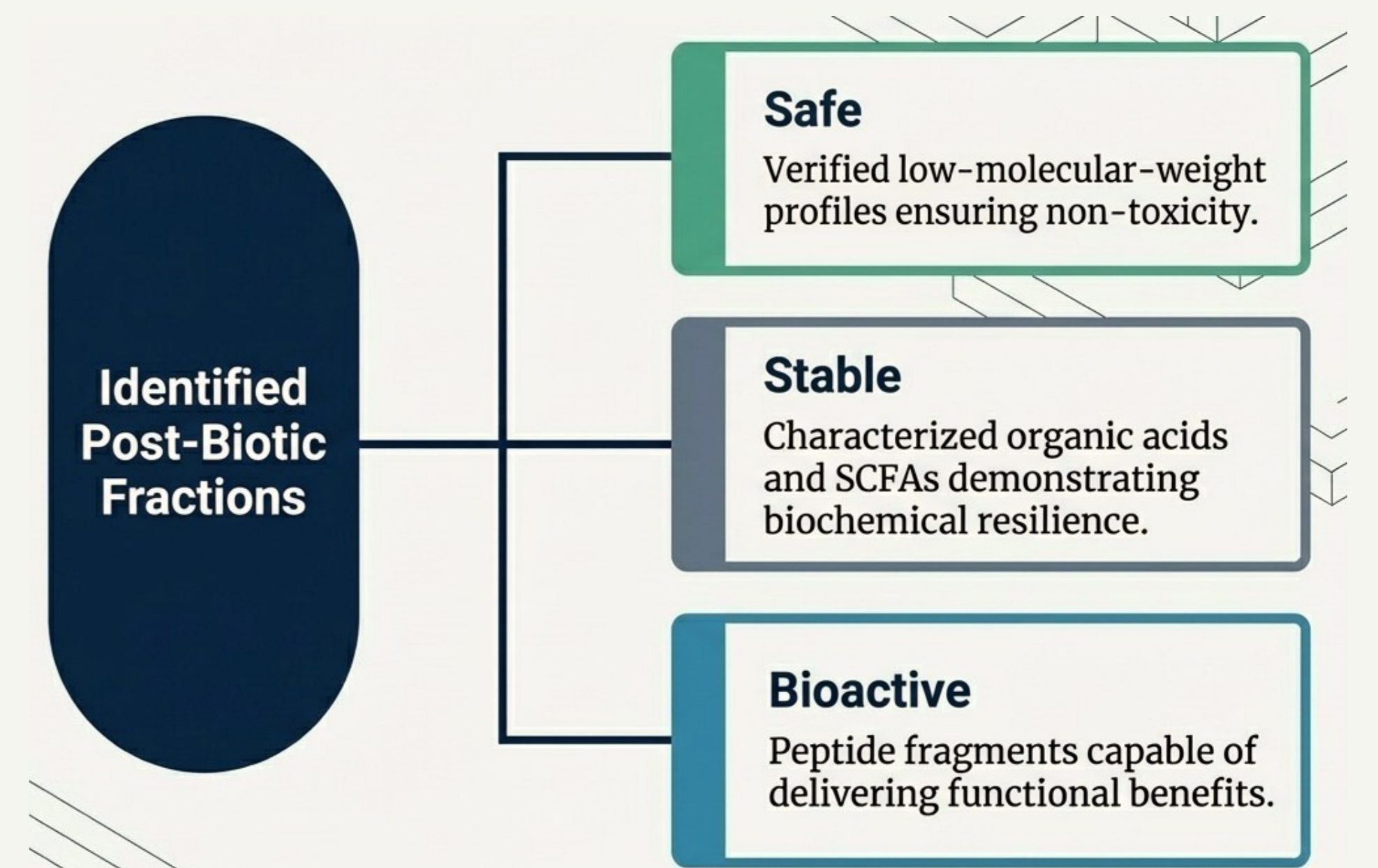
CBQF · CENTRE FOR BIOTECHNOLOGY
AND FINE CHEMISTRY ASSOCIATE LABORATORY

CBQF

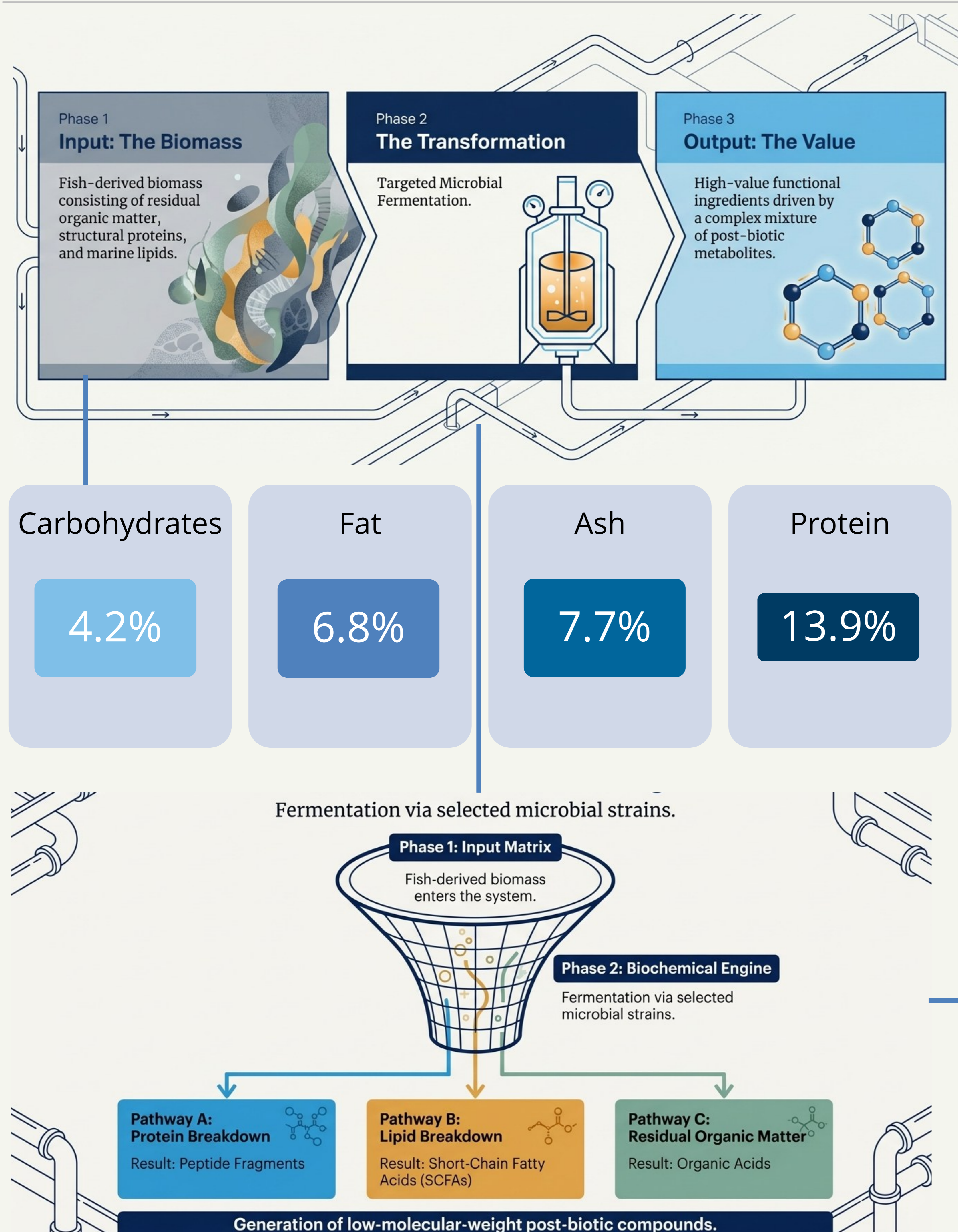
PORTO

Introduction & Objectives

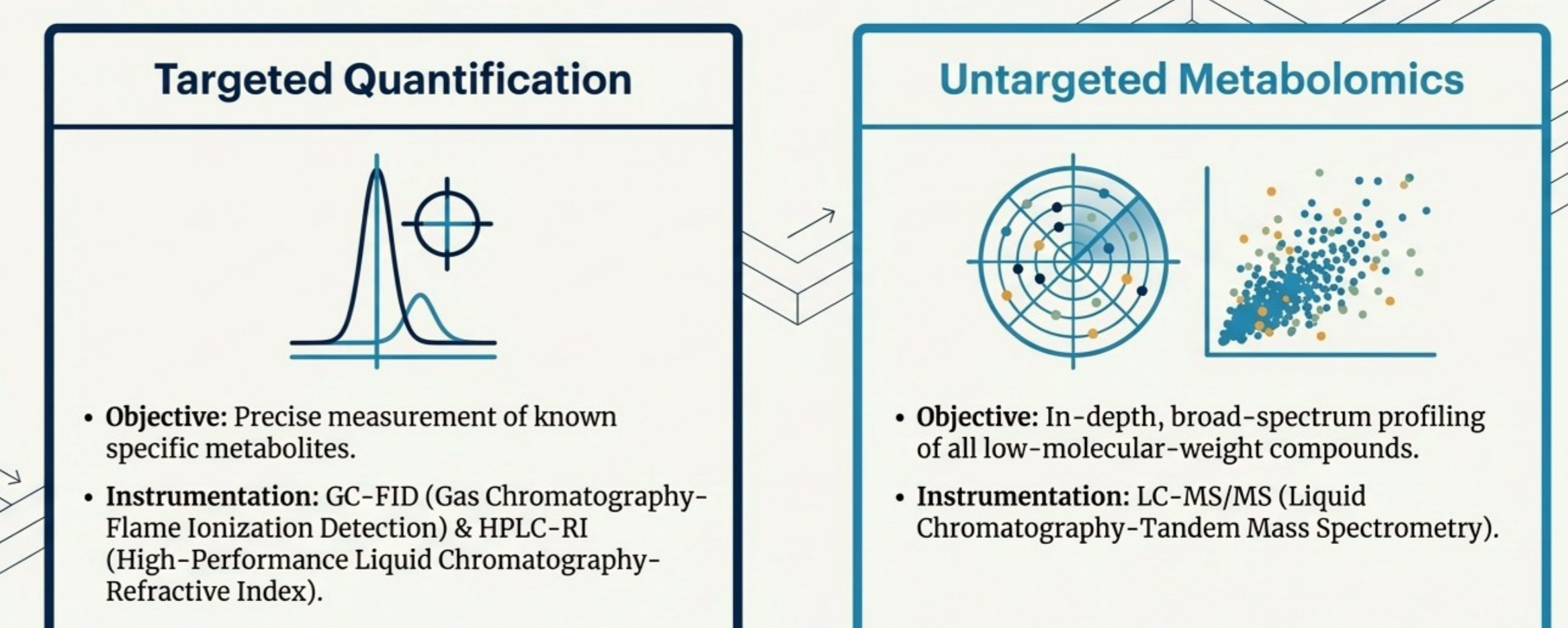
The **FERDINAND** project aims to valorize fish by-products as a sustainable source of bioactive compounds for applications in cardiometabolic health, focusing on the development and characterization of innovative post-biotic fractions. Post-biotic metabolite analysis provides critical insight into the biochemical transformations occurring during microbial fermentation and supports the valorization of fish by-products into high-value functional ingredients. In this study, fish-derived biomass is fermented using selected microbial strains, generating a complex mixture of post-biotics formed during the breakdown of proteins, lipids, and residual organic matter. A comprehensive analytical framework combining chromatographic and mass spectrometry-based techniques is applied to characterize the resulting metabolites, including short-chain fatty acids, organic acids, and peptide fragments. Targeted quantification is performed using GC-FID and HPLC-RI, while LC-MS/MS and untargeted metabolomics enable in-depth profiling of low-molecular-weight compounds. Integrating targeted and untargeted data provides a holistic understanding of post-biotic composition, facilitating the identification of safe, stable, and bioactive fractions derived from fish by-products with potential applications in food, nutraceutical, and biomedical sectors.



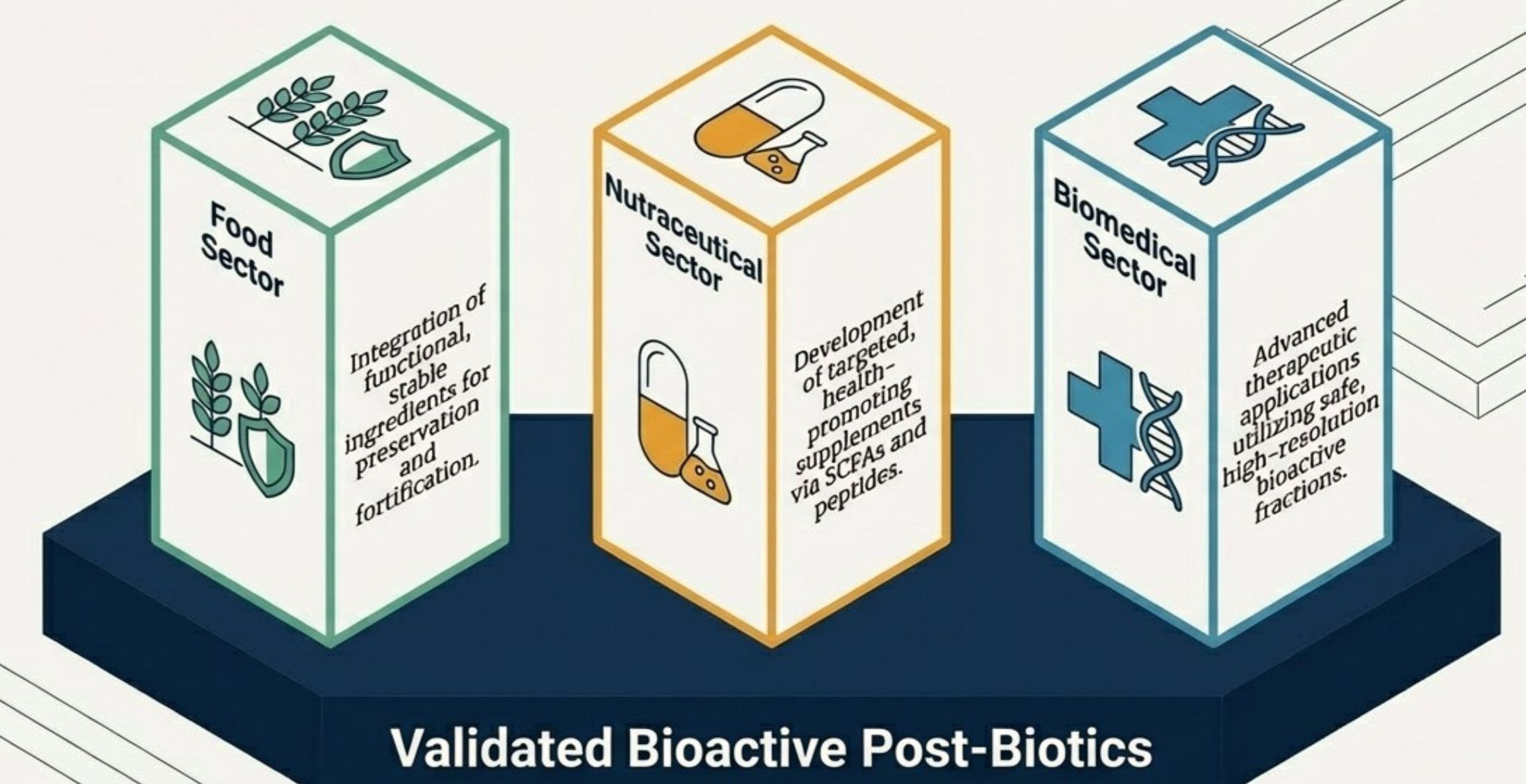
Methods



Comprehensive Analytical Framework



Sector Value Map



Acknowledgements

This work was supported by FERDINAND (COMPETE2030-FEDER-00822600) financed by FEDER, PITD-Programa Inovação e Transição Digital and National Funds from FCT - Fundação para a Ciência e a Tecnologia through projects UID/50016/2025 and LA/P/0076/2020 (<https://doi.org/10.54499/LA/P/0076/2020>) and through contracts 2023.15056.TENURE.057 and 2023.15056.TENURE.049



Fundação para a Ciência e a Tecnologia

