

Coelho, M., Rocha, H. R., Morais, R. M. S. C., Gomes, A. M., & Pintado, M. E. (2024). *Comparative analysis of two algae: impact on bioavailability, health benefits, and matrix variations*. Abstract from Encontro Ciência 2024, Porto, Portugal.

Introduction: *Osmundea pinnatifida* and *Codium* spp. are rich in Bioactive Compounds (BC), which have been linked to numerous health benefits, including antioxidant, anti-hypertensive, and anti-inflammatory effects. However, the extent to which these compounds can be absorbed and utilized by the body is largely dependent on how they are affected by the process of digestion. By using the INFOGEST in vitro model, this study provides valuable insights into how hexane extraction influences the bioavailability of these BC. In essence, this study contributes significantly to our understanding of the nutritional potential of algae and the role of digestion in unlocking their health benefits.

Results: The simulation revealed varied carotenoids along the gastrointestinal tract, with only 2.49% beta-carotene absorption. Carotenoid extracts exhibited noteworthy antioxidant and antidiabetic activities. *Os. pinnatifida* showed no detectable carotenoids, indicating compromised bioaccessibility in complex algae matrices without prior lysis treatment.

Conclusions: The extraction method used in the algae study significantly influenced the bioaccessibility of nutrients and BC. The impact of digested algae highlighted the relative abundance of the *Bacteroides* genus. The findings underline the importance of extraction techniques and digestion conditions in determining the bioavailability and health benefits of bioactive compounds in algae. This provides important perspectives for future studies and uses in the field of functional foods and nutraceuticals.