MASTER BIOTECHNOLOGIES

PARCOURS MASTER INTERNATIONAL EN BIOTECHNOLOGIES MARINES

M2 / semestre 9

INGREDIENTS AND ACTIVE MOLECULES

Bioactive molecules from marine plants biomasses

3 crédits ECTS
Volume horaire
CM : 22h
TD : 4h
TP : 6h

Responsable(s)
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Pré-requis nécessaires
Basic marine biology, marine biochemistry, botany.

Compétences visées
Learning outcomes for students are to obtain a comprehensive vision, in a context of sustainable and innovative researches:
- of the macroalgal and halophytes industries at different scales (France, Europe and worldwide)
- on the possibilities to valorize marine plants
- on the application of biotechnological processes in the domain of marine sciences
- on biological assays which could be carried out along the research of innovative marine ingredients
- on the formulation of ingredients.

Students will also acquire:
- the ability to transpose data/concepts of the scientific literature into R & D approaches integrating scaling-up.
- the capacity to bind extractive and purification processes and their uses, depending on the needs of industrials

Descriptif
Introduction: utilization of marine plants worldwide, chemodiversity and sectors which use marine plants
Chapter 1: Global overview of the marine plants industry in France, Europe and in the world: definitions, types of resources (harvested, cultivated resources together with beaching), markets, value chains, culture versus harvesting following countries with case studies in occidental and oriental countries (for seaweeds).
Chapter 2: The different industrial sectors which use marine plants: general properties, specificities of marine ingredients, classical and innovative uses
Chapter 3: focus on phenolic compounds: extraction, purification, quantification and biological activities, innovative and green processes for their extraction/purification, applications in cosmetic, agrifood and medical industries
Chapter 4: focus on carbohydrates (mono-, di- and polysaccharides): extraction, purification, quantification and biological activities, innovative and green processes for their extraction/purification, applications in cosmetic and medical industries
Chapter 5: focus on marine lipids (terpenes, fatty acids,...): extraction, purification, quantification and biological activities, applications in fouling industries and use as natural conservatives.
Chapter 6: innovations in relation with researches on marine plants. Cosmetic Ingredients and formulation: theory and practical way to obtain a cosmetic product.

Bibliographie

**Modalités de contrôle des connaissances**

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<th>Session 1 ou session unique - Contrôle de connaissances</th>
<th>Nature de l'enseignement</th>
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**Session 2 : Contrôle de connaissances**

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**Langue d'enseignement**

Anglais