PhD Position: Evolution of *Dictyota* (Dictyotales) Using a Multi-Omic Approach

We invite applications for a fully funded PhD position to join the Marine Biodiversity Lab (@marinebiodiversitylab) and to investigate the evolution, taxonomy, and chemical diversity of the brown algal genus *Dictyota*, building on recent integrative taxonomic discoveries. Recent integrative taxonomic work combining detailed morphology with multilocus DNA barcoding (psbA, rbcL, cox1) has revealed that *Dictyota* diversity in South Africa was substantially underestimated, uncovering several newly described species and several lineages awaiting formal description. Several historically reported species were shown to be misidentifications, while new species and new regional records were uncovered. Together, these findings point to a complex evolutionary and biogeographic history involving regional endemism, Indo-Pacific and Atlantic lineages, and transoceanic connectivity.

This PhD will build on this new taxonomic framework to investigate how evolutionary history, geography, developmental processes, and chemical diversity interact in *Dictyota* and related brown algae. The project aims to establish a model system for understanding the evolution of secondary metabolism in brown algae and to provide a general framework for linking chemical trait evolution with algal diversification.

We hypothesise that chemically distinct lineages correspond to independently evolving metabolite pathways and that developmental patterns constrain and shape chemical diversification across evolutionary time.

Project focus

The successful candidate will:

- Integrate phylogenomic, DNA barcoding and DNA-based species delimitation methods, and LC–MS-based metabolomic data to resolve species boundaries, evolutionary relationships, and lineage-specific chemical diversity
- Investigate how chemical traits vary across developmental stages, morphology, and thallus regions, providing an evo–devo perspective on secondary metabolite evolution
- Examine how environmental gradients and biogeography shape metabolite diversity and chemical defence strategies
- Complete the taxonomic description of additional *Dictyota* lineages

- Participate in the Interreg-funded RevAlgae project, field campaigns, pilot harvesting operations, stakeholder workshops, and international secondments with partners in Spain, France, and Belgium
- Access and train in state-of-the-art mass spectrometry and genomics platforms

This project combines systematics, evolutionary biology, chemical ecology, and evo–devo in a globally important group of marine foundation species.

Supervision and research environment

The PhD will be supervised by Dr Maggie Reddy (University of Galway) and co-supervised by Prof. Olivier De Clerck (Ghent University) and Prof. Olivier Thomas (University of Galway). The student will be based at the University of Galway, Ireland, and will be part of the RevAlgae research programme, with extensive opportunities for international collaboration, training, and research visits.

The candidate will have the opportunity to contribute to publishable datasets suitable for high-impact journals. They will benefit from structured personal and professional development, including attendance at international conferences, specialist workshops, and advanced training courses, as well as support in publishing, networking, and career development.

Funding and duration

- Fully funded PhD through the RevAlgae project
- Duration: 3–4 years
- Host institution: University of Galway
- **Start date:** Ideally, March 2026, no later than May

Candidate requirements

Applicants should have:

- An MSc degree in marine biology/biological sciences, evolutionary biology, genomics, or a related discipline, with a strong focus on taxonomy, systematics, and/or molecular biology
- Experience with fieldwork and scientific diving (or willingness to obtain diving certification)
- Experience with microscopy, anatomical analysis of seaweeds and taxonomic keys

- Experience with molecular techniques, DNA extraction, PCR and data analysis
- Experience with omics data analysis or a strong willingness to develop these skills
- A high level of organisation, independence, and attention to detail
- Strong motivation, initiative, and scientific curiosity
- Good communication and teamwork skills in an international research environment

How to apply

Applicants should submit the following documents to mageshneem.reddy@universityofgalway.ie by **20 Feb 2026**:

- A CV (2–3 pages) including at least two academic references and academic transcripts
- A list of publications, science communication activities and/or conference presentations
- A one-page motivation letter describing how their current skills and expertise align with the project

Selected candidates will be invited for an interview in the last week of February. If we have not contacted you by the 1st week of March, please consider your application unsuccessful. We are committed to building an inclusive research environment and strongly encourage applications from candidates from underrepresented backgrounds.