

The biology and biotechnological potential of marine fungi bioprocessing

Supervisory team:

Lead supervisors: Dr Mike Allen (University of Exeter), Dr Michael Cunliffe (Marine Biological Association; MBA) Prof Sam Stevens (University of Exeter), Dr Glen Wheeler (Marine Biological Association; MBA), Prof Chris Chuck (University of Bath), Dr Nathan Christmas (Marine Biological Association; MBA), Dr Kimberley Bird (Marine Biological Association; MBA)

Host institutions: University of Exeter (Streatham), Marine Biological Association

Submit applications for this project to University of Exeter

Project description:

Fungi are generally well-established bioprocessors with the ability to degrade and assimilate a broad range of biomass substrates and subsequently produce a wide variety of valuable biological resources. Marine fungi represent a novel and currently understudied resource for bioprocessing, both in terms of their fundamental underpinning biology and biotechnological applications.

This PhD project will explore and study the bioprocessing potential of marine fungi from the recently established marine fungi culture collection at the Marine Biological Association (MBA) in Plymouth. Over 350 yeast and hyphal strains are available from a range of temperate and polar marine environments, including the deep open ocean and sea ice.

In summary, the PhD project will screen the marine fungi culture collection, using a high-throughput approach, identifying specific fungal strain and substrate combinations of interest. The strain/substrates combinations will be studied in terms of underpinning biological mechanisms (e.g. substrate attachment and enzyme production) and potential biotechnological application (e.g. biomolecule production).

The PhD student will be able to utilise a broad range of opportunities available between the supervisory team, such as the marine fungi culture and imaging facilities at the MBA and biotechnological/bioprocessing experience and skills at Bath and Exeter/PML. The PhD student will also be encouraged and supported to engage with other relevant initiatives, including the BBSRC Networks in Industrial Biotechnology and Bioenergy (e.g. EBNet: Environmental Biotechnology Network).

