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Centro Tecnológico del Mar : fundación CETMAR
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From ocean to lab: Marine genetic resources and
their application in the production of novel
bioactive molecules



Vigo 9 November 2018

Seminar

It's well known that the ocean hosts a huge biological diversity and entails a barely explored reservoir of multiple active biomolecules with a potential applicability in different fields of human activity, such as health. The process from the taking of samples of marine organisms containing molecules with biological activity until some of them succeed to reach the pharmacology market is highly complex. It requires the use of advanced biotechnological tools and it takes many stages in specialized laboratories, for instance: sample collection and traceability, Activity screening and action mechanism, purification of bioactive compounds, etc. In fact, the aim of this seminar is knowing in depth the genomic strategies (blue biotech) available to assess the biotechnological resources of marine organisms and knowing how the collections of extracts of marine natural products are created and exploited. Additionally we'll tackle other important issues about marine biodiversity such as the present legislation and the access to the marine genetic resources.

Context

The marine environment differs a lot from the terrestrial environment and therefore its biological diversity is very different both in composition as in structure and activity. Evolution has given survival, defense, attack and communication mechanisms to marine organisms allowing them to develop a wide variety of chemical agents exclusively sophisticated. Among them there are molecules with powerful biological activity developed as a natural defense for the survival in an extremely competitive environment. Those chemical structures are often potential novel treatments against illness; therefore studying and identifying them open up effective channels to discover new molecules with activity on human health. The big challenge of marine biotechnology is to identify those biomolecules in the laboratory and to study their properties as well as to understand the activity of the genes regulating their biosynthesis as a means to increase the production from natural sources.

From ocean to lab: Marine genetic resources and their application in the production of novel bioactive molecules

09:00-09:40. Reception and Accreditation

09:40-09:50. Welcome and opening

Paloma Rueda Crespo
Directora Gerente
Centro Tecnológico del Mar CETMAR



09:50-10:00. Presentation of the BLUEHUMAN project

Julio Maroto Leal
Centro Tecnológico del Mar CETMAR



10:00-10:45. Genomic approaches to unlock the biotechnological potential of marine organisms.

Prof. Alan Dobson
Professor of Environmental Microbiology,
School of Microbiology and Environmental
Research Institute, University College Cork, Cork, Ireland.



10:45-11:30. Creation and exploitation of marine natural product extract collections as source of new bioactive molecules.

Dr. Fernando Reyes
Jefe de Área. Departamento de Química
Fundación MEDINA



11:30-12:00. Pausa Café.

12:00-12:45. New approaches for the dereplication, isolation and structural elucidation of new bioactive marine natural products.

Prof. Marcel Jaspars
Marine Biodiscovery Centre.
Department of Chemistry. University of Aberdeen



12:45-13:30. Legal and responsible marine research and biotechnology: Access to marine genetic resources and fair and equitable sharing of the benefits derived from their utilization.

Dr. Alejandro Lago Candeira.
Project Manager
UNDP-GEF Global ABS Project



13:30. Closing