MARPLAST

Marine microorganisms for bioplastics production

MarineBiotech

PROJECT FACTSHEET

CALL 2 | DECEMBER 2016

ABSTRACT

The steady increase in microplastic concentration could result in dramatic effects on the vulnerable wildlife of the oceans and marine food supplies. It is therefore of immediate importance to develop novel types of polymeric materials that can be sustainably produced to address these environmental concerns. MARPLAST focuses on Polyhydroxyalkanoates (PHAs), a class of biodegradable bioplastics which are considered to be feasible replacements for current petroleum-based plastics. PHAs are polymers occurring in nature, produced among others by bacteria, and with properties similar to oil-derived polypropylene and polyesters, rendering them useful as an attractive biodegradable replacement. However, the naturally occurring PHA production pathways are not sufficiently understood, and currently known technologies for production are too costly to allow for a full-scale replacement. MARPLAST aims to develop and provide tools (bacteria, enzymes, and pathways) to enable efficient production of sustainable and biodegradable bioplastics from low-cost unexploited biomass. Focus will be on PHA-producing cold-adapted marine bacteria, which have a range of properties that make them especially suitable for industrial applications. MARPLAST will utilize expertise from the Univ of Tromsø (Norway), Univ of Bucharest (Romania) and Umeå University (Sweden) to make important progress and contributions to the transition to a bio-based European economy.

Arne Smalås, Project Coordinator
University of Tromsø – the Arctic University of Norway

Topic:

- Biodegradable bioplastics

Marine biomass:

- Bacteria

Source of marine biomass:

- culture collections
- from fishery or aquaculture activity
- marine biomass processing by-products and waste fractions
- biological materials collected from the foreshore (coastal areas between the limits of low and high water)

Keywords:

Marine bacteria, microbiology, enzymes, genomics, polyhydroxyalkanoates, bioplastic, biodegradable, sustainable resources, biomass conversion

Total costs*: € 1.793.000

Funding granted*: € 1.261.000

Duration: 3 years (2017-2020)

CONSORTIUM

Name	Organisation	Country
Arne Smalås	University of Tromsø – the Arctic University of Norway	Norway
Knut Irgum	Umeå University	Sweden
Ana-Maria Tanase	University of Bucharest	Rumania

Marine Biotechnology ERA-NET (ERA-MBT) is funded under the European Commission's Seventh Framework Programme. | Grant Agreement Number 604814
December 2013 - November 2017