CASEAWA

Advanced Materials using Biogenic Calcium Carbonate from Seashell Wastes

About the project

The project "Advanced Materials using Biogenic Calcium Carbonate from Seashell Wastes" (CASEAWA) aims at producing chemically and physically functionalized biogenic calcium carbonate particles (FbCCP) using fishery industry waste seashells from mussels and oysters (7 Mton/year). FbCCP will be used in polymeric compounds and to obtain nano-apatites, as representatives of application in the industrial world and as biomaterials.

CASEAWA will produce FbCCP that preserve the inorganic/organic composite nature of seashells and will take advantage of the organic matric presence. The latter is absent in geogenic calcium carbonate and cannot be entrapped within the calcium carbonate by synthetic procedures. The organic matrix represents the additional value of the seashells resulting from 3.5 M year evolution to achieve high performing functional properties (e.g. resistance to fracture).

CASEAWA is organized in six work packages (WPs). WP1 regards the handling procedures of waste seashells and their grinding applying by specific grinding aids. The functionalization, blending and characterization of the micro-bCCP will be carried chemically in WP2 by polymeric molecules and physically in WP3 by graphene. WP4 will produce and characterize nano-apatites from nano-FbCCP for regenerative medicine. WP5 will use FbCCP for the production of strengthened and conductive Levirex® compounds. WP6 will take care of management and dissemination activities of CASEAWA.

CASEAWA consortium includes University of Bologna (WP1-2, 6), University of Konstanz (WP3,5,6), Spanish National Research Council (WP4,6) and Finproject industry (WP5,6). Their cooperation will ensure CASEAWA success covering the value chain of the waste seashells with a starting TRL2 up to a TRL5.

CASEAWA is a clear example of circular economy, since seashells are a valuable biomaterial; it improves the sustainability of the aquaculture industry and provides secondary economic benefits to shellfish growers and processors.

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Blue BIO COFUND

Project Overview

CALL 1 | 2019

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Waste Seashell, biogenic calcium carbonate, functionalized materials, biomaterials, polymer industry

Priority Area:
Exploring new bioresources

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533.083 euros *

* The exact amount of granted funds may change after completion of national contracts.