SARGEX

Marie Skłodowska-Curie Actions
Staff Exchanges · 2026–2029

Marine biomass valorisation

Turning sargassum from a coastal burden into a bioeconomy resource

Sargassum Bioeconomy: From Coastal Biomass to Advanced Sustainable Materials



SARGEX brings researchers and innovators from Europe and Cuba together to develop circular, zero-waste routes that convert sargassum into agricultural bioinputs, biochar and biogas, and to build the skills and partnerships needed to take these solutions into practice.

48
months, January 2026 to December 2029

9
partner organisations from 6 countries in Europe and the Caribbean

94
planned intersectoral staff secondments

TRL 6
target maturity for the technologies developed

Funded by the European Union

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Why sargassum, and what SARGEX does

The challenge

Massive seasonal landings of sargassum are hitting Caribbean coastlines; in Cuba, annual blooms exceed 24 million tonnes. As it decomposes, the biomass releases hydrogen sulphide, damages tourism, fisheries and biodiversity, and costs around €30,000 per kilometre of coastline to clear. Warmer seas, shifting currents and nutrient loading mean European waters may face similar risks.

Our approach

1. **Collect and characterise**
   Sustainable collection protocols, standardised pre-processing and quality control of contaminants, nutrients and bioactive compounds in pilot landing areas.

2. **Develop functional materials**
   Bioinputs combining sargassum extracts, natural zeolites and alginate-encapsulated beneficial microorganisms, plus bioactive compounds for biomedical formulations.

3. **Process and validate**
   A modular 250-litre pilot plant with an integrated biodigester that recovers energy from residues, and field trials on economically important crops.

4. **Exploit and transfer**
   Technology surveillance and IP strategy, life cycle and techno-economic assessment, dialogue with standardisation bodies, and business models for local enterprises.

What we aim to achieve

- Bioinputs (biostimulants and biofertilisers) containing up to 50% sargassum-derived nutrients
- Field trials targeting a 20% productivity increase in crops such as tomato and potato
- Over 80% resource conversion efficiency in the pilot plant
- A 15% reduction in CO_2-equivalent emissions and €20 per tonne in savings compared with current sargassum management
- Solutions tested in pilot zones in the EU and Cuba and optimised up to TRL 6

People and knowledge exchange

Secondments between universities, research centres and companies connect 12 disciplines. SARGEX will train more than 25 secondees, deliver three training modules to researchers, SMEs and policymakers, and host four Bioinputs & Bites events that bring the science to local communities.

Consortium

- UAB Universitat Autònoma de Barcelona — Spain · Coordinator
- Università degli Studi di Napoli Federico II — Italy
- Universiteit Antwerpen — Belgium
- Blue Ecotech — Malta
- aeris Tecnologías Ambientales — Spain
- SiTeS — Ireland
- Fundación Universitaria de Innovación y Desarrollo, Universidad de La Habana — Cuba · Associated partner
- ICIMAR Instituto de Ciencias del Mar — Cuba · Associated partner
- Estación Experimental Indio Hatuey — Cuba · Associated partner

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