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BIOCARB
-4-FOOD

Extraction and characterization of
BIOactives and CARBohydrates from
seaweeds and seagrasses
FOR FOOD-related applications



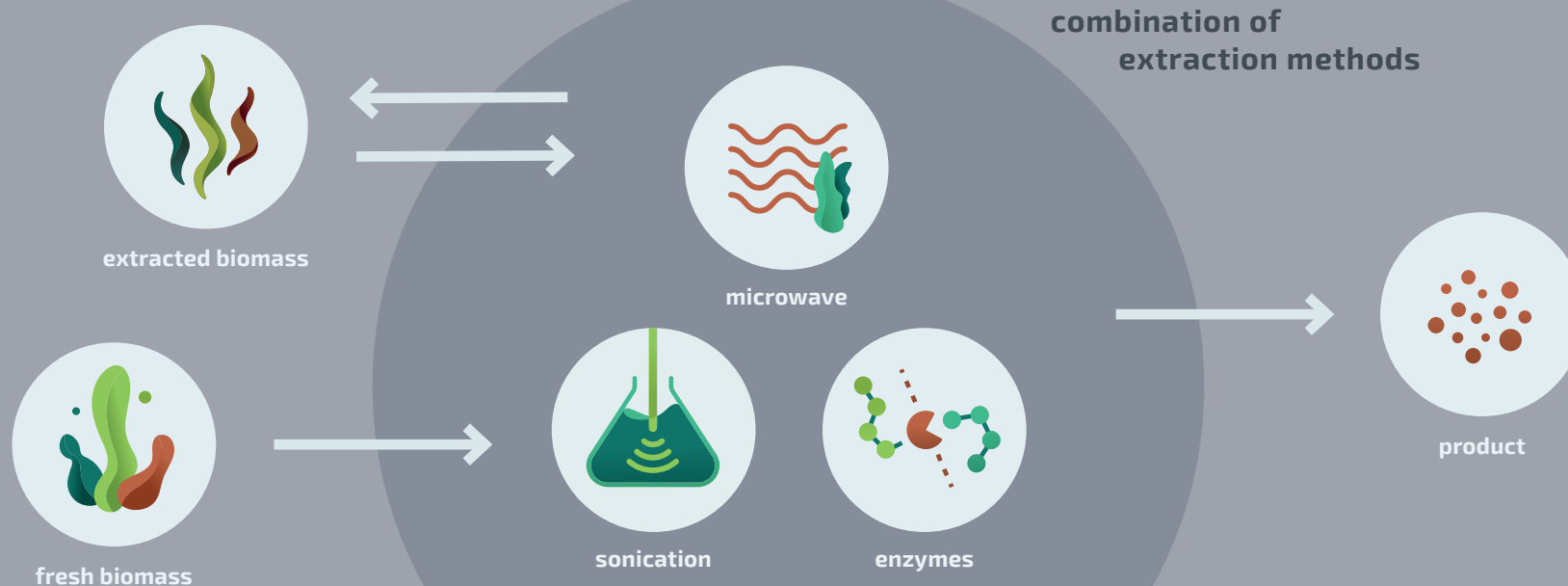
By decision of the
German Bundestag



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Extraction



BACKGROUND

Next to the most important source of food energy, carbohydrates are key ingredients for food formulations, serving as thickeners, stabilizers and gelling agents or providing functional attributes. Seaweeds and seagrasses are a valuable and under-exploited source of carbohydrates, in particular, cell wall polysaccharides (phycocolloids) and bioactive compounds such as polyphenols or carotenoids.

Current industrial procedures used by European companies for carbohydrate extraction from seaweeds are highly inefficient in terms of processing time, water and energy requirements. Furthermore, the remaining biomass (generally much more than 50% of the initial material) is used as compost or simply disposed as organic waste.

ACTION

Within the ERA-NET SusFood2 funded project BIOCARB-4-FOOD, in close collaboration with industry, novel, environmentally friendly and efficient extraction techniques (sonication, microwave, enzymes and their combinations) are explored and combined with the exploitation of the remaining biomass, rich in bioactive compounds, to sequentially obtain novel carbohydrate-based extracts and fibers (nanocellulose) from seaweeds and seagrasses.

Structure, technological properties, toxicity and bioactivity of the fractions obtained from the various extraction technologies are characterized and a life cycle assessment (LCA) is conducted for proving the sustainability of the procedures.

EXPECTED RESULTS

BIOCARB-4-FOOD will contribute to improved process efficiency, development of ingredients with high added value from already commercialized seaweed species and from under-exploited sources (seagrasses) which can positively impact the competitiveness of seaweed, food and non-food companies at EU scale by a better valorization of raw materials.

Extraction products shall serve as food additives or for biodegradable packaging material. Further advantages are the use of seaweeds and following relief for coastal areas.