Pre-treatment of macrophytes

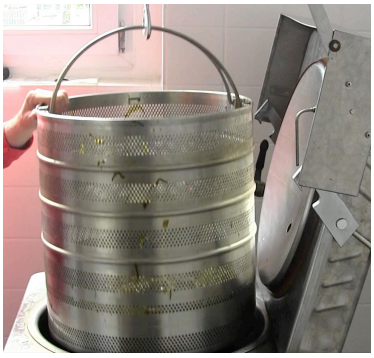
before food production

Viva Maris – C. Busse-Uhrig

Problem

Marine macrophytes (algae) that live in the sublittoral habitat (permanently submarine) can play an important role in human nutrition due to their numerous minerals and nutrients. Algae can be used in a sustainable way to improve food in terms of nutrients, proteins and vitamins, without the need for food additives.
However, it is challenging to formulate foods with appropriate food structure because the algae do not bond with or adhere well to other foodstuffs and ingredients. This is due to the presence and natural defense function of alginate, which poses a major problem for food production using algae. The feasibility and economic viability of this approach may therefore be challenging, but the use of stabilizing pre-processing techniques can be a practical solution.

Picture 1: fresh harvested algae before



Picture 2: Algae ready for pre treatment

Solution

The use of mild natural processing technologies can lead to obtaining these algae with good quality and functionality for food applications. Mild processing methods and research into breaking down the algae's alginate mass are aimed at preserving natural ingredients and minerals, as well as producing high quality products with algae. Understanding the pretreatment of algae is important for companies to make

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decisions about the use of algae in food products. This includes estimating pre-processing costs, analyzing the material properties of the algae after treatment and considering the effects of further processing steps.

Picture 3: adding calcium salt mixture

Benefits

Identification and design of possible processes for breaking up the alginate mass in order to preserve valuable ingredients and prepare the algae for food production.

Picture 4: algae after pre treatment ready for production

Practical recommendations

Improving the resource efficiency of the marine macrophyte mass through a targeted pretreatment with a calcium salt mixture in a specific ratio and at a defined temperature and treatment duration can improve the sustainability and value of food by enabling the use of the algae as an ingredient. These results and findings are important to encourage potential users of raw algae material to promote resource efficiency through the incorporation of algae in valuable food products. This processing step should be used prior to food production in order to obtain the best possible result. The macrophyte mass can then be stored chilled or frozen or go directly into food production.

This project was carried out by Viva Maris as part of the Giant Leaps Project.

Picture 5: pre treated alge gets into food production production

Further information

Publisher: Viva Maris GmbH, Osterbrooksweg 51-53, 22869 Schenefeld, Germany
Author: Claudia Busse-Uhrig Contact: info@viva-maris.de
Projectname: Algae4FoodProduction/ Giant Leaps
Website: www.viva-maris.de

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