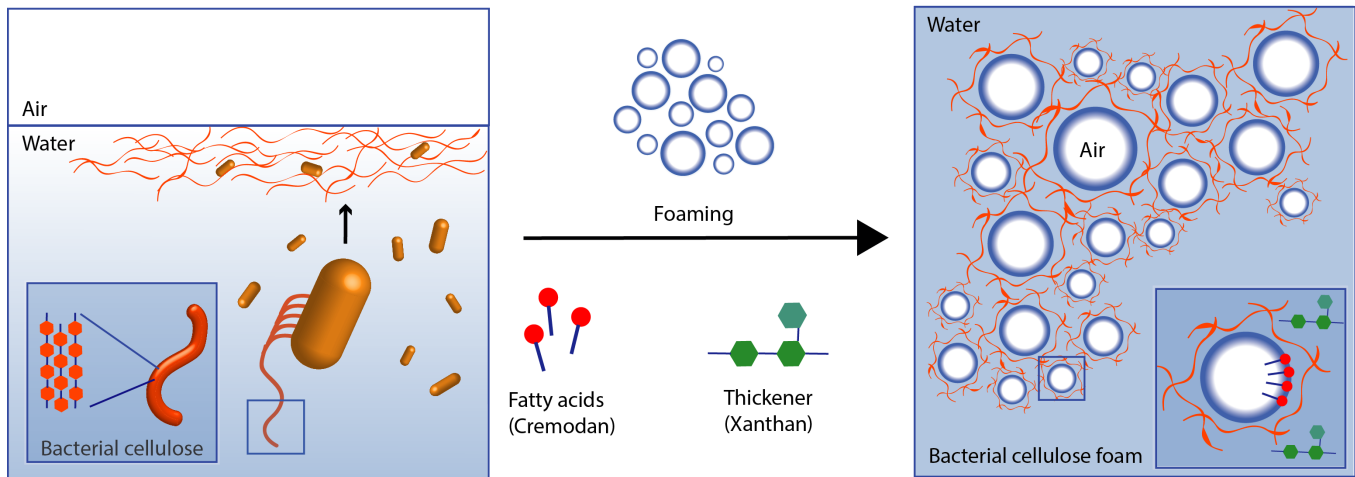


Licensing Opportunity

Tuneable porosity of bacterial cellulose foam for medical and food applications



Summary

A simple and versatile in-situ process facilitates the production of bacterial cellulose foam with controlled porosity.

Background

There is a growing need for biocompatible and biodegradable, “green” materials for various industrial applications. Bacterial cellulose foam is a promising new material. The challenge is the cost-efficient production of the foam with the required material properties. For example, for tissue engineering large pore sizes, superior mechanical strength and geometrical freedom are desirable.

Invention

The use of bacterial cellulose as templating material highly depends on oxygen availability. The yield of cellulose production can be increased by maximizing the total contact area to oxygen in form of surfactant stabilized air bubbles. Also, a thickener is added to the media to create a stable foam structure. *Acetobacter Xylinium* is the most effective producer of bacterial cellulose in this context.

Features & Benefits

- Optimization of bacterial cellulose production
- Adjustable porosity, mechanically strong
- Biocompatible, food-grade

Fields of Application

- Green composite materials for engineering
- Paper production, e.g. filtration membranes
- Food, e.g. thickener, structuring agent
- Wound healing, e.g. medical pads, artificial skin

Patent Status

- Patent pending

Publication

- P.A. Rühls, F. Storz, Y.A. López Gómez, M. Haug, P. Fischer, “3D bacterial cellulose biofilms formed by foam templating”, *npj Biofilms and Microbiomes* 4 (2018) 21, doi:10.1038/s41522-018-0064-3x

Technology Readiness Level



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