

# DEVICE AND METHOD FOR PRODUCING VOLATILE FATTY ACIDS

from Mollusk Shells with Soft Bodies or Meat



## CONTEXT

Shellfish and mussel farming generates a significant amount of non-marketable waste, such as undersized shellfish or invasive crepidula, often discarded at sea, causing nuisance and water pollution. Current processes like enzymatic hydrolysis or methanization have technical and regulatory limitations, leaving these wastes without adequate valorization. There is an urgent need for innovative and compliant solutions to transform these wastes into valuable resources.

## INVENTION

The invention proposes a device and method for efficiently producing volatile fatty acids (VFAs) through biological hydrolysis without enzymes, while separating and optimizing methanization phases. This system integrates a specific filter and a recirculation loop that eliminate problems related to crushed shell fragments, thus improving yields and preventing equipment malfunctions. In compliance with animal by-product (ABP) regulations, the invention offers an innovative solution for valorizing shellfish and mussel waste while ensuring large-scale operation.

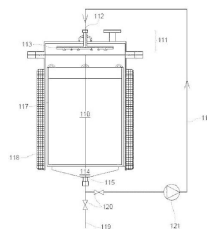
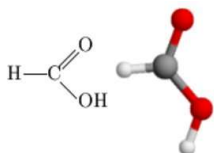
## COMPETITIVE AVANTAGES

**Increased Efficiency in VFA and Methane Production :** The process allows for biological hydrolysis without enzymes, reducing operational costs and achieving high VFA concentrations (> 20 g/L). Separating hydrolysis and methanization phases optimizes VFA conversion to methane.

**Regulatory Compliance and Industrial Adaptability :** The device meets regulatory requirements for animal by-products (category 3), including grinding (12 mm) and hygienization, while being compatible with large-scale methanization.

**Resolution of Existing Technical Constraints :** Thanks to a specific filter and recirculation loop, the invention prevents equipment blockages caused by shell fragments, improves reactor yield, and avoids limitations due to medium acidification thanks to the buffering effect of the shells.

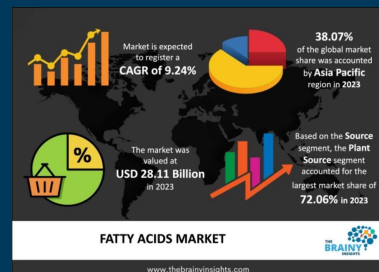
**Sustainable Valorization of Shellfish Waste :** It transforms underutilized waste into valuable products (VFAs and methane), contributing to reducing marine pollution and offering an environmental and economic solution for the shellfish industry.



## APPLICATIONS

Animal and Human Feed  
Pharmaceuticals  
Nutraceuticals  
Personal Care  
Lubricants  
Plastics  
Methanization

## MARKETS



## INTELLECTUAL PROPERTY

Patent FR2100142 (Cultimer / UTC/ UniLaSalle)

## DEVELOPMENT STAGE TRL7



## PARTNERSHIP

Managed by SATT LUTECH: Seeking one or more industrial partners to exploit the patented invention (license).

