RECIRCULATION OF SEAFOOD PROCESSING INDUSTRY RESOURCES AS A NEW PROTEIN SOURCE

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GOBIERNO DE ESPAÑA
Plan de Recuperación, Transformación y Resiliencia
ANFACO CECOPESCA
Background

1. Protein demand

2. Circularity in agricultural practices

3. Competitiveness

4. Food security in the face of climate change
The main objective of the project is to obtain microbial protein from waste from the marine canning industry.
We have identified and characterized 28 by-product and waste streams from the canning industry.
**Gas production**

- **High methane productivity**

![Diagram showing the process of converting waste into methane]

**BMP (LCH4 kgSV-1)**

- AD

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**Key Steps:**
- Canning industry
- Byproducts
- Anaerobic digestion
- Gas biosynthesis
- Microbial protein
Protein production

Preliminary analysis
Protein production

- Canning industry
- Byproducts
- Anaerobic digestion
- Gas biosynthesis
- Microbial protein

Best condition
Protein production

Operational conditions

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<th>Type reactor</th>
<th>Airlift</th>
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<tr>
<td>Pure CH₄</td>
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<td>HRT</td>
<td>3 days</td>
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<td>Nitrogen source</td>
<td>KNO₃</td>
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Protein production

- Canning industry
- Byproducts
- Anaerobic digestion
- Gas biosynthesis
- Microbial protein

- Biomass (gSSV/L)
- % Protein
- Time (d)

**Up to 75% content of proteins**

A productivity of 0.28 gP/L*d
ReFish protein with egg-like nutritional characteristics!
Conclusions

• Proof of concept tested, performing successfully for a large number and type of canning industry wastes.

• Synergy between MOB strains for protein production optimization

• Similar production using real biogas composition

• High nutritional value of the protein produced: Similar to eggs

• Next step: Sensory tasting
REFISH TO FOOD

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