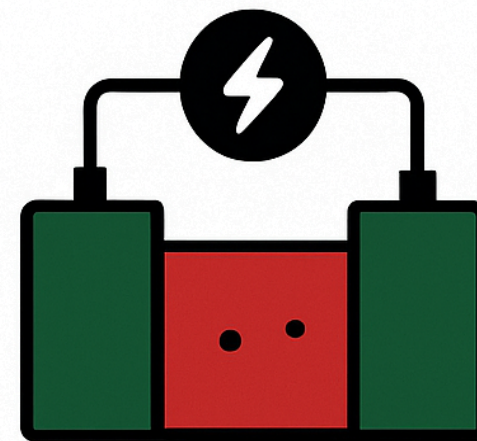
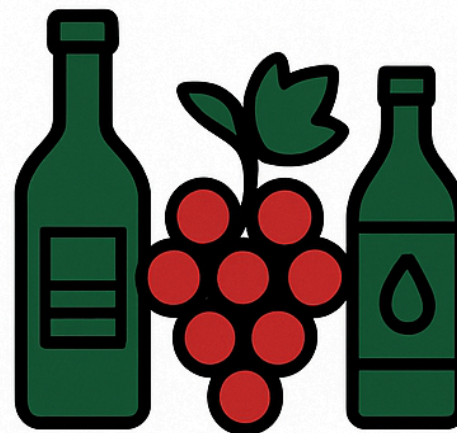
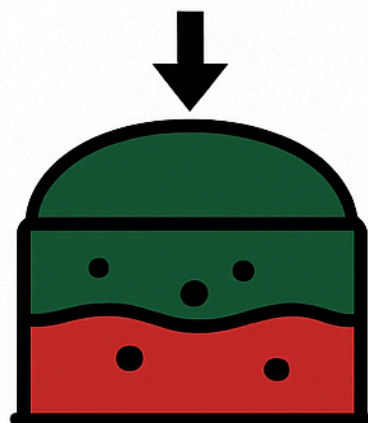




VALORISATION OF FOOD PROCESSING RESIDUES BY BIOELECTROCHEMICAL SYSTEMS AND HYDROPHOBIC MEMBRANES

Victor Riau, Raquel Arnal, Miriam Cerrillo, August Bonmatí
Noelía Ruiz, María Gorchs, Pau López
Daniele Molognoni, Eduard Borràs



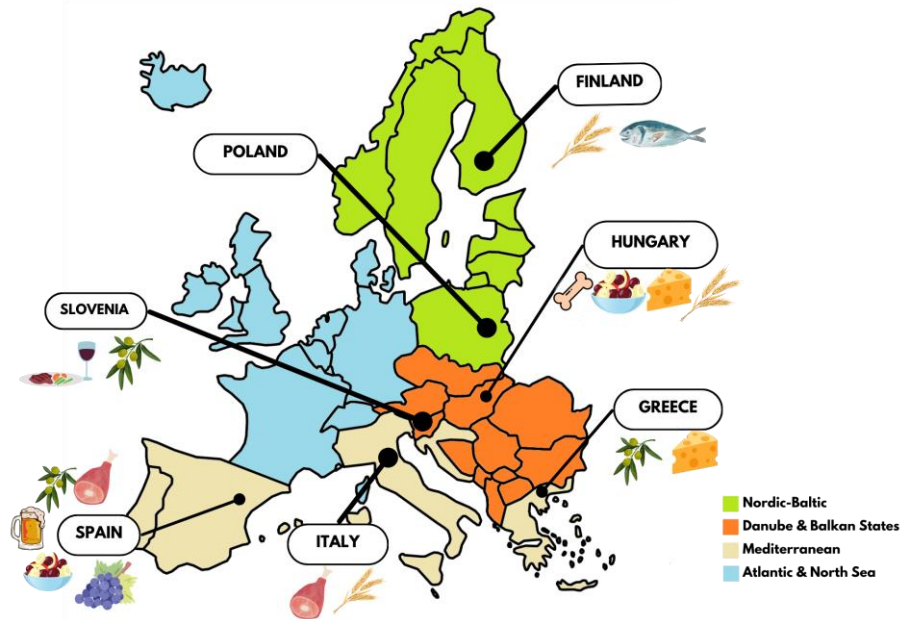
XV WORKSHOP E SIMPÓSIO
LATINO-AMERICANO DE
DIGESTÃO ANAERÓBIA
FORTALEZA 2025



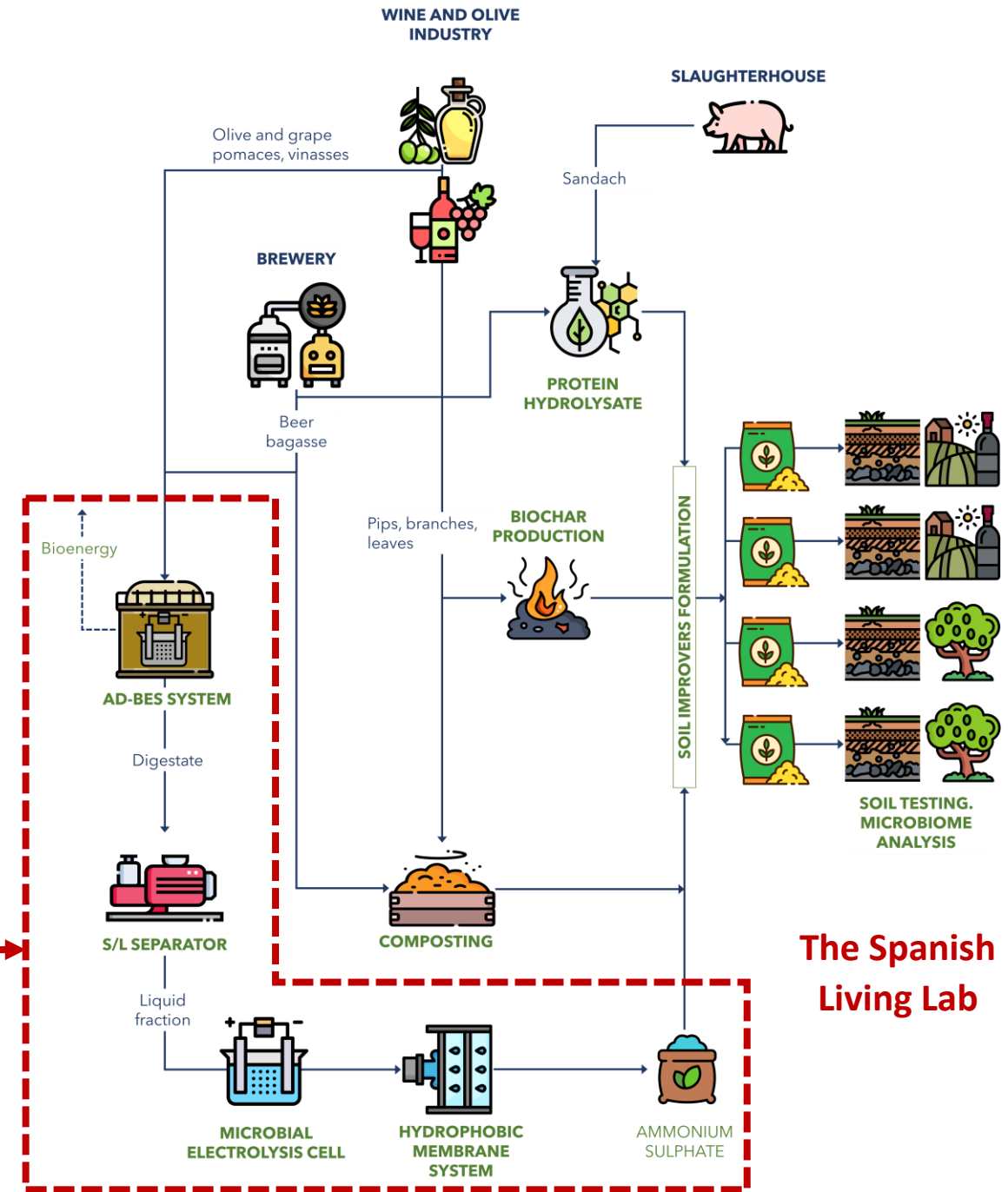
This project has received funding from the EU Horizon Europe research and innovation programme under grant agreement No. 101112708

INTRODUCTION AND OBJECTIVE

- 7 *Soil Health Living Labs* across Europe
- 8 Food-processing waste
- 5 valorisation routes



1. The biogas digestate route
2. The composting route
3. The biochar route
4. Protein hydrolysates route
5. The micro-algae route



The Spanish Living Lab



- Pig manure (PM)
- Beer bagasse (BB)
- Wine vinasse (WV)
- Olive mill wastewater (OM)

HRT: 35 days. Mesophilic conditions

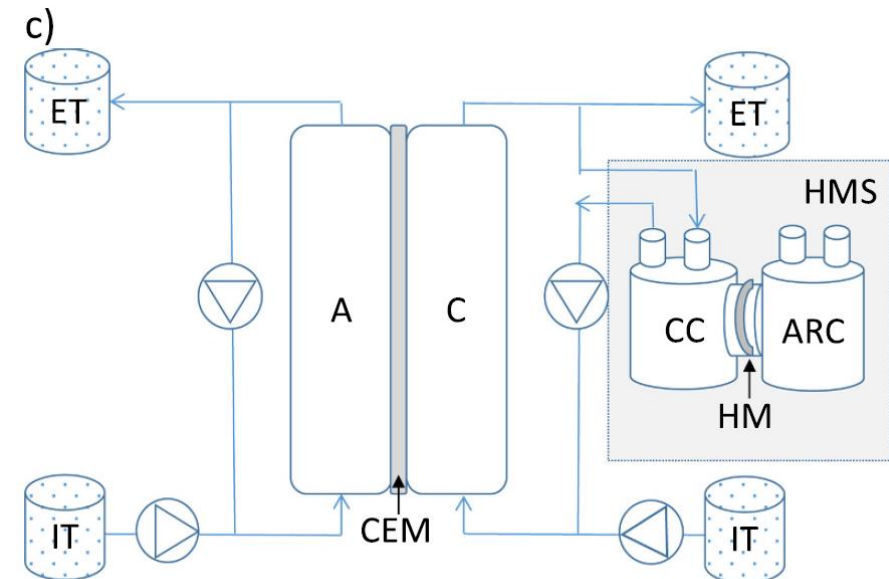
S1 (66% PM + 33% BB). Reactor start-up.

S2 (50% PM + 33% BB + 17% WV).

S3 (50% PM + 33% BB + 17% OM).

Voltage optimization (external potentials ranging from **0.3 V** to **1.2 V**).

Digestate



1. The AD-BES pilot successfully demonstrated the technical feasibility of integrating BES into anaerobic digestion for agri-food waste valorization.
2. OM was identified as a promising co-substrate, enhancing methane yield and COD removal. Optimal performance was achieved at 0.3–0.6 V applied voltage, while higher values reduced efficiency.
3. 10 g of ammonia can be recovered from digestate in about 40 days using MECs and HMs.

THANK YOU FOR YOUR ATTENTION

victor.riau@irta.cat



XV WORKSHOP E SIMPÓSIO
LATINO-AMERICANO DE
DIGESTÃO ANAERÓBIA
FORTALEZA 2025



This project has received funding from the EU Horizon Europe research and innovation programme under grant agreement No. 101112708