



# SCALBUR

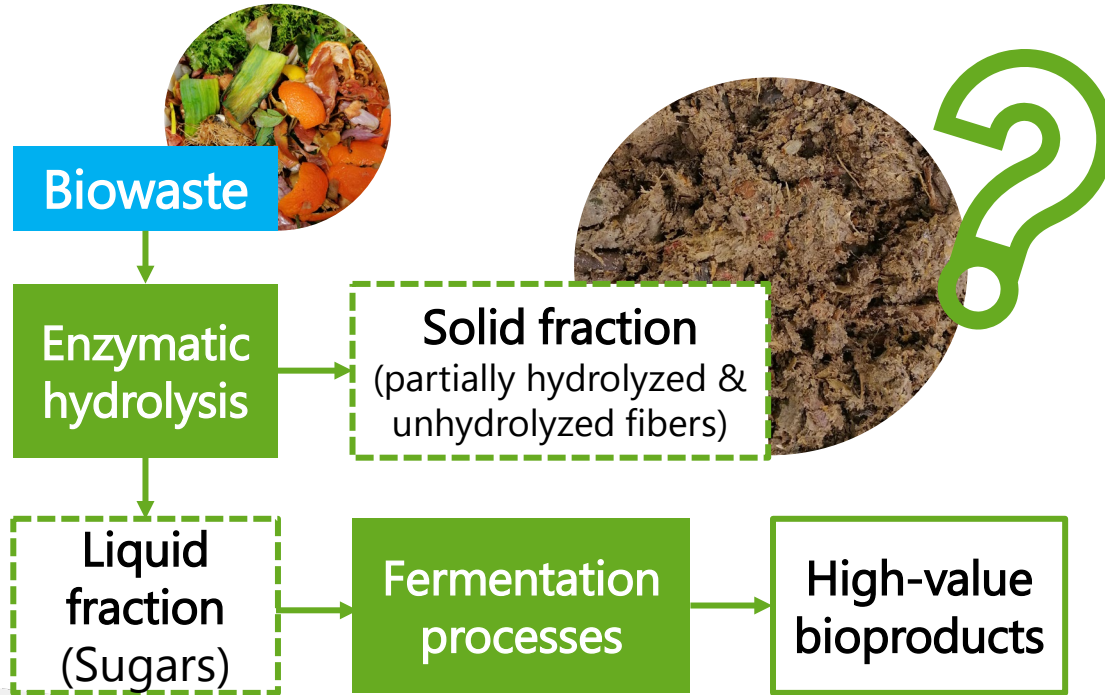
LEADING A REVOLUTION  
IN BIOWASTE RECYCLING

## Bacterial biopesticides production through solid-state fermentation

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Final Conference 19<sup>th</sup> of October 2022



## ➤ Challenge: solid hydrolysate



# Who are we?

SME located in Barcelona (SPAIN)



**INNOVATIVE SME**

Valid until Oct 14th 2024



Since 2015

Founded in 2009 as a Spin-off

**UAB**

## Water treatment

- Treatment of high COD loads
- Elimination and recovery of nutrients (N/P)
- Pilot plants for R&D or study of industrial processes



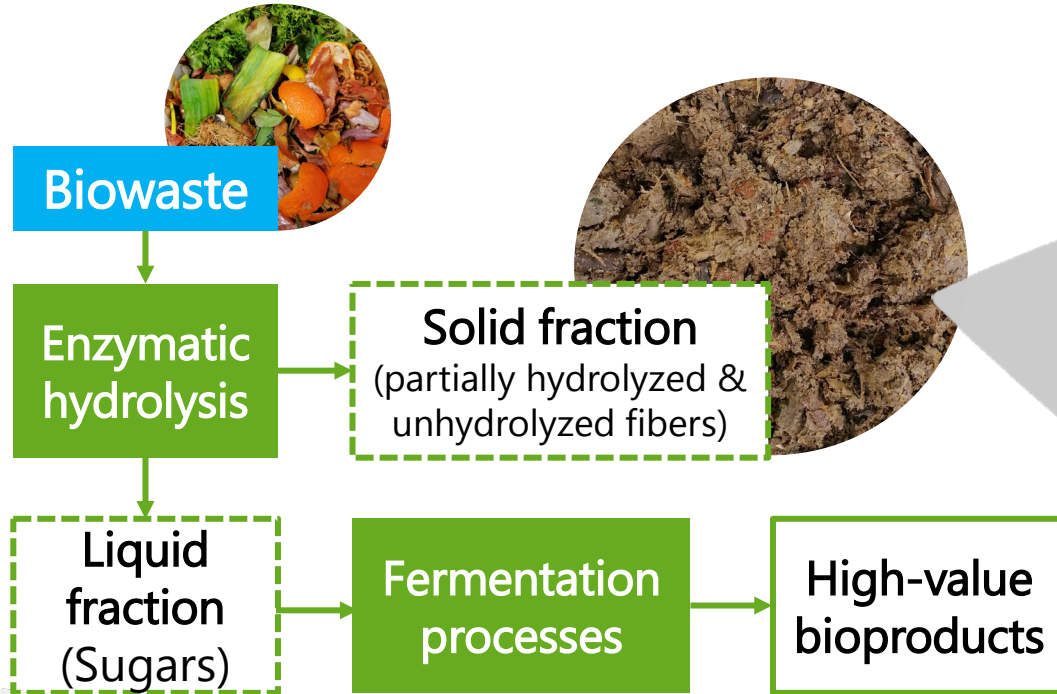
## Solid treatment

- Solid-state fermentation for high-value products
- Anaerobic digestion
- Compost

## Gas treatment

- Deodorizations
- Elimination of COVs
- Biogas desulphuration

## ➤ Challenge: solid hydrolysate

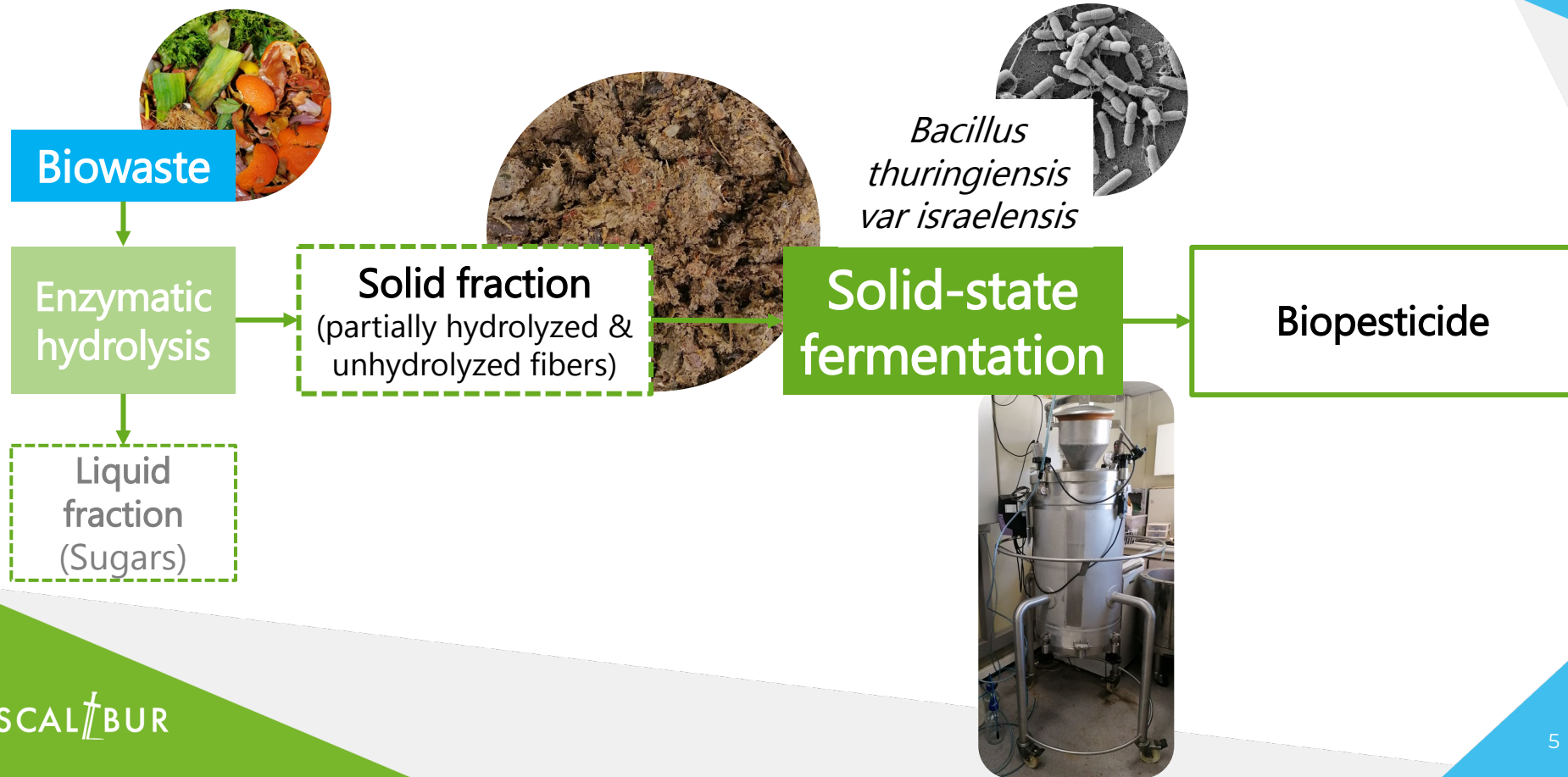


Circular economy

Zero-waste



# ➤ Solution: solid-state fermentation





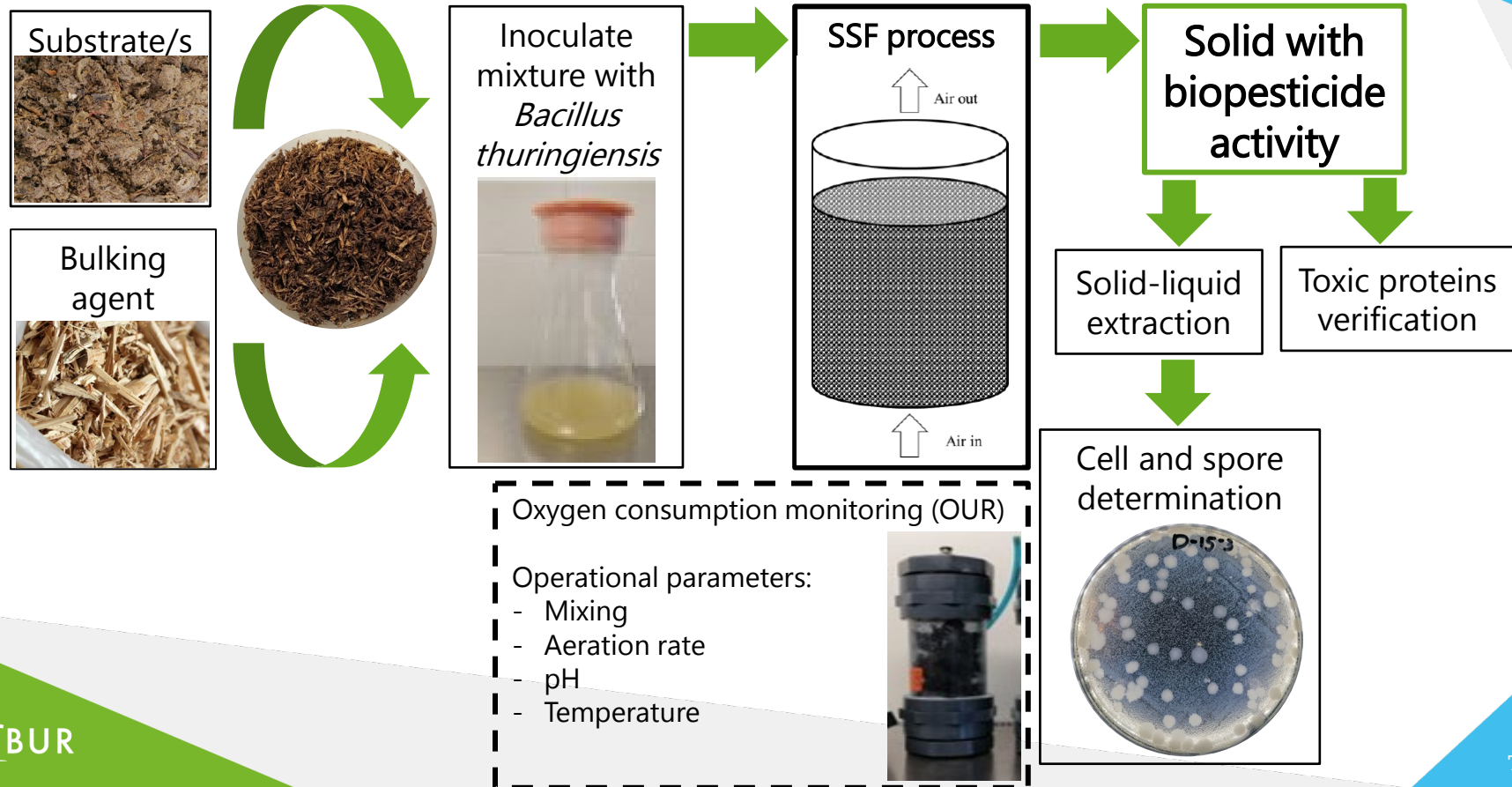
# ➤ Description of the solution

## ➤ Solid-State Fermentation (SSF)

- **Fermentation process** that occurs in a **solid matrix** in absence, or near-absence, of free water and in presence of oxygen.
- ✓ Use of waste materials
- ✓ Reproduce “natural” substrates for microbial growth
- ✓ Reduced cost and energy consumption
- ✓ Low production of residual water
- ✗ **SCALE-UP challenge** → limited heat and mass transfer



# ➤ Description of the solution



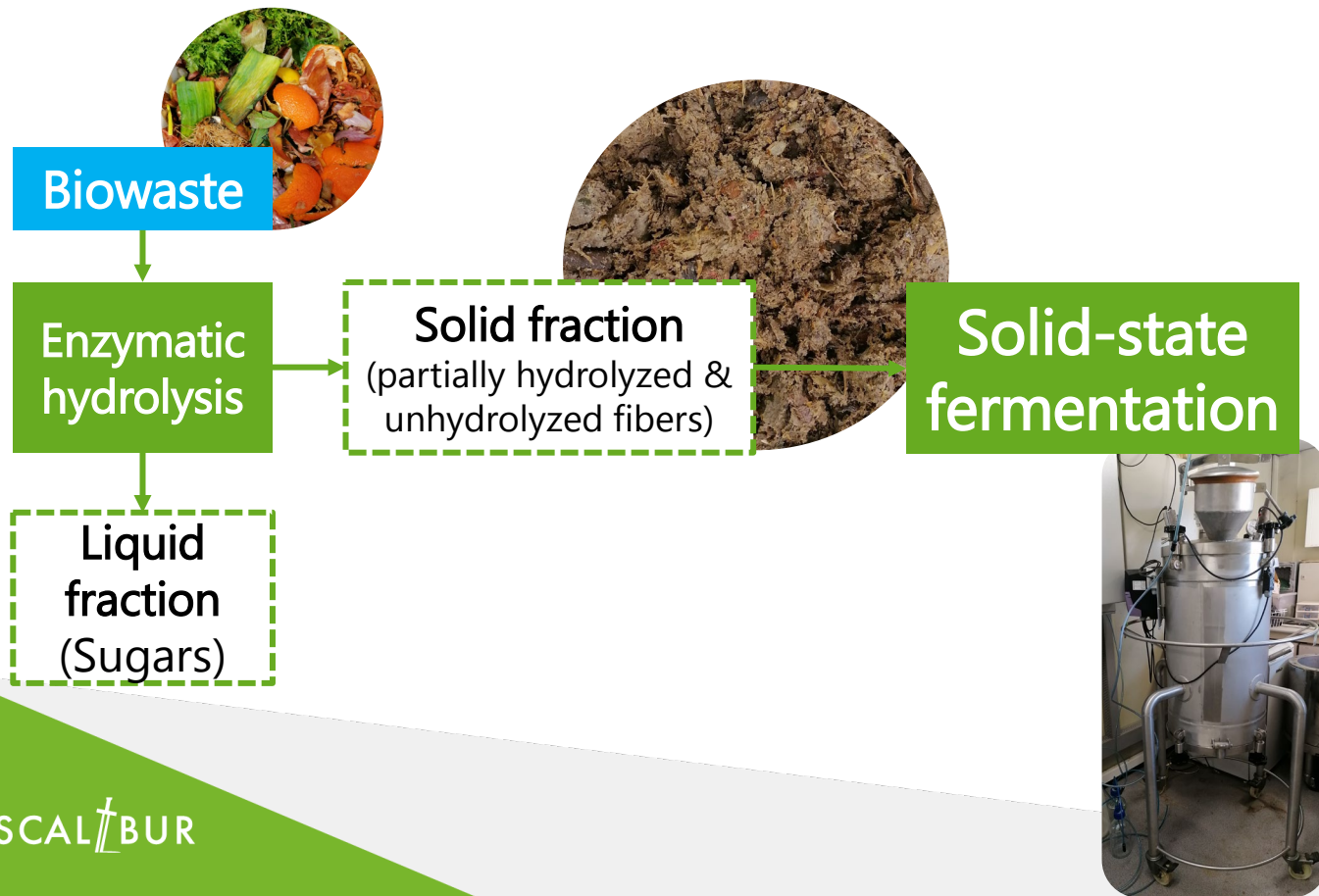
## ➤ Main results

- Development of solid-state fermentation biopesticide production process
  - 4-8 spores per initial viable cell inoculated
  - >80% efficiency against *Aedes albopictus* larvae in laboratory environment (tiger mosquito)
- Validation of a pH control strategy for of solid-state fermentation at pilot scale (mayor challenge of SSF processes)
  - use of alkaline cosubstrates





# ➤ CLOSING THE SOLIDS LOOP



Novel **valorization technology** in a **bioeconomy** context for biowaste management



## ➤ Road to market implementation

### Needs

- High-quality biowaste with low impurities
- Hydrolysate with high organic matter content

### Next steps

- More test of biopesticide activity
- Formulation of the final product



Novel **valorization technology** in a **bioeconomy** context for biowaste management



# Thank you!



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