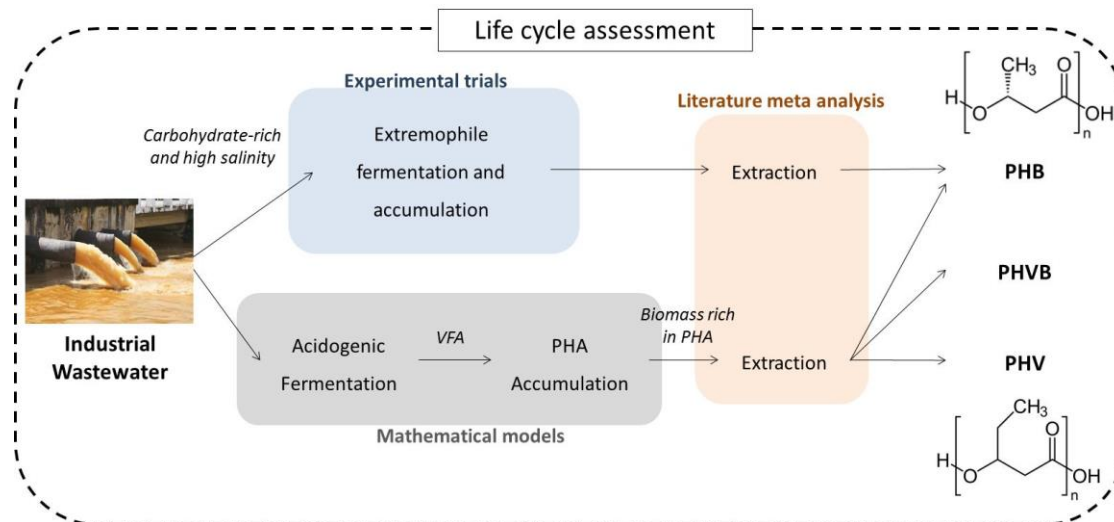


FROM INDUSTRIAL WASTEWATER TO HIGH PERFORMANCE BIOPLASTICS: KNOWLEDGE INTEGRATION FOR EFFICIENT DECISION-MAKING

Miguel Mauricio-Iglesias, Mateo Saavedra del Oso, Thelmo Lú-Chau, Almudena Hospido



USABLE PACKAGING
Call: H2020-BBI-JTI-2018 EU ID: 836884



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FROM INDUSTRIAL EFFLUENTS TO HIGH PERFORMANCE BIOPLASTICS



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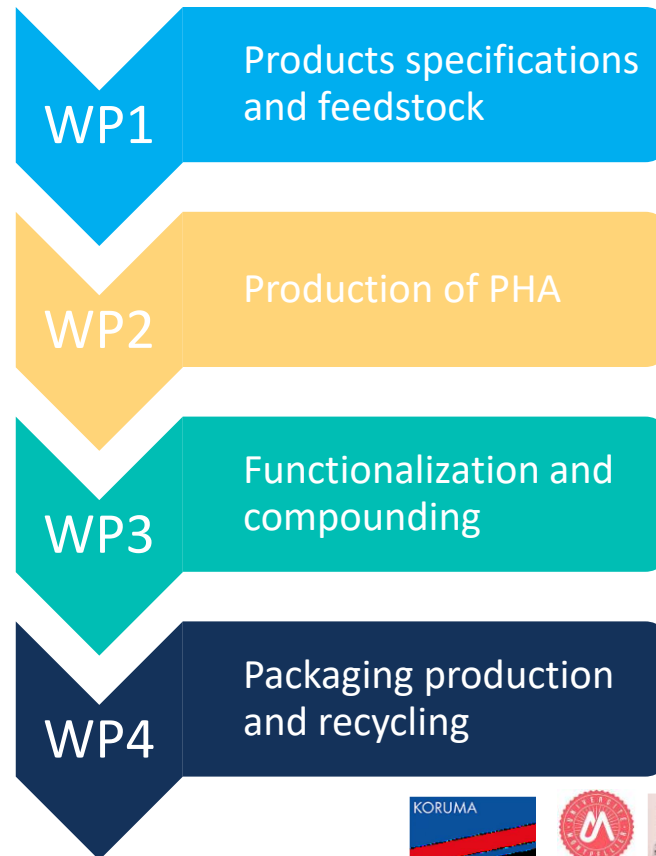
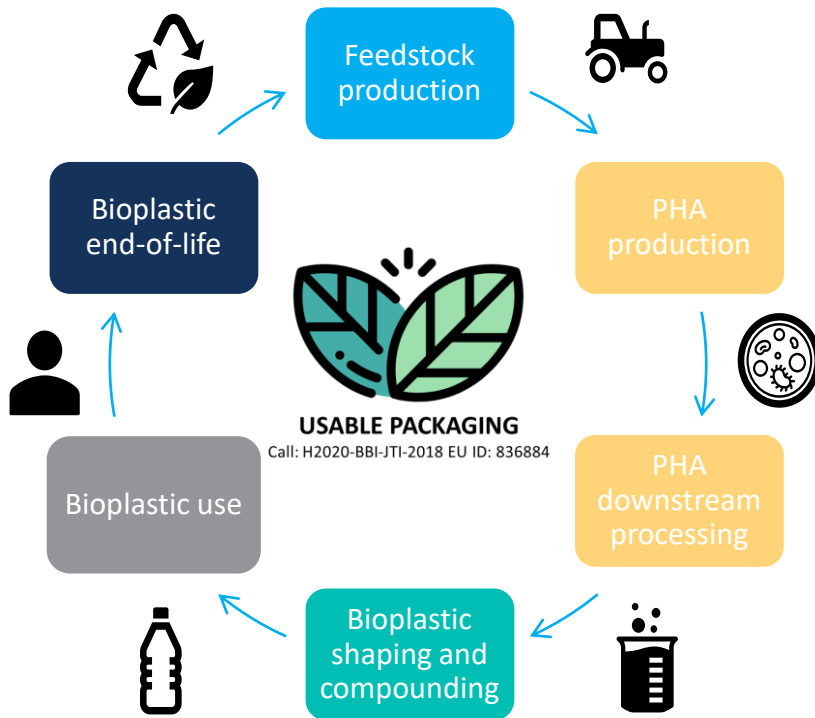


Circular economy



... but how?

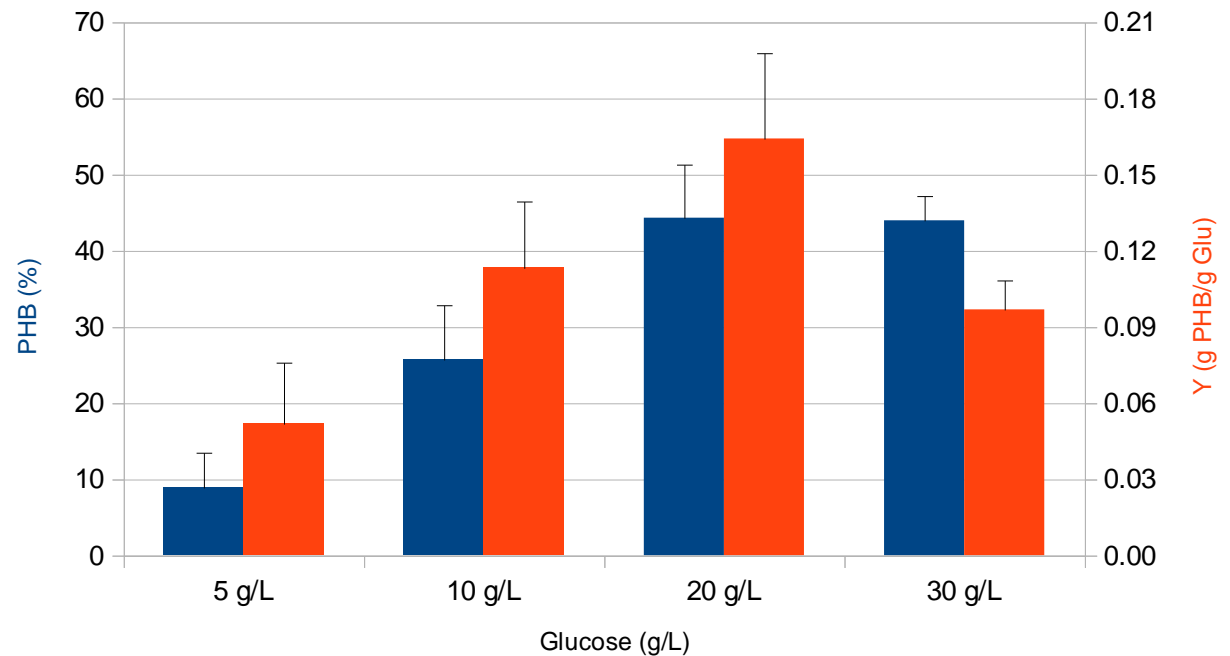
USABLE PACKAGING FRAMEWORK



PHA PRODUCTION: HALOPHILIC PRODUCTION OF PHA BY *H. BOLIVIENSIS* FROM MUSSEL PROCESSING WASTEWATER



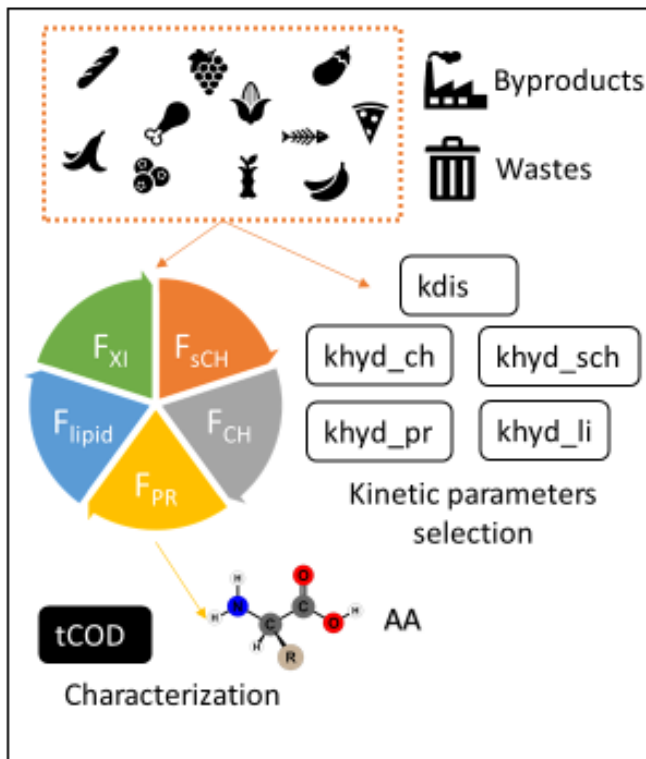
- Effect of sugars concentration on the production of PHB



PHA PRODUCTION: COMPUTER-AIDED DESIGN TOOL

- Screening potential substrates for VFA and PHA production
- Providing data for the life cycle assessment

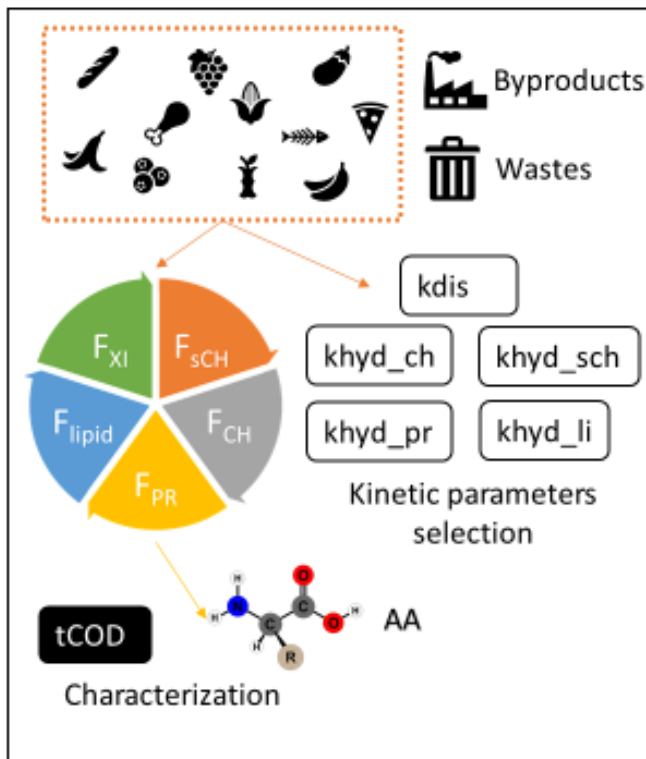
Module (1) Substrate library



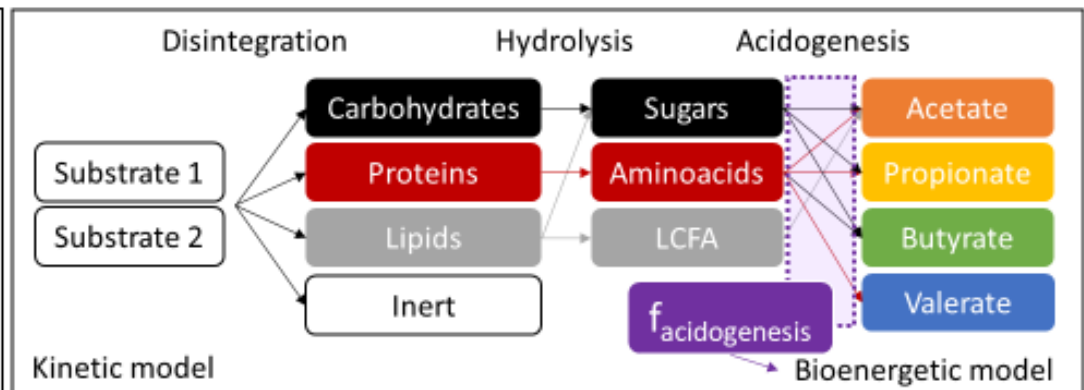
PHA PRODUCTION: COMPUTER-AIDED DESIGN TOOL

- Screening potential substrates for VFA and PHA production
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Module (1) Substrate library



Module (2) Mathematical model



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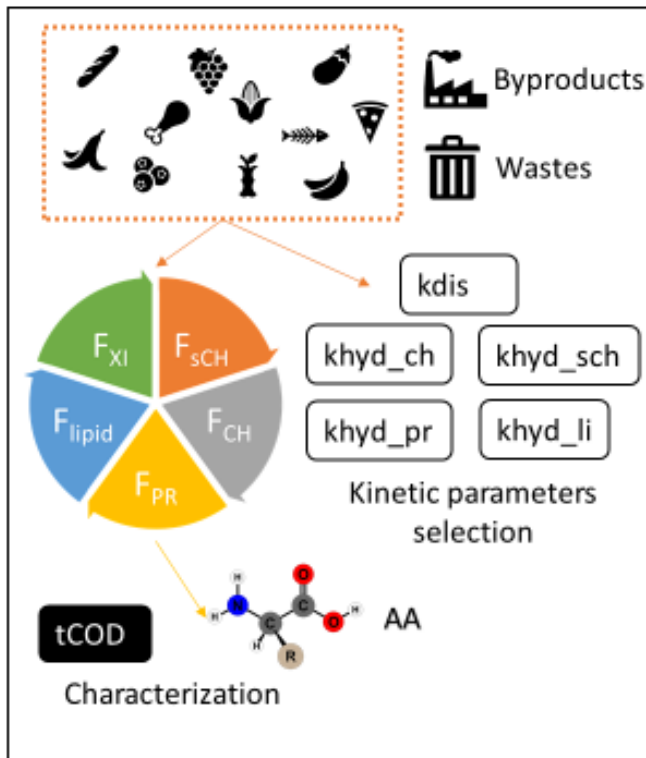
A. Regueira*, R. Bevilacqua, M. Mauricio-Iglesias, M. Carballa, J.M. Lema



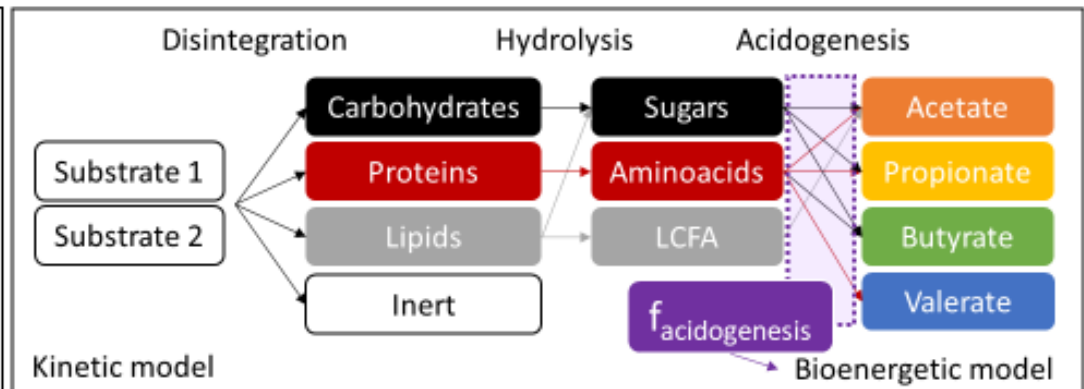
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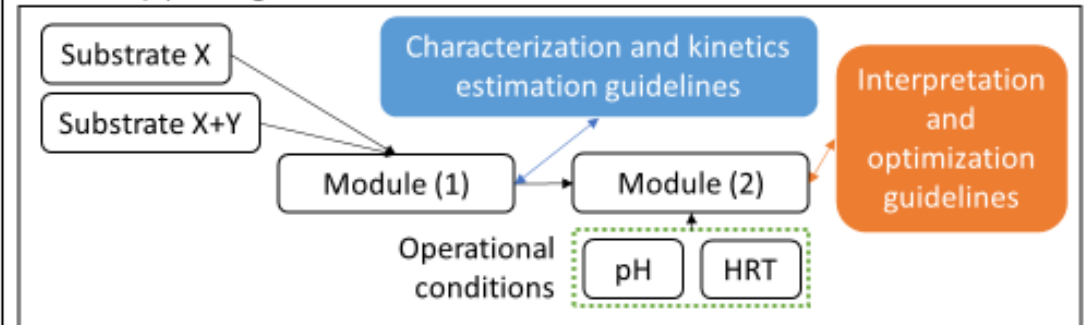
Module (1) Substrate library



Module (2) Mathematical model



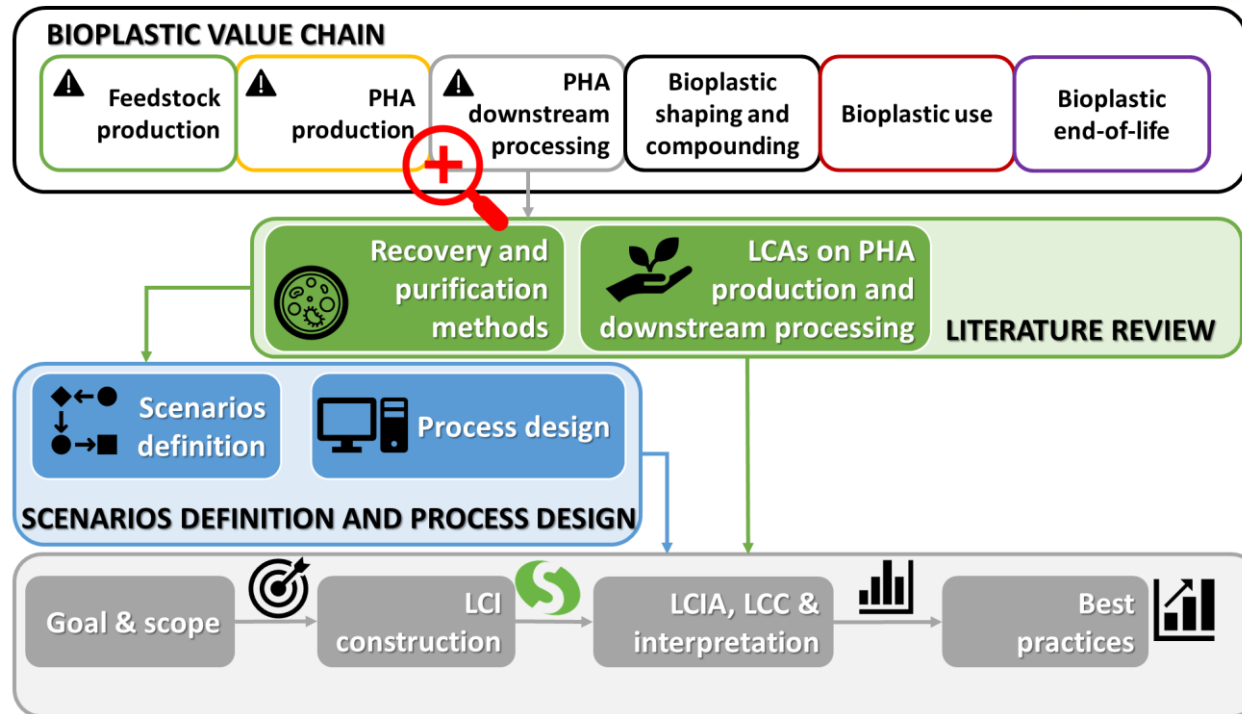
Module (3) User guidelines



PHA DOWNSTREAM PROCESSING : PRELIMINARY LIFE CYCLE ASSESSMENT

Evaluation and optimization of the environmental performance of PHA downstream processing

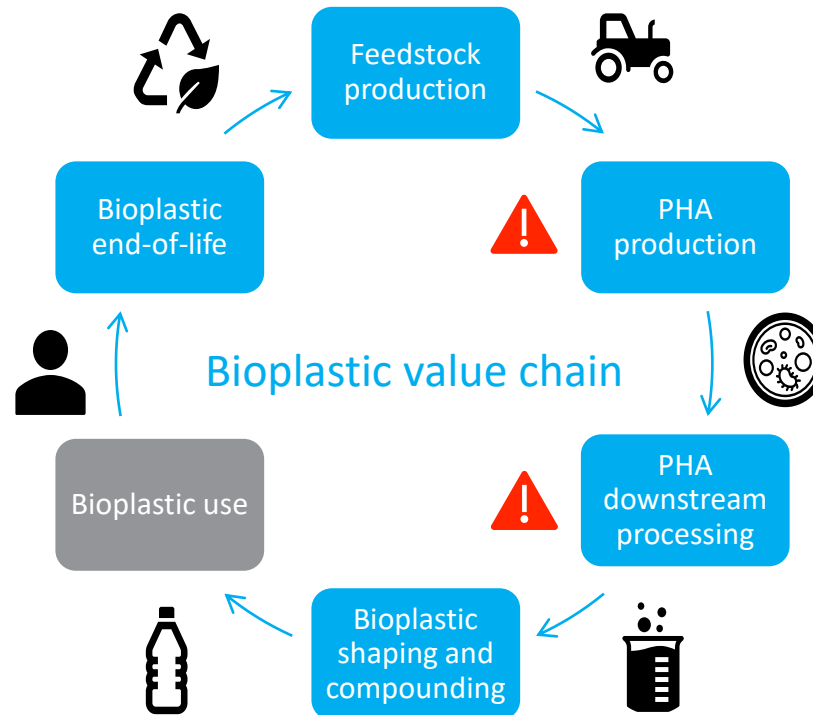
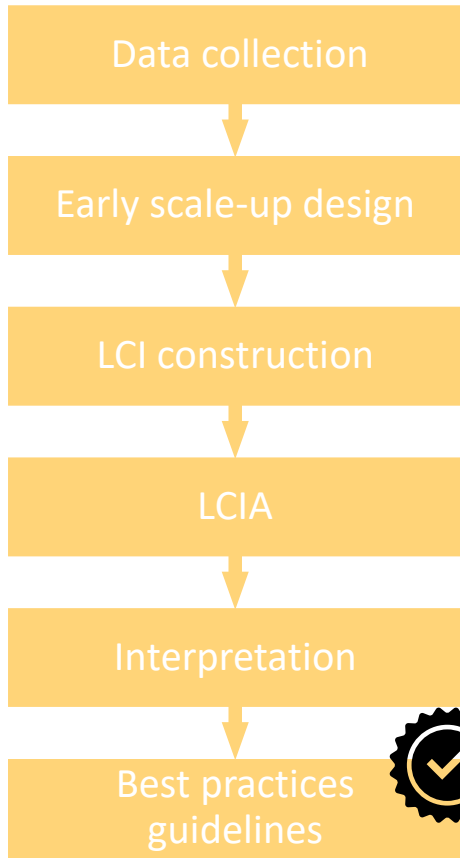
M. Saavedra del Oso, M. Mauricio-Iglesias, A. Hospido



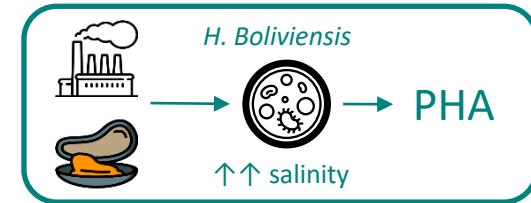
- 2 groups according to the PHA application of 4 downstream processes based on articles and patents were scaled up
- Solvent extraction require high amounts of energy, while high pressure homogenization is the most promising method from an environmental perspective

KNOWLEDGE INTEGRATION FOR EFFICIENT DECISION MAKING

Life cycle assessment

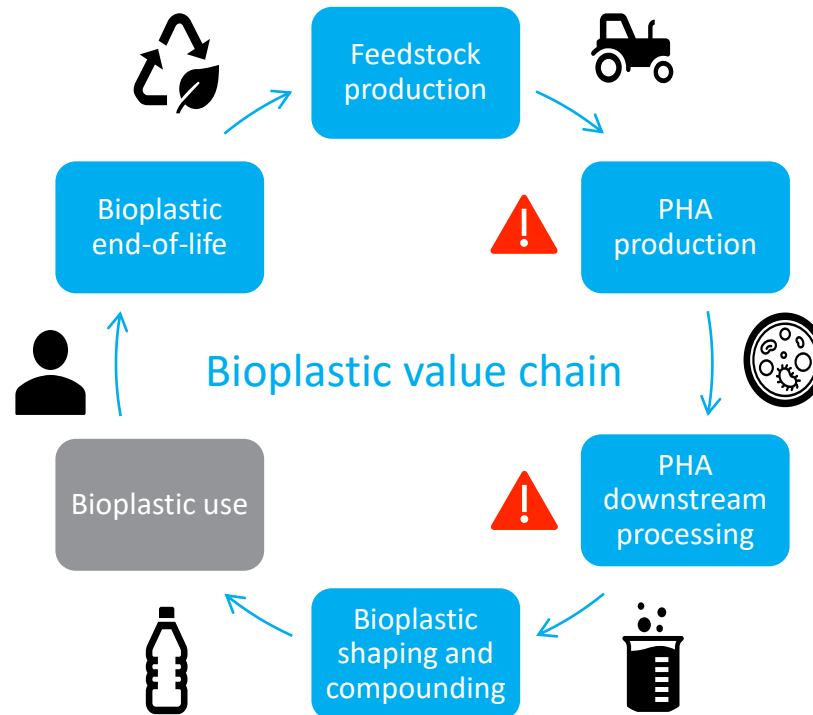
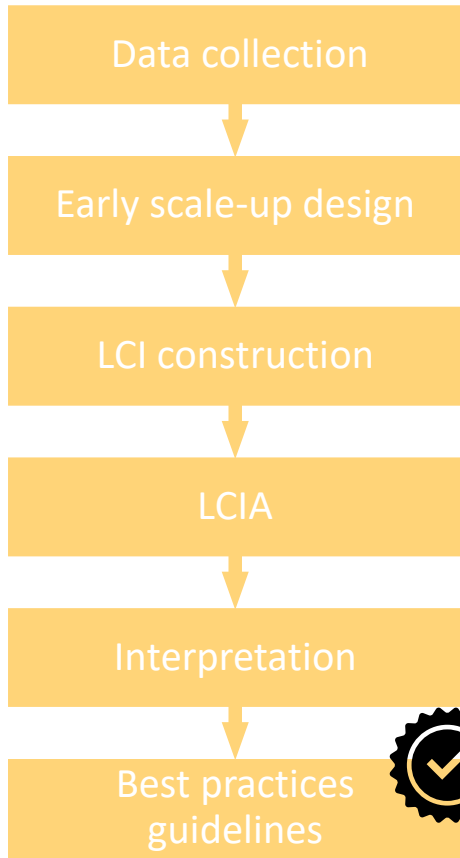


Experimental trials

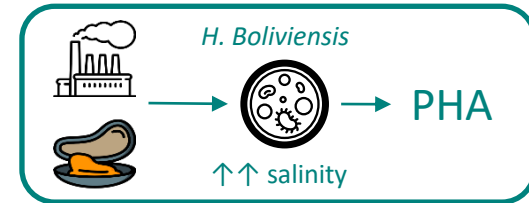


KNOWLEDGE INTEGRATION FOR EFFICIENT DECISION MAKING

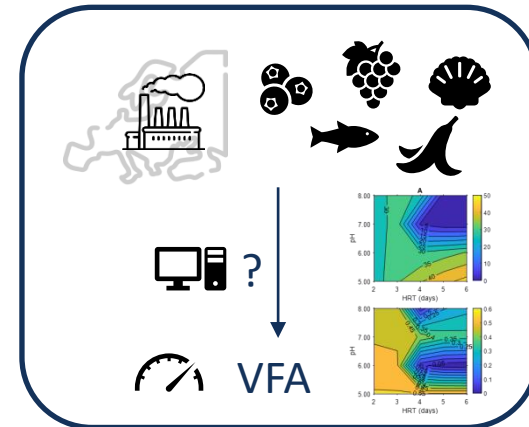
Life cycle assessment



Experimental trials

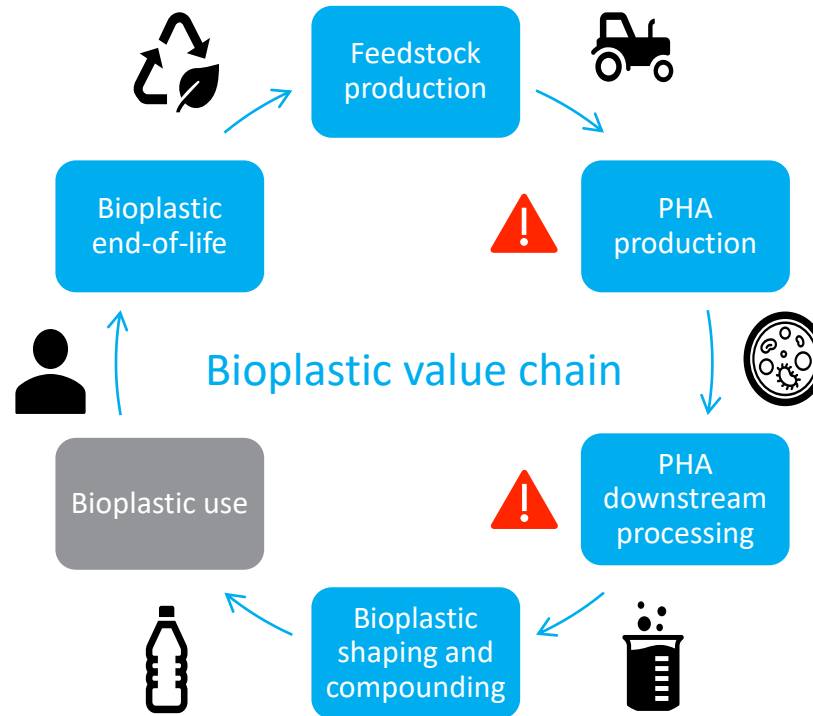
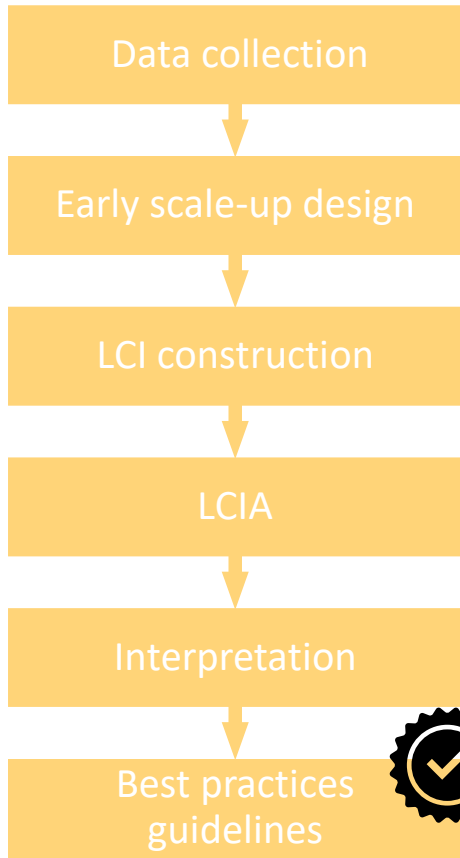


Mathematical modelling

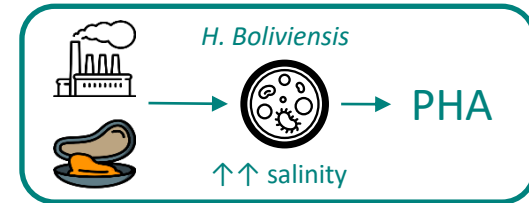


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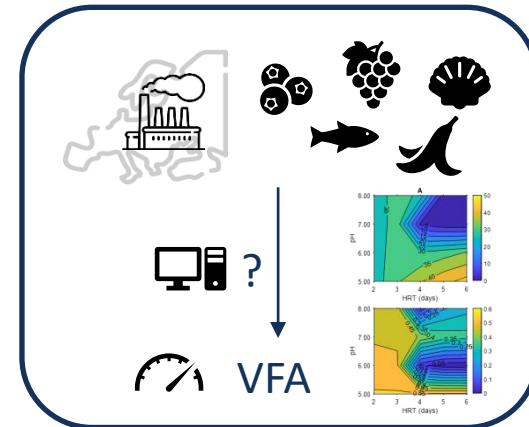
Life cycle assessment



Experimental trials



Mathematical modelling



Literature review



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From industrial wastewater to high performance bioplastics: knowledge integration for efficient decision-making

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ALMUDENA HOSPIDO