



## Rafic EL KAZZI

PhD student - representative of the TBI PhD students

**Project:** LCA4BIO - *Harmonized Life Cycle Assessment methods for sustainable and circular BIO based systems.*

**Supervisor(s):** Ligia Tiruta-Barna, Aras Ahmadi, Carlos Eduardo Robles-Rodriguez.

**Funding:** European Union (EU)

**Key words:** LCA methodology, Scale-up modeling, Inventory validation, Process modeling and simulation.

## Background

- Master (M2) in Materials Science and Engineering - Refinery and Biomaterials, Grenoble UGA, INP – PAGORA , Grenoble, France .
- Bachelor of Engineering (B.E.) in Chemical Processes Holy Spirit University of Kaslik , Kaslik, Lebanon.

## Currently working on

My current work focuses on developing a robust Life Cycle Assessment (LCA) framework tailored to early-stage bio-based technologies, where data gaps and uncertainty are significant. The framework integrates process simulation, scenario analysis, and literature data to generate consistent life cycle inventories at low TRLs. It is applied to the AST organosolv process for lignin extraction from wheat straw, using detailed ProSimPlus simulations and EF 3.1 impact assessment within the LCA4Bio context. A comparative and allocation-based analysis is performed to evaluate key drivers such as energy demand, solvent choice, and co-product handling on environmental performance.

## Scientific communications

[Articles published/in progress]

- Technical and environmental assessment of low TRL lignocellulosic biorefinery : lignin production (*in progress*)

[Congress/Posters/PhD day]

- **Congress Poster** : Harmonized Approach for Early-Stage Environmental Assessment of Emerging Industrial Bio-based Technologies and Product – ECCE & ECAB 2025 - Lisbon , Portugal.

## Contact me

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