

NOM DEL PROYECTO: Life Cycle Sustainability assessment of novel bio-based technologies

VACANT: Yes

RESUM:

In order to tackle the current climate crisis, it is imperative to develop more sustainable processes that not only offer better environmental profiles, but also are economically viable. Among the many alternatives currently being developed, bio-based technologies and processes appear as one of the most promising options. On the one hand, these processes develop products from biomass, a renewable resource that can contribute to the capture of CO₂ from the atmosphere. Furthermore, these processes are often based on biology-based technologies, which tend to present lower or no greenhouse gas emissions when compared to current production technologies.

Despite their advantages, these bio-based processes often present lower efficiencies than conventional technologies and require larger volumes of water and other resources. Hence, it can be difficult to assess whether these technologies present an overall better sustainability profile when compared to current production methods.

This thesis aims to tackle that question, performing a sustainability assessment of novel bio-based production processes using life-cycle assessment (LCA), the most common and demanded tool for sustainability and environmental assessment.

The LCA analysis will be carried out with the software SimaPro, using the Ecoinvent database, modelling existing bio-based production processes, in order to characterize their environmental impact on several impact categories and assessing the sustainability of these processes.

PERSONA DE CONTACTE: Dr. Rafael González Olmos (rafael.gonzalez@iqs.url.edu), Dr. Raul Calvo Serrano (raul.calvo@iqs.url.edu), Dr. Daniel Vázquez Vázquez (daniel.vazquez@iqs.url.edu)