

Bioprocessing agricultural waste to recover nature's most abundant protein

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Summary

Agriculture uses plants to produce much of our food, but also leaves behind leaves and stems that from many crops are inedible. This material contains high amounts of Rubisco, the enzyme that captures carbon from atmospheric CO₂ during photosynthesis. Our project is part of assessing the potential to recover Rubisco from bioprocessed tomato waste streams as a potential protein source for various industries due to its useful properties as a potential emulsifier or foaming agent.



Aims

- Assess Rubisco and protein content in waste tomato leaves
- Compare differently aged material to identify processing optimisations
- Develop academic-industry collaboration for future research and development

Outcomes

- Greenhouse grown tomato leaves contain large amounts of recoverable Rubisco
- Processing of leaves soon after final fruit harvest provides higher protein yields
- Identified additional pathways for potential optimisations of the recovery process

