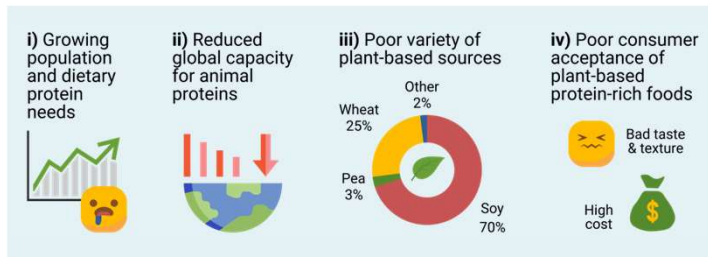


Unlocking Plant Potential

Harnessing Natural Deep Eutectic Solvents (NADES) for Enhanced Protein Isolates

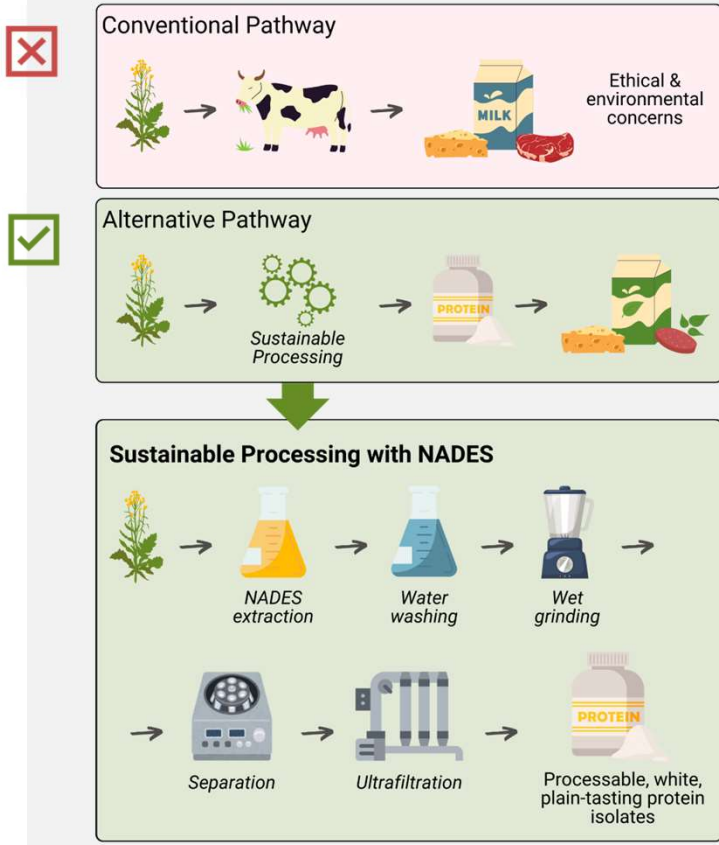
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1. Global Demand is Growing for Sustainable, Protein-Rich Foods¹



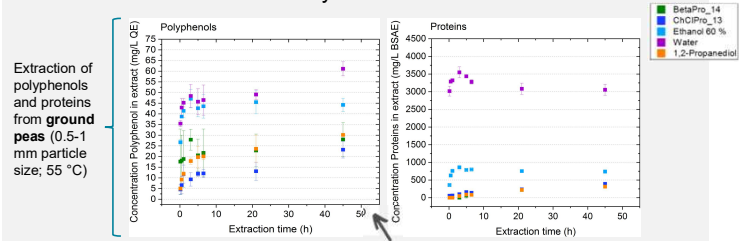
2. How Do We Obtain Protein-Rich Foods?

Conventionally, animals provide protein-rich foods through their metabolic processes. Alternatively, plant protein processing techniques yield meat, dairy, egg, and seafood analogues. Here, a NADES-based strategy yields improved protein isolates for plant-based products by selectively extracting antinutritive and acrid plant polyphenols from protein-rich seeds (peas and rapeseed) before protein recovery.



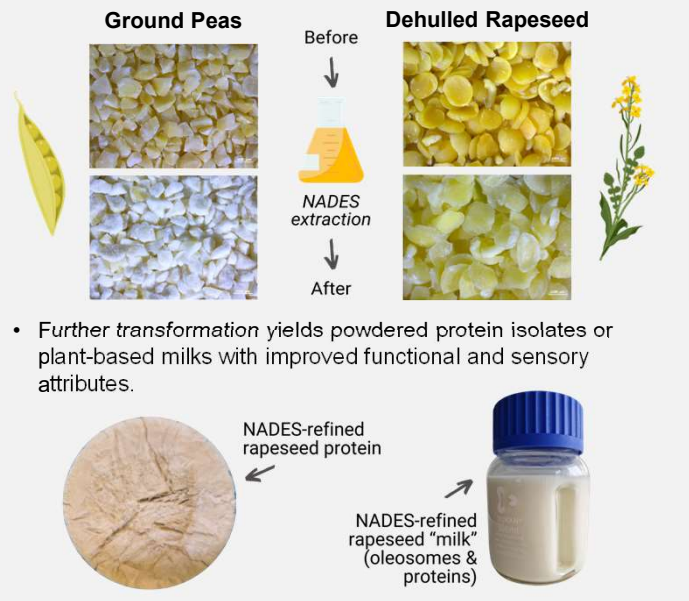
3. Promising First Results in the NADES-Based Refining of Pea and Rapeseed Proteins

- High solubility difference between polyphenols and proteins in NADES-based extraction systems.



* Adding 10-20% water to NADES further improves polyphenol solubility!

- NADES-refined peas and rapeseed are noticeably whiter, with neutral smell and taste.



- Further transformation yields powdered protein isolates or plant-based milks with improved functional and sensory attributes.

4. NADES Contribute to Sustainable Food Systems

This research sustainably promotes plant proteins' consumer acceptance, thereby addressing UN SDGs 2, 3, 12, 13, and 15.²

References

- McClements, D.J. 2024. Novel animal product substitutes: A new category of plant-based alternatives to meat, seafood, egg, and dairy products. *Critical Reviews in Food Science and Food Safety*, 23; 3, 1-25
- UN DESA. 2023. The Sustainable Development Goals Report 2023: Special Edition - July 2023. New York, USA: UN DESA. © UN DESA. <https://unstats.un.org/sdgs/report/2023/>

* Graphics are prepared using Canva and Biorender; graphs are prepared using Origin.