

Introduction

- Addressing global challenges in environmental sustainability and **food security** among a growing population demands exploring **alternative protein sources** for human consumption.
- Industry by-products** as ingredients for novel food products can potentially **enhance food system sustainability**.
- This study investigated the **nutritional quality** and protein content claims of high-moisture meat analogues (**HMMAs**) produced through **extrusion**.

Methods

Protein sources	Sunflower meal (SFM, 37.5 – 62.5%) blended with Soybean Protein Isolate (SPI)
Extrusion	Singh et al. (2023)
Protein content	AOAC 990.03
Amino acid composition	AOAC 982.30, AOAC 985.28 ISO 13904:2005
<i>In vitro</i> protein digestibility (IVPD)	Hsu et al. (1977) Tinus et al. (2012)
<i>In vitro</i> protein-corrected amino acid score (IV-PDCAAS)	FAO/WHO (1991)
<i>In vitro</i> digestible indispensable amino acid score (IV-DIAAS)	FAO/WHO (2013)
Protein content claims	FDA (2015)

Results & Discussion

- Protein digestibility results (**IVPD**, **IV-PDCAAS** and **IV-DIAAS**) varied from 68.3% to **90.8%**.
- HMMAs from a 37.5% SFM blend exhibited **no indispensable amino acid deficiency**, while those from SFM 50% and 62.5% presented **lysine as the first limiting amino acid**.
- For protein content claims, when considering the PDCAAS approach, HMMAs samples from SFM 37.5% and 50% were qualified as **“excellent source of protein”**. However, considering the DIAAS approach (an established **cut-off of 100%**), all samples had the **“good source of protein”**, emphasizing the need to reevaluate criteria for making protein content claims on food proteins.

Sunflower meal can replace soybean protein isolate for the production of fibrous meat analogues and preserving their nutritional quality, highlighting new opportunities **for meat alternatives** and adding value to this industry by-product.

Acknowledgements



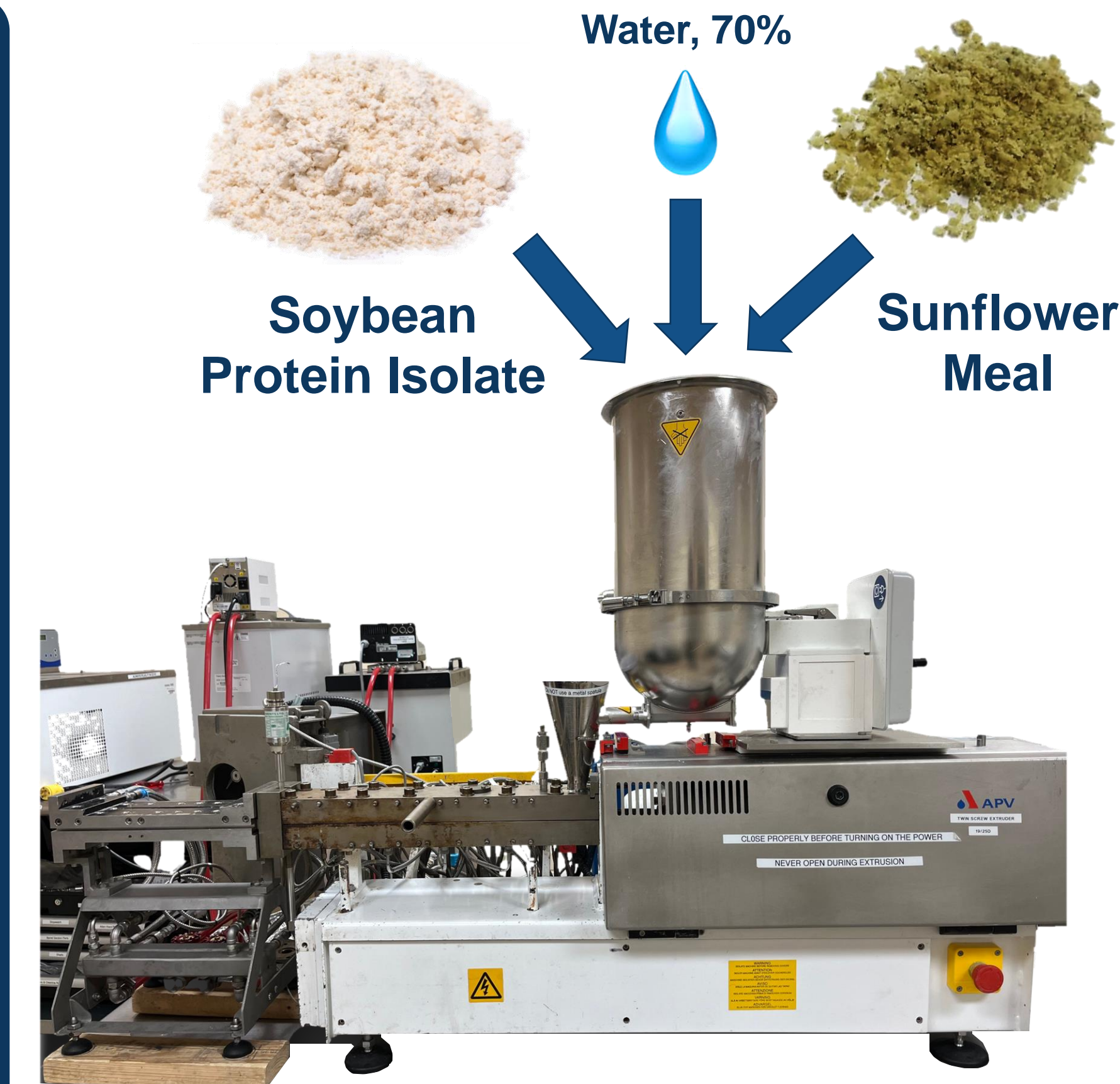
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H MMA

* Singh et al. *Food and Bioprocess Technology* (2023). doi:/10.1007/s11947-023-03225-8