

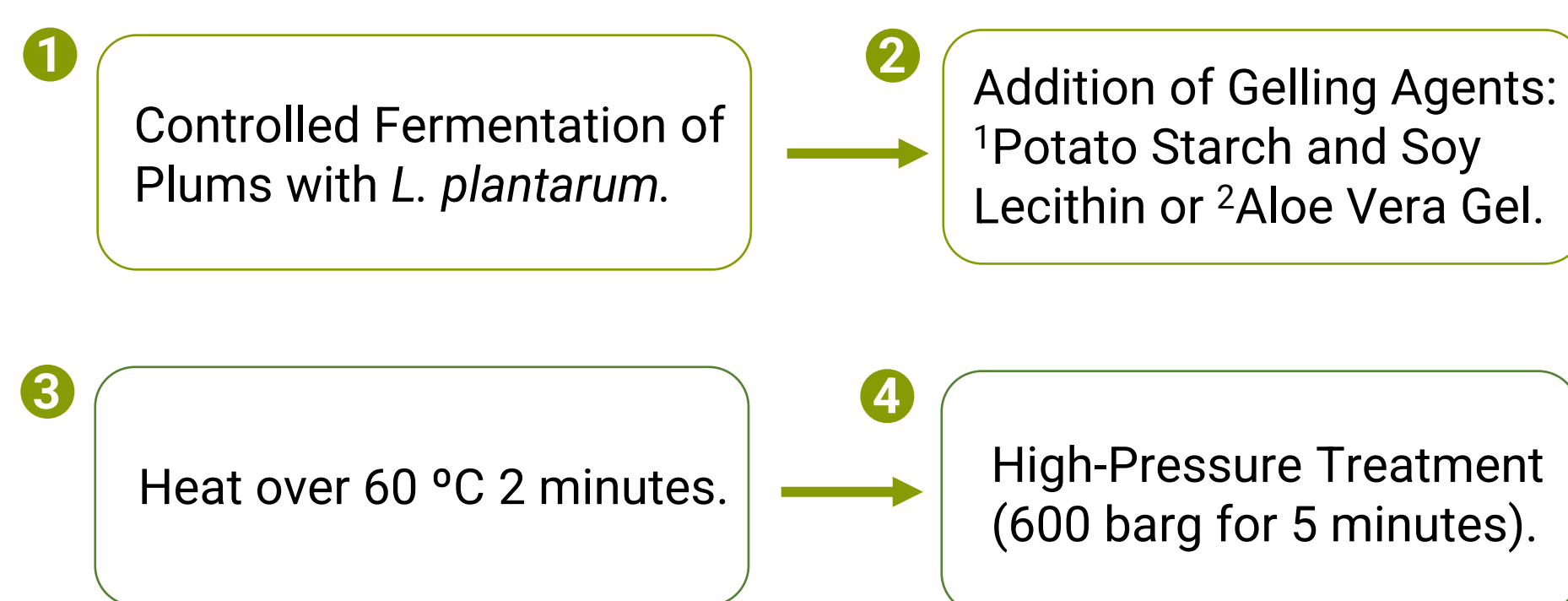
# Innovative and sustainable plant-based solutions for geriatric health

Fermented plum surplus products to combat dysphagia, hydration, and strengthen the gut microbiota.

## Introduction & Aim

- Surplus plums that are not of sufficient quality for marketing present an opportunity to address food waste. It is essential to find alternative methods to valorize these plums, as current uses do not yield significant economic benefits<sup>1</sup>.
- Institutionalized elderly individuals face issues such as prebiotic and probiotic deficiencies, dysphagia, and dehydration<sup>2</sup>, which are exacerbated by the limitations of dairy products, including lactose intolerance and other animal-derived ingredients.
- Validate the use of controlled fermentation of surplus plums, combined with natural gelling agents and high-pressure treatment, to develop non-dairy products that are suitable for elderly population.

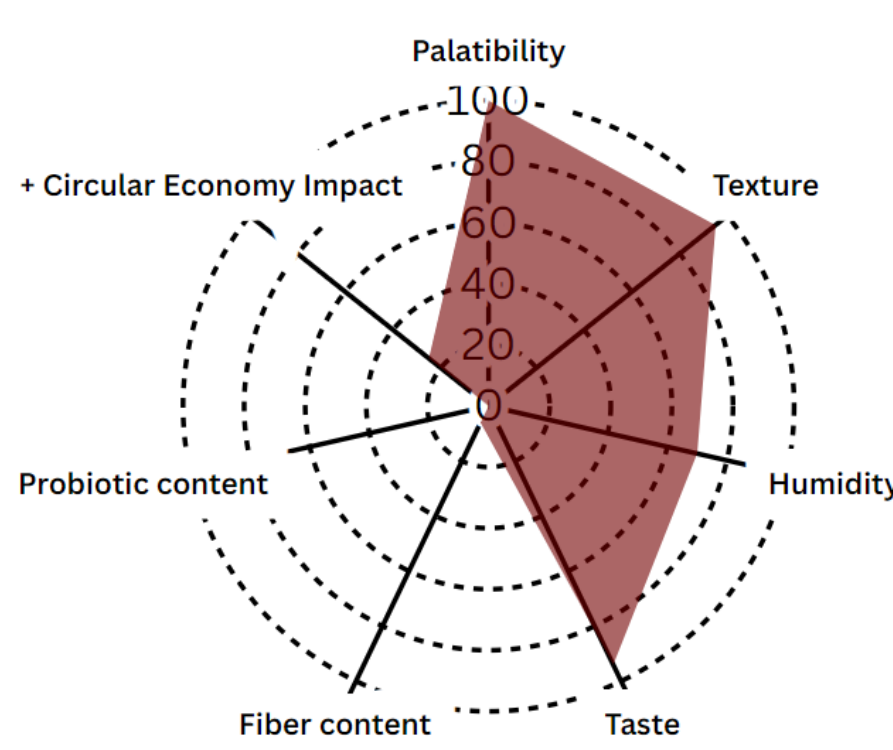
## Method



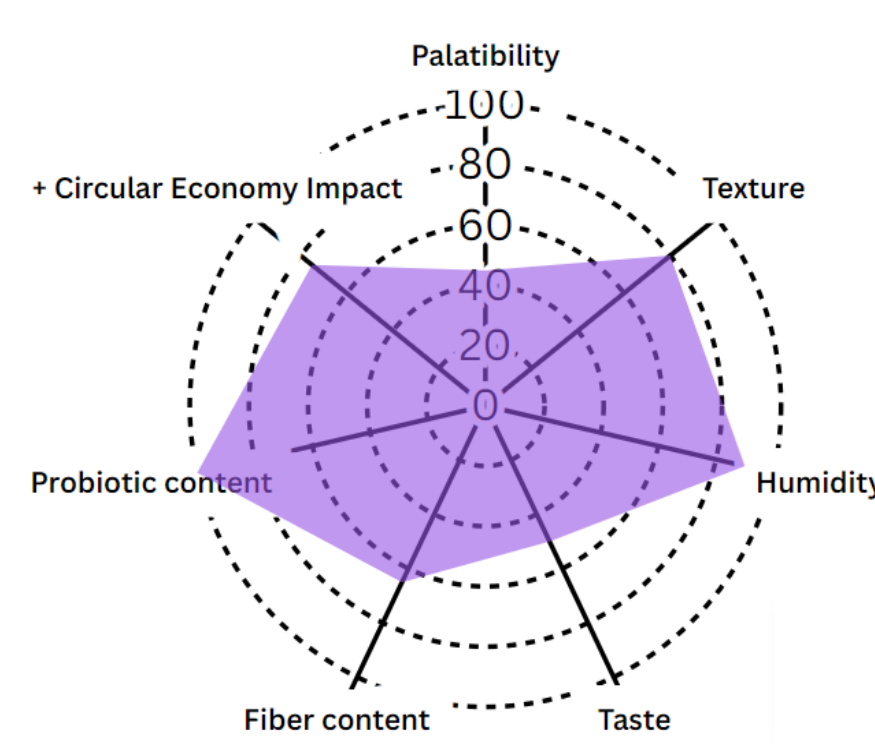
	% Soy Lecithin (w/w)	% Potato Starch (w/w)	% Aloe Vera Gel (w/w)
Mixed 1	1	1	
Mixed 2	1	2,5	
Mixed 3	1	5	
Mixed 4	1	7,5	
Mixed 5	1	10	
Mixed 6	0,5	7,5	10
Mixed 7	0,5	7,5	15
Mixed 8			200
Mixed 9			100
Mixed 10			50
Mixed 11			20

## Conclusion & Results

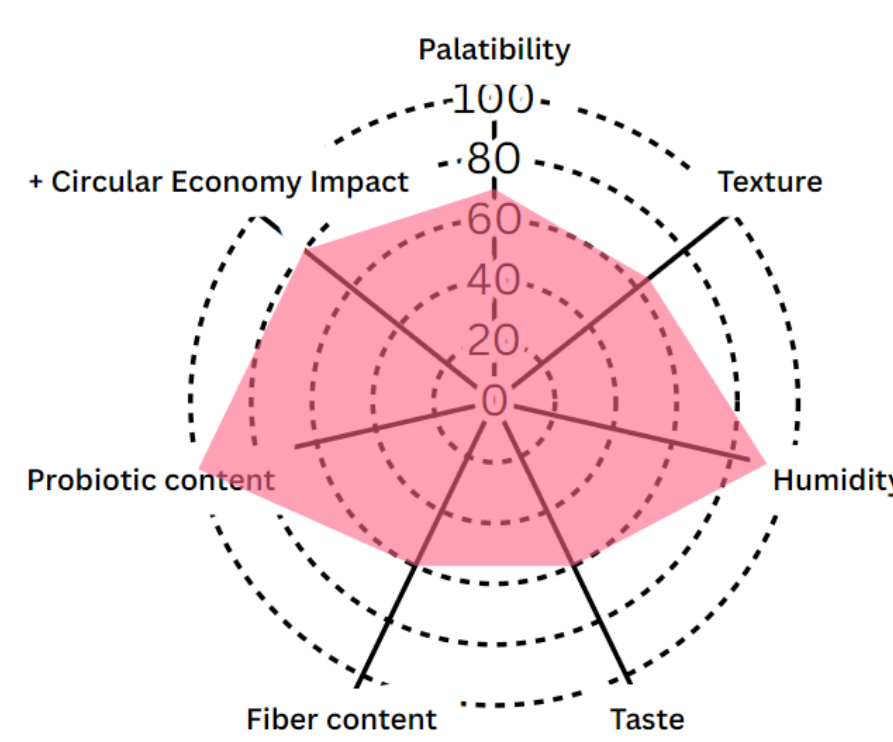
### Comercial Yogurt (Reference)



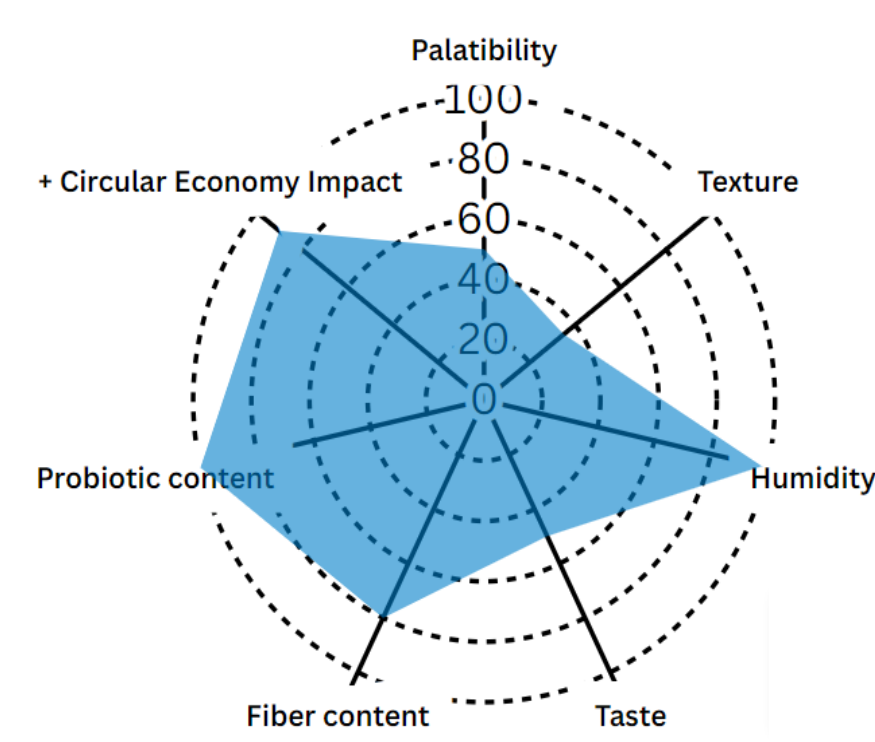
### Mixed 5



### Mixed 7



### Mixed 8

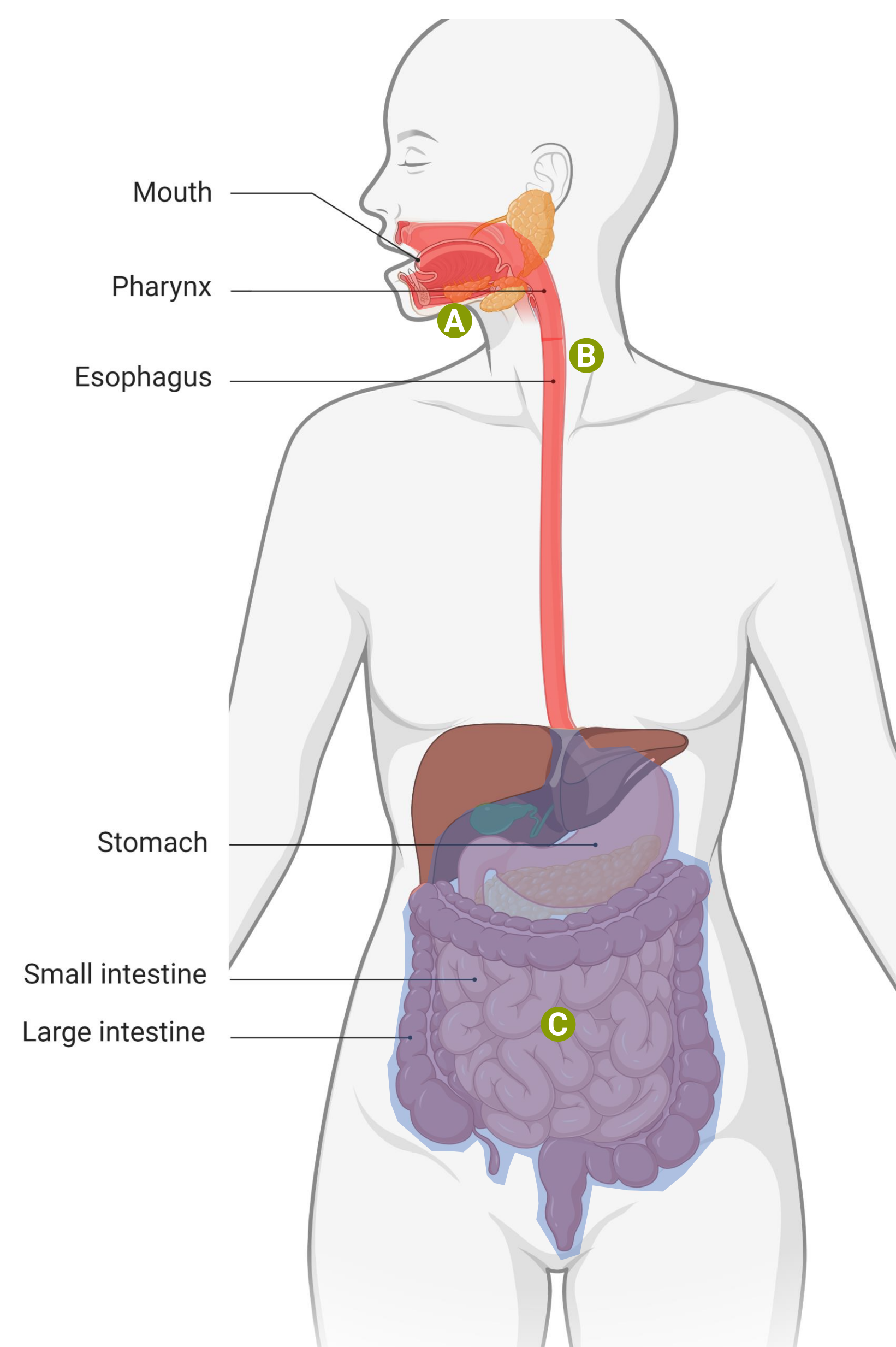


A B

Sweetened product of natural origin – hypocaloric (no added sugar). High moisture content (92% water).

C

Prevents intolerance to lactose or other dairy metabolites. Plant-derived prebiotics (1,32 % vegetable fiber). High probiotic content ( $1.7 \times 10^8$  UFC/mL *L. plantarum*).



## Future perspective

- Combining high-pressure processing with microbial fermentations holds great promise for tackling food production challenges and reducing agro-industrial waste. This approach enables the development of tailored, health-focused products while enhancing sustainability and functionality in everyday food systems.

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## References

1. Leong, Y. K. & Chang, J.-S. Valorization of fruit wastes for circular bioeconomy: Current advances, challenges, and opportunities. *Bioresour Technol* 359, 127459 (2022).
2. Thiyyalingam, S., Kulinski, A. E., Thorsteinsdottir, B., Shindelar, K. L. & Takahashi, P. Y. Dysphagia in Older Adults. *Mayo Clin Proc* 96, 488–497 (2021).

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