ECM 2025 Conference

The 3rd International Electronic Conference on Microbiology

01–03 April 2025 | Online

MDPI

Evaluation of antioxidant stability of jinicuil (*Inga paterno*) probiotic beverages fermented by *Lactobocillus delbrueckii* ssp bulgaricus and *Streptococus thermophilus* during refrigeration storage



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INTRODUCTION & AIM

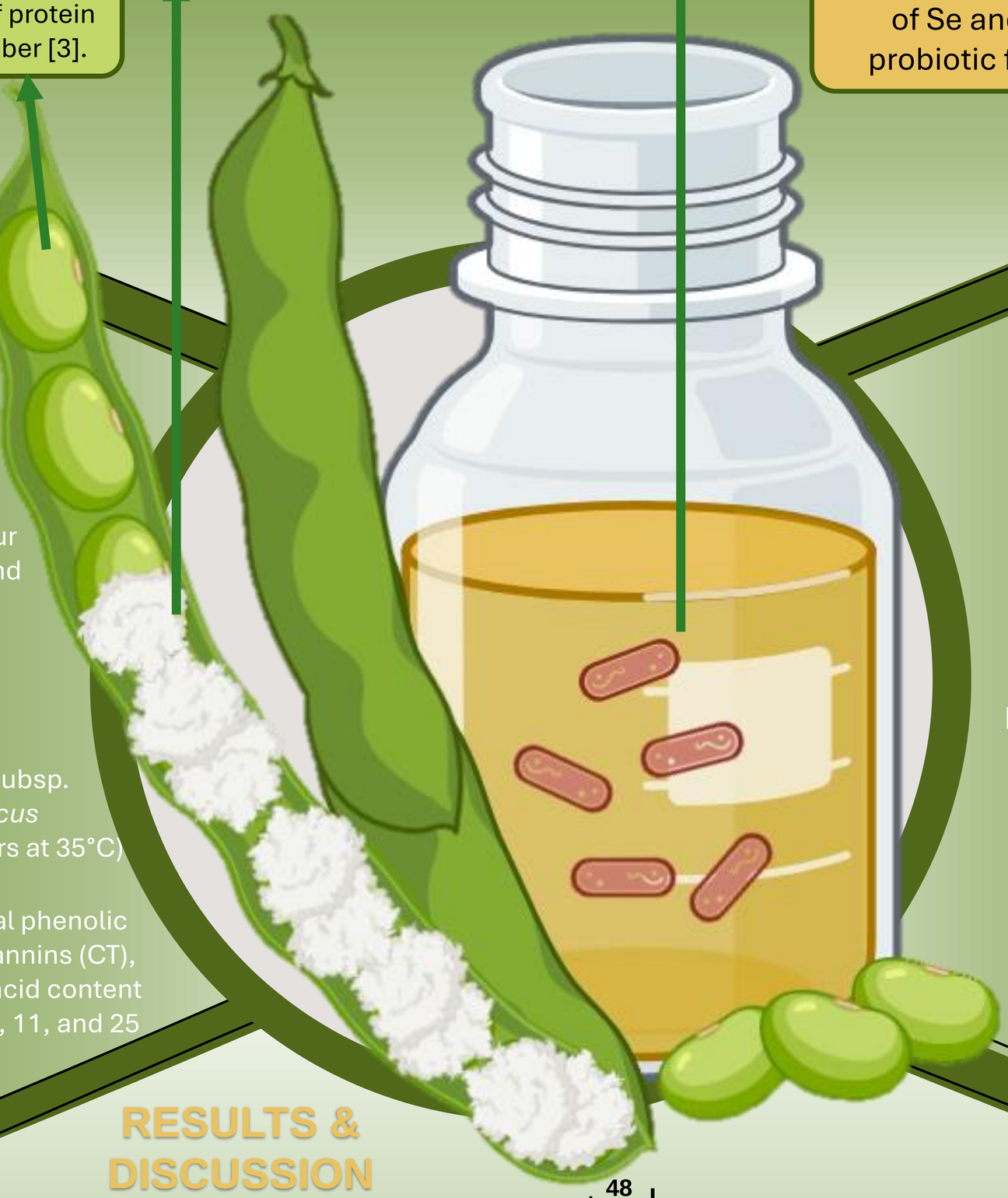
Inga paterno is a native Mexican legume that has been scarcely studied [1].

Inga species generate a **sarcotesta** (Sa) with a sweet taste and a soft pulp that envelops the seeds [2].

Lactobacillus delbrueckii subsp. *bulgaricus* and *Streptococcus thermophilus* **(L-S)** are commonly used in fermented products.

Seeds (Se) provide a rich source of protein and dietary fiber [3].

This study investigated the potential of Se and Sa as substrates for probiotic fermentation using L-S.



METHOD

01 Pod processing
Harvest November 2023

02 Flour production
Dehydration (35 °C, 48 h)

03 Formulation
- **Se**: 5% seed flour
- **Sa**: 5% sarcotesta flour
- **Ea**: 2.5% seed flour and 2.5% sarcotesta flour

04 Sterilization
121°C, 15 min

05 Fermentation
Lactobacillus delbrueckii subsp. *bulgaricus* and *Streptococcus thermophilus* (L-S) (72 hours at 35°C)

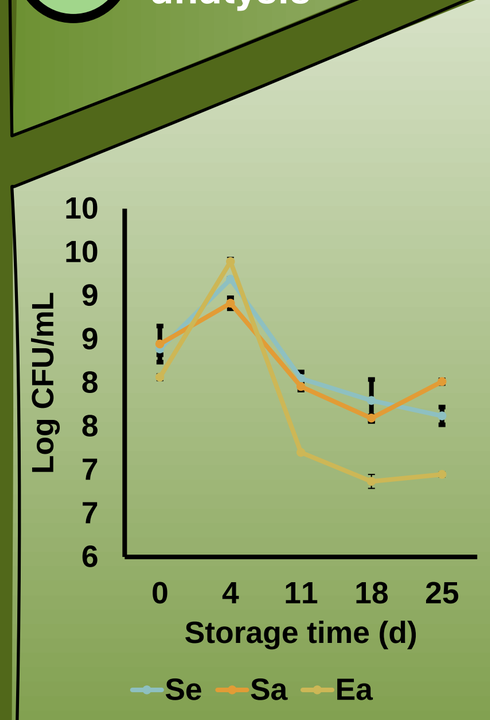
06 Characterization
Antioxidant activity (AA), total phenolic content (TPC), condensed tannins (CT), flavonoids (FC), and phytic acid content (PAC) were measured at 0, 4, 11, and 25 days of storage.

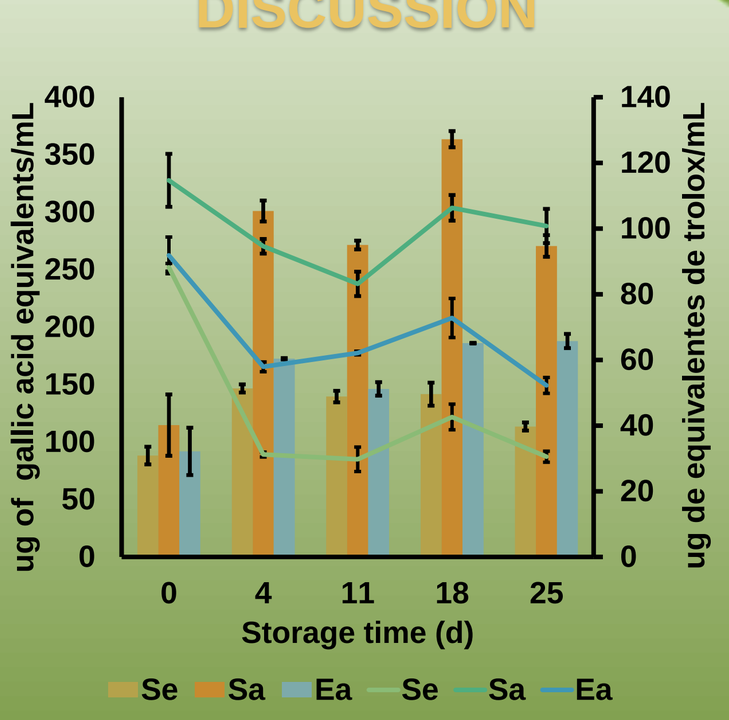
07 Statistical analysis

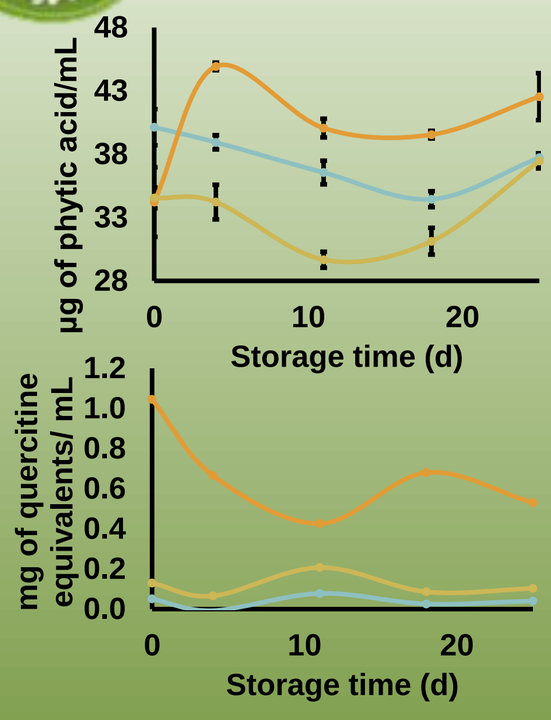
CONCLUSION/ FUTURE WORK

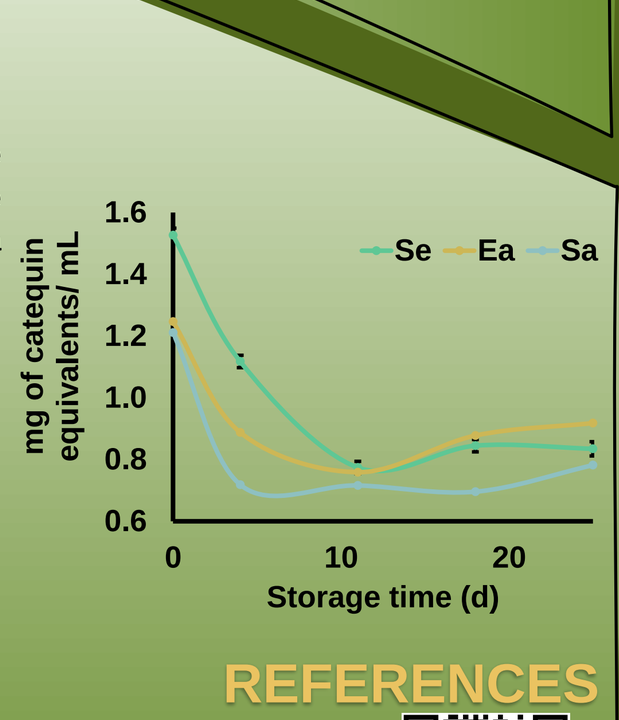
L-S remained viable throughout storage in all formulations, while **Sa provided a rich source of TPC and FC**. These findings suggest that ***I. paterno* sarcotesta can serve as promising substrates** to produce a functional fermented beverage with **enhanced antioxidant properties**. Future studies should focus on the identification and quantification of the specific antioxidant compounds generated after fermentation, as well as their stability during storage. In vivo studies are also recommended to assess the bioavailability and potential health benefits of this fermented beverage.

RESULTS & DISCUSSION









L-S presented higher stability in Se and Sa because Se contain raffinose and stachyose and Sa could offer a greater concentration of fructose and glucose [4]. **Sa showing the highest and stable levels of AA**. **PAC** increased in Sa but decreased in Se. **CT decreased** in all formulations, and **Sa presented a higher amount of FC** than Se and Ea. AA was mainly correlated with FC ($R^2 = 0.6$).

REFERENCES

Acknowledgements The authors thank to the CONHACYT and UDLAP for the graduate scholarship to Lizbeth Rosas-Ordoñez.

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