



Use of sprouting to modify the antioxidant activity and phenol content of *Inga paterno* seed flour

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INTRODUCTION & AIM

Inga paterno is an underutilized legume endemic to Mexico, with seeds that serve as a valuable source of protein [1]. However, no previous studies have reported on its antioxidant activity.

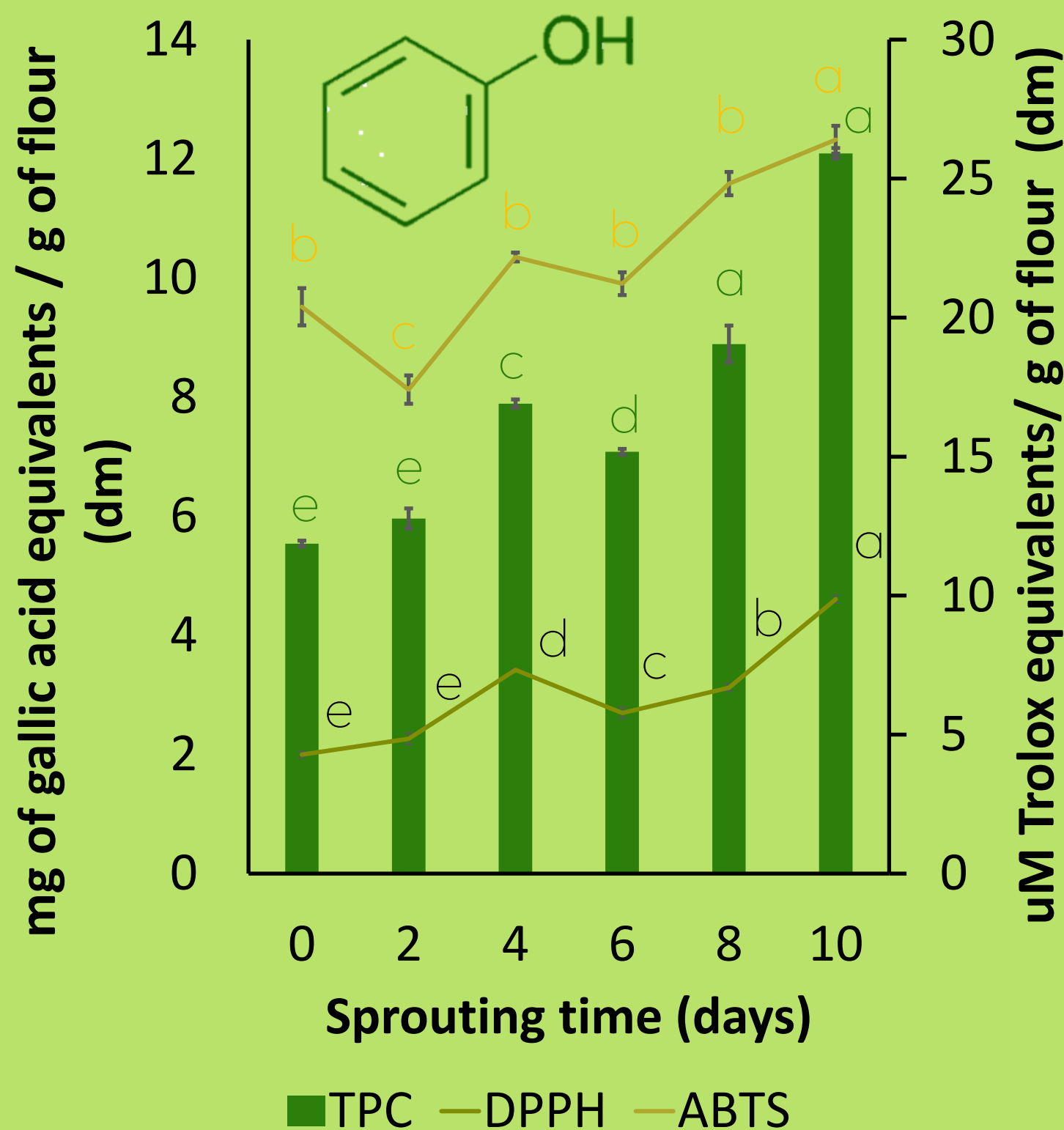
Sprouting has been shown to enhance the nutritional value of legumes [2].

This study investigated how sprouting duration influences the total phenolic content (TPC) and antioxidant activity (TAC) of *I. paterno* seed flour.

RESULTS & DISCUSSION

TPC significantly increased after 4, 6, 8, and 10 days of sprouting. Significant increases in DPPH-based TAC were observed after the 4th day and at all subsequent sprouting times, while ABTS-based TAC significantly increased after the 2nd and 8th days of sprouting. TPC showed R² of 0.9422 and 0.9152 with DPPH-based TAC and ABTS-based TAC, respectively.

The observed changes may be attributed to the breakdown of phenolic compounds bound to plant cell walls [5], as well as to the activation of metabolic pathways that modify antioxidant metabolites [6].



Results are the average of three replicates. Different letters indicate a significant difference ($p < 0.05$).

METHOD

- 01 Pod processing**
Harvest November 2023
a Washing
b Separation of seeds and sarcotesta
- 02 Sprouting**
at 23°C with 78% RH for 0, 2, 4, 6, 8, or 10 days
- 03 Flour production**
Dehydration (35 °C, 48 h)
- 04 Methanolic extraction [3]**
methanol solution (20:80), stirred at 25°C for 24 hours
- 05 Characterization [4]**
TPC → Folin-Ciocalteu method
TAC → DPPH• or ABTS•+ radical scavenging assays
- 06 Statistical analysis**
One-way ANOVA and Tukey's test were used to analyze the data ($p \leq 0.05$).

CONCLUSION/ FUTURE WORK

This study demonstrates that **sprouting *I. paterno* seeds for 4 days enhances** the nutritional value of the resulting flour.

However, further investigation is necessary to evaluate other potential nutritional modifications fully, including potential improvements in bioactive compound content and digestibility. Additionally, evaluating the functional and sensory properties of products made with this flour could provide valuable insights for its potential applications in food formulations.

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