

Use of Annurca Apple Peel Flour (*Malus domestica*) and Cherry Seed Oil in the Formulation of Enriched Crackers

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INTRODUCTION & AIM

The *Annurca* variety of *Malus domestica* is well known for its richness in bioactive compounds such as polyphenols and dietary fibers, which contribute to its potential as a functional food ingredient. Incorporating *Annurca* apple peel powder and cherry seed oil into food formulations may enhance their nutritional and health-promoting properties.

Objective: To develop and evaluate lab-scale cracker prototypes fortified with dried *Annurca* apple peel (5% – S1; 10% – S2) and cold-pressed cherry seed oil.

The study assessed their inhibitory effects on key digestive enzymes, predicted glycaemic Index (pGI), and physical and aromatic stability over storage.

RESULTS & DISCUSSION

Enzyme inhibition: Both fortified crackers significantly inhibited digestive enzymes involved in carbohydrate and lipid metabolism.

IC₅₀ values (mg/g dry weight):

- α -amylase: S1 = 55; S2 = 38
- α -glucosidase: S1 = 118, S2 = 68
- lipase: S1 = 45, S2 = 35

These data indicate stronger inhibition at higher inclusion levels of apple peel flour.

Predicted glycaemic index: Both S1 and S2 exhibited lower pGI values compared to control samples, suggesting improved potential for glycaemic control.

Functional properties: Water holding capacity (WHC) and oil holding capacity (OHC) showed no significant differences relative to the control, indicating that enrichment did not alter texture-related parameters.

Aroma profile: Electronic nose analysis revealed distinctive volatile patterns after three months of storage, confirming that the addition of *Annurca* components influenced aroma evolution without compromising stability.

CONCLUSION

Crackers enriched with *Annurca* apple peel flour and cherry seed oil demonstrated enhanced enzyme inhibitory activity and reduced predicted glycaemic index, while maintaining desirable physical and aromatic characteristics.

These findings support the use of *Annurca*-based ingredients as valuable functional components for the formulation of health-oriented bakery products with a stable shelf life.

