

IS WASTE WORTH MORE? POLYPHENOL RECOVERY FROM APPLE POMACE

Sandra Voća, Vanja Jurišić, Ana Matin, Neven Voća, Ante Galić, Ivan Brandić, Anamarija Peter, Jona Šurić, Mía Dujmović, Ivana Tomić, Karlo Špelić, Jana Šic Žlabur
University of Zagreb Faculty of Agriculture, Svetošimunska cesta 25, 10000 Zagreb, Croatia

Although often treated as waste, apple pomace contains valuable dietary fiber, carbohydrates, vitamins, and bioactive compounds, particularly polyphenols. Because apple polyphenols are concentrated mainly in the peel, which remains in the pomace after juice extraction, this by-product represents a promising source of recoverable bioactive compounds. Valorization of apple pomace through the recovery of polyphenols could reduce waste while generating valuable ingredients for food, pharmaceutical, cosmetic, nutraceutical, and feed applications.



The AIM of research was to determine the phenolic compound content and antioxidant capacity of apple pomace generated during juice production and assess its potential as a raw material for valorization and polyphenol recovery.

MATERIALS AND METHODS

Sample S1 – *Granny Smith* + *Golden Delicious*

Sample S2 – *Gala* + *Cripps Pink* + *Idared* + *Granny Smith*

ANALYSES: total phenolic content (TPC), total flavonoid content (TFC), total non-flavonoid content (TNFC), antioxidant capacity (ABTS)

Statistical analysis: ANOVA and LSD test

RESULTS

The two apple pomace samples differed significantly in analysed compounds. S1 exhibited substantially higher levels of all polyphenolics as well as antioxidant capacity. Differences between samples may be related to cultivar composition, as *Granny Smith* and *Golden Delicious* have been reported to contain relatively high levels of phenolic compounds and antioxidant activity.

However, the high polyphenol content observed in both samples supports the potential of apple pomace as a valuable source of recoverable bioactive compounds.

CONCLUSION

Apple pomace should not be viewed solely as a waste requiring disposal, but as a valuable by-product and secondary raw material. Its high content of phenolic compounds and antioxidant capacity demonstrates its potential for polyphenol recovery and valorization.

