

CHARACTERIZATION OF PHENOLIC COMPOUNDS FROM APPLE ROOT, BARK AND CORE WOOD

Abstract

Sustainable innovations in turning waste streams or by-products into valuable sources of bioactive compounds are gaining importance. Fruit growers in Belgium annually have about 100 tons of bark and pruning waste. The by-products of fruit production are not yet valued these days. Research has indicated the presence of one important bioactive polyphenol in the bark of apple trees (Xü et al., 2010).

Extraction techniques, with a varying solvent composition, are evaluated based on the extraction efficiency of the total polyphenols (spectrophotometry according to the Folin Ciocalteu method) and the content of bioactive polyphenols (HPLC identification).

The aim of the present work is the optimization of the solvent extraction technique for the identified compounds and the characterization of the phenolic profile of apple root, bark and core wood (*Malus domestica* 'King Jonagold'). For this purpose, root, bark and core wood are subjected to various extraction techniques, and types of solvent in order to investigate its effect on the bioactive phenolic composition of the extract.

HPLC analysis of an extract obtained by microwave assisted extraction indicates that the most abundant phenolic compounds are ferulic acid, followed by chlorogenic acid, and catechin. Supplementary extraction techniques and conditions are currently being tested to attain an improved release of the phenolic compounds and, subsequently, to obtain a higher yield of polyphenols in apple wood.

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References

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