MULTISTEP SOLVENT EXTRACTION OF APRICOT (*ARMENIACA VULGARIS L.*) FRUIT

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Abstract:

Introduction: Apricots (*Prunus armeniaca* L.) are a valuable source of phenolic compounds with notable antioxidant properties. Efficient extraction and evaluation of these bioactive components are essential for promoting their appropriate use in the food, pharmaceutical, and cosmetic industries. This study focuses on optimising the extraction of phenolic compounds from apricot fruit harvested in Armenia and Ukraine, aiming to explore more sustainable and efficient utilisations of this raw material.

Methods: The fruit samples collected from selected regions in Armenia and Ukraine were dried and ground. Extraction was carried out in two ways, directly with 70% ethanol (1:10 w/v) and with preliminary extraction using 96% ethanol (1:5 w/v) before 70% ethanol (1:10 w/v) extraction. Total phenolic content (TPC) was determined using the Folin–Ciocalteu method and expressed as gallic acid equivalents (GAEs). Antioxidant activity was evaluated by ABTS (2,2′-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)) radical scavenging assays, with the results expressed in Trolox equivalents.

Results: Two extraction approaches were compared: direct extraction with 70% ethanol (1:10 w/v) and a sequential method involving preliminary extraction with 96% ethanol (1:5 w/v) followed by 70% ethanol (1:10 w/v) extraction. In both Armenian and Ukrainian apricot samples, the sequential method led to a higher total phenolic content (TPC), with Armenian extracts yielding values increased by 34.1% and Ukrainian extracts by 14.6%. Similarly, ABTS activity increased by 35.3% in Armenian apricots and by 61.9% in Ukrainian samples.

Conclusion: Sequential extraction is a more rational and efficient method for utilising apricot raw materials, as it enhances the recovery of bioactive compounds and maximises the functional potential of the fruit. This strategy supports the sustainable processing of regional agricultural resources and may also be applied to other plant materials, offering a promising approach for the efficient use of herbs in the development of functional products and the broader promotion of sustainable resource utilisation.

Keywords: apricot; phenolic compounds; extraction