

Title: RETRACTED: Phytochemical screening, HPLC fingerprinting and in vitro assessment of therapeutic potentials of different apricot cultivars against diabetes, Alzheimer's disease and cancer

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Abstract: Plant-based natural compounds are widely used to treat various ailments owing to their readily availability and minimal adverse effects. This study aimed to perform qualitative and quantitative biochemical profiling and assess the in vitro anti-diabetic, anti-Alzheimer, and anti-cancer activities of various apricot (*Prunus armeniaca*) cultivars. High-performance liquid chromatography (HPLC) was utilized to determine the concentrations of bioactive compounds across 10 distinct apricot cultivars. Initial phytochemical screening revealed a significant content of secondary metabolites. Subsequently, methanolic extracts from these cultivars were evaluated for their therapeutic potential against several human cancer cell lines, including prostate cancer (PC-3), lung cancer (A-549), breast cancer (MCF-7), cervical cancer (HELA), and kidney cancer (HEK). Notably, the breast cancer cell line MCF-7 showed a pronounced inhibition rate post-treatment with the apricot extracts. Correlation analysis exhibited phenols are highly correlated with flavonoids ($r = 0.92$), DPPH ($r = 0.95$), and alpha-amylase (%) inhibition ($r = 0.96$), and showed a significant correlation with other parameters. Principal Component Analysis (PCA) revealed that PC1 explained 43.31 % of the variance, while PC2 explained 12.88 %, together explaining 80.033 % of the total variance. PC1 was identified as the dominant axis, indicating the primary pattern of variation among the variables. Hierarchical Cluster Analysis (HCA) divided the cultivars into 2 main clusters, with cluster 2 further subdivided into various sub-clusters and sub-sub-clusters. This analysis highlighted distinct genetic similarities and differences among the apricot cultivars. Among the tested cultivars, 'Irani' and 'Tilton' were found to contain the highest levels of bioactive constituents. This research marks the first comprehensive examination of the impacts of these two apricot cultivars. The findings from this study provide a robust scientific foundation for

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