

# Evaluation of phenolic compounds and antioxidant activity of some native and imported apple cultivars in Iran

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## Abstract

In this study, total phenolics and antioxidant activity of flesh and peel, chlorogenic acid content and some flavonoids in the peel of eight Iranian and imported apple cultivars, growing in Karaj, Iran, were investigated. The total phenolic content was determined by the Folin-Ciocalteu method, antioxidant activity was measured by DPPH free radical method, chlorogenic acid and some flavonoids were determined by HPLC method. The results show significant variations among apple cultivars regarding all factors. In this investigation, the 'Paez-e Mashhad' had the highest content of chlorogenic acid. The highest level of phloridzin and quercetin 3-galactoside were found in the peel of the 'Jeanne Hardy' variety. The peel of the 'Wealthy' variety showed the highest content of catechin. Among red cultivars, the peel of the 'Sheikh Ahmad' variety had the highest content of anthocyanin. The higher content of total phenolics and antioxidant activity were found in the peel of all the studied cultivars in comparison to flesh. The peel and the flesh of the 'Jeanne Hardy' had the highest concentration of total phenolic content and the peel of 'Jeanne Hardy' and the flesh of the 'Nar Sib-e Mashhad' showed the highest antioxidant activity. The regression analysis results indicated a positive relation between the total phenolics level and antioxidant activity in the peel ( $R^2=0.85$ ) and the flesh ( $R^2=0.75$ ). Moreover, there was a significant correlation between antioxidant activity and catechin ( $0.834^*$ ), quercetin 3-galactoside ( $0.724^*$ ) and cyanidin 3-galactoside ( $0.774^*$ ).