

Phenolic Composition and Antioxidant Activity of Sorbus L. Fruits and Leaves

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Abstract : Sorbus L. species are widely distributed in the Northern hemisphere and have been used for medicinal purposes in various traditional medicine systems and as food ingredients. Various Sorbus L. raw materials, fruits, leaves, inflorescences, barks, possess diuretic, anti-inflammatory, hypoglycemic, anti-diarrheal and vasoprotective activities. Phenolics, to whom main pharmacological activities are attributed, are compounds of interest due to their notable antioxidant activity. The aim of this study was to determine the antioxidant profiles of fruits and leaves of selected Sorbus L. species (*S. anglica*, *S. aria* f. *latifolia*, *S. arranensis*, *S. aucuparia*, *S. austriaca*, *S. caucasica*, *S. commixta*, *S. discolor*, *S. gracilis*, *S. hostii*, *S. semi-incisa*, *S. tianschanica*) and to identify the phenolic compounds with potent contribution to antioxidant activity. Twenty two constituents were identified in Sorbus L. species using ultra high performance liquid chromatography coupled to quadruple and time-of-flight mass spectrometers (UPLC-QTOF-MS). Reducing activity of individual constituents was determined using high performance liquid chromatography (HPLC) coupled to post-column FRAP assay. Significantly greatest trolox equivalent values corresponding up to 45% of contribution to antioxidant activity were assessed for neochlorogenic and chlorogenic acids, which were determined as markers of antioxidant activity in samples of leaves and fruits. Characteristic patterns of antioxidant profiles obtained using HPLC post-column FRAP assay significantly depend on specific Sorbus L. species and raw materials and are suitable for equivalency research of Sorbus L. fruits and leaves. Selecting species and target plant organs with richest phenolic composition and strongly expressed antioxidant power is the first step in further research of standardized extracts.

Keywords : FRAP, antioxidant, phenolic, Sorbus L., chlorogenic acid, neochlorogenic acid

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