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Phenolic Rich Dry Extracts and Their Antioxidant Activity

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Abstract : Pharmacological and clinical studies demonstrated that phenolic compounds particularly flavonoids and phenolic acids are responsible for a wide spectrum of therapeutic activities. Flavonoids and phenolic acids are regarded as natural antioxidants that play an important role in protecting cells from oxidative stress. Qualitatively prepared dry extracts possess high stability and concentration of bio active compounds, facility of standardization and quality control. The aim of this work was to determine the phenolic and antioxidant profiles of Hippophaë rhamnoides L., Betula pendula Roth., Tilia cordata Mill., Sorbus aucuparia L. leaves dry extracts and to identify markers of antioxidant activity. Extracts were analyzed using high-performance liquid chromatography (HPLC) with FRAP post-column assay. Dry extracts are versatile forms possessing wide area of applications, final product ensure consistent phytochemical and functional properties. Seven flavonoids: rutin, hyperoside, isorhamnetin 3-O-rutinoside, isorhamnetin 3-O-glucoside, quercetin, kaempferol, isorhamnetin were identified in dry extract of Hippophaë rhamnoides L. leaves. Predominant compounds were flavonol glycosides which were chosen as markers for quantitative control of dry extracts. Chlorogenic acid, hyperoside, rutin, quercetin, isorhamnetin were prevailing compounds in Betula pendula Roth. leaves extract, whereas strongest ferric reducing activity was determined for chlorogenic acid and hyperoside. Notable amounts of protocatechuic acid and flavonol glycosides, rutin, hyperoside, quercitrin, isoquercitrin were identified in the chromatographic profile of Tilia cordata Mill. Neochlorogenic and chlorogenic acids were significantly dominant compounds in antioxidant profile in dry extract of Sorbus aucuparia L. leaves. Predominant compounds of antioxidant profiles could be proposed as functional markers of quality of phenolic rich raw materials. Dry extracts could be further used for manufacturing of pharmaceutical and nutraceuticals.

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