Study on Antioxidative Properties of Eight Medicinal Herbs

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ABSTRACT

Recently, there is increasing interest in finding natural antioxidants from plants, which protect human body against free radical insult and ameliorate the progress of many chronic diseases. Essential oils and extracts from Eight plants with high antioxidativity were selected, including Polygonum multiflorum Thunb, Cymbopogon citrates, Symphytum officinale L., Zanthoxylum ailanthoids Sieb & zucc, Ocimum basilicum, Liquidambar formosana, Hedychium coronarium Koenig and Bidens pilosa. In this study, the antioxidative activities assays, including α, α-diphenyl-β-picrylhydrazyl (DPPH) radical scavenging effect, Fe2+ chelating power, reducing power, superoxide radical anion scavenging effect, trolox equivalent antioxidant capacity and the inhibition of Fe/ascorbate-induced lipid peroxidation in a liposome model system, were measured and compared with those of butylated hydroxyanisole (BHA), ethylene diamine tetracetic acid (EDTA), α – tocopherol and gallic acid. The results showed that the yield of plant essential oil was lower than the solvent extract. All essential oils in eight plants had low flavonoids. The essential oils in leaves of Liquidambar formosana and the root of Hedychium coronarium Koenig had low DPPH radical scavenging effect and Fe2+ chelating power. The ethanol extracts of Polygonum multiflorum Thunb and leaves of Hedychium coronarium Koenig had the highest content of polyphenolic compounds and flavonoids, respectively. Polygonum multiflorum Thunb, Ocimum basilicum and the leaves of Bidens pilosa had the same reductivity as α-tocopherol. All these eight plants (concentration less than 0.1 mg/mL) had better scavenging ability of superoxide anion radical than that of the gallic acid. The Cymbopogon citrates and Zanthoxylum ailanthoids Sieb & zucc had the best scavenging ability of superoxide anion radical. Polygonum multiflorum Thunb and Ocimum basilicum had the same total antioxidant capacity as BHA and α-tocopherol. Polygonum multiflorum Thunb, Symphytum officinale L. and Cymbopogon citrates (concentration at 10 mg/mL) on the lipid peroxidation in a liposome model system hed a same ability as α-tocopherol.

Keywords : Polygonum multiflorum Thunb ; Cymbopogon citrates ; Symphytum officinale L. ; Zanthoxylum ailanthoids Sieb & ; zucc ; Ocimum basilicum ; Liquidambar formosana ; Hedychium coronarium Koenig ; Bidens pilosa ; essential oil ; antioxidant

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