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Comparison of Methods to Determine Antioxidant Activity and Free Radical Scavenging Capacity in Medicinal Plants

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Several Korean medicinal plants were selected to evaluate for free radical scavenging capacities and antioxidant activities. They were extracted with dichloromethane, methanol and ethanol, respectively, and compared for the best antioxidant results. Bioflavonoids such as catechin, morin, naringenin, quercetin and rutin were included and used as standards in this study. A rapid evaluation for antioxidants using TLC screening and DPPH (1,1-diphenyl-2-picryl hydrazyl radical) staining methods, demonstrated each plant extract having respectable free radical scavenging capacity. Stained silica layer revealed a purple background with yellow spots at the location of drops which showed radical scavenger capacity. The intensity of the yellow color depend upon the amount and nature of radical scavenger present in the sample. The antioxidant potential was confirmed with DPPH spectrophotometric assay. In addition, each sample under assay condition showed a dose-dependent free radical scavenging effect, a significant inhibition of xanthine oxidase and lipid peroxidation. Among plant extracts, stem bark of *Morus alba* and leaf of *Saururus chinensis* showed strong ID50 values than other plant extracts. They also showed a protective effect on DNA damage caused by hydroxyl radicals generated from UV-induced photolysis of hydrogen peroxide.

Keywords: medicinal plants, free radical scavenging capacity, antioxidant