Antioxidant and heme oxygenase-1 (HO-1)-induced effects of selected Taiwanese plants

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Abstract

Recent studies have shown biological effects of heme oxygenase-1 (HO-1) induction and antioxidation in cardiovascular disorders. The ethanol extracts of leaves of 12 selected indigenous Taiwanese plants were investigated for their antioxidant activities, evaluated using assays of 1,1-diphenyl-2-picrylhydrazyl (DPPH), hydroxyl, and superoxide radicals scavenging and reducing power activities as well as the induction of heme oxygenase-1 (HO-1). Acer albopurpurascens, Cinnamomum kanehirai, Diospyros discolor, Excoecaria kawakamii, Koelreuteria henryi, and Syzygium formosanum showed better DPPH-scavenging activities than the other plants. IC(50) values ranged from 1.7 to 8.7 microg/mL. Excepting Millettia pulchra var. microphylla and Pittosporum moluccanum, the extracts displayed hydroxyl-scavenging activities (IC(50) of 0.16-0.67 microg/mL). A. albopurpurascens, D. discolor, K. henryi, and S. formosanum also showed good superoxide anion radical scavenging activities and IC(50) values ranged from 12.9 to 28.5 microg/mL. D. discolor, K. henryi, and S. formosanum showed potent reducing power and M. pulchra var. microphylla and S. formosanum exhibited potent HO-1 induced activity. These active plant extracts also contained abundant phenolic constituents. The present results provide candidates to isolate the active constituents and develop natural antioxidants.