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An Isocoumarin with Hepatoprotective Activity in Hep G2 and Primary Hepatocytes from *Agrimonia pilosa*

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In connection with our studies on the isolation of hepatoprotective constituents from natural products, we have recently reported hepatoprotective compounds including phenolic bakuchiol, diarylheptanoids, furocoumarins. In the course of continuing efforts, the aqueous extract of the roots of *Agrimonia pilosa* Ledeb. (Rosaceae) was found to exhibit promising hepatoprotective activity. *A. pilosa* is a perennial herb distributed throughout South Korea, and its roots have been used as the hemostatic, antimalarial, and antidiarrheic agent in oriental medicine. Chemical investigation of the aqueous extract of the roots of this plant, as guided by hepatoprotective activity in vitro, furnished two isocoumarins, agrimonolide (1) and agrimonolide 6-*O*- $\beta$ -D-glucopyranoside (3), and catechin (2). Compound 1 showed hepatoprotective effects on both tacrine-induced cytotoxicity in human liver-derived Hep G2 cells and *tert*-butyl hydroperoxide-induced cytotoxicity in rat primary hepatocytes with EC<sub>50</sub> values of  $66.2 \pm 2.8$  and  $22.9 \pm 2.6$   $\mu$ M, respectively.

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INHIBITORY ACTION OF PROCESSED HERBAL MEDICINES ON THE PRODUCTION OF ADVANCED GLYCATION ENDPRODUCTS(AGEs)

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Diabetic nephropathy is major chronic complication of diabetes mellitus. Advanced glycation endproducts(AGEs) are largely involved in the pathogenesis of diabetic nephropathy. The irreversibly formed AGEs do not return to normal even if hyperglycemia is corrected and continue to accumulate over the lifetime of protein. The AGEs inhibitor, aminoguanidine(AG), is the only protein glycation inhibitor currently under development, its safety however is desirable. To find possible AGEs inhibitor in herbal medicines, bovine serum albumin was added to a mixture of sugars and some of processed, unprocessed herbal medicines or AG. Cyperi rhizoma was processed in four different methods according to chinese pharmacopoeia and traditional literatures. In comparison to the negative control with no inhibitor and positive control with AG, alcoholic extracts of these processed cyperi rhizoma proved to have more potent inhibitory activities than that of unprocessed cyperi rhizoma. These results revealed that some processed herbal medicines have a more potent in vitro inhibitory action on AGEs formation than AG, suggesting the possible candidate for diabetic nephropathy from the processed herbal medicines.

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Tyrosinase Inhibiting and DPPH Radical Scavenging Activities of Rosmarinic Acid and Its Methyl ester from *Salvia miltiorrhiza*

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Rosmarinic acid (1) and methyl rosmarinic acid (2), isolated from the ethyl acetate soluble fraction of the methanolic extract of *Salvia miltiorrhiza* Bunge (Lamiaceae) were found to be the tyrosinase inhibitors and scavengers of 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical. Compounds 1 and 2 inhibited the oxidation of L-