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Structure-Activity Correlation of Flavonoids for Inhibition of Bovine Lens Aldose Reductase

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Since the mid-1970's, several papers on the inhibition of aldose reductase by flavonoid compounds have been published. These papers generally discussed the structure-activity relationship for the compounds with hydroxyl and/or methoxyl group(s) at limited position on the flavonoid nucleus. To clarify the structure-activity correlation of flavonoids for inhibition of aldose reductase, about fifty flavonoid compounds were screened. The presence of hydrophobic substituents on the A ring ane hydrophilic substituents on the B ring of the flavonoid skeleton was suggested to improve the potency of inhibitory activity. The activities of extracts of *Scutellaira baicalensis*, *Andrographis paniculata* and *Gutierrezia michrocephara* also described.

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A Novel Flavonol Glycoside in the Leaves of *Epimedium sempervirens*

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An unidentified peak of the 70% methanolic extract of *Epimedium sempervirens* NAKAI was investigated. By the use of medium-pressure liquid chromatography, a novel flavonol glycoside, sempervirenoside A was preparatively purified. The structure of sempervirenoside A, $C_{42}H_{52}O_{21}$, mp 149–150°C, $[\alpha]_D^{20}$ -99.6° (c=0.51, MeOH), was established to be 3-*O*-[3-*O*-acetyl-β-D-xylopyranosyl-(1→3)-4-*O*-acetyl-α-L-rhamnopyranosyl]-7-*O*-β-D-glucopyranosyl-3, 5, 7-trihydroxy-4′-methoxy-8-(3-methyl-2-butenyl) flavone by ultraviolet, fast atomic bombardment mass, and proton and carbon-13 nuclear magnetic resonance spectral studies.

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Coumaronochromones from the Stems of *Euchresta formosana*

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In continuation of our chemotaxonomic studies on the genus *Euchresta*, our attention was drawn to the chemical constituens of *E. formosana* (HAYATA) OHWI because the species has been hypothesized to evolve from proto-*Euchresta* by a different pathway from *E. japonica*. Our investigation of constituents of the stems resulted in the isolation of two novel coumaronochromones. By means of the sepctroscopic data, the structures of euchrenones B and C were characterized as 8,3′-di (γ,γ-dimethylallyl)-5,7,4′,5′-tetrahydroxycoumaronochromone and 6,8,3′-tri-(γ,γ-dimethylallyl)-5, 7, 4′,5′-tetrahydroxycoumaronochromone, respectively.