Anti-inflammatory Effect of Hederagenin Glycoside Isolated from *Lonicera japonica*

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*Lonicera japonica* Thunb. is a twining shrub that has been used as an antidote and to treat urinary disorders, fever and headache. It has been known as an anti-inflammatory agent in Korea from ancient times and is used widely for treating upper-respiratory tract infections, diabetes mellitus and rheumatoid arthritis. In the previous research, we isolated several flavonoid derivatives from the EtOAc soluble fraction. Among the flavonoid derivatives, ochnaflavone, a biflavone, exhibit strong inhibitory activity against group II PLA₂ enzyme purified from rat platelet (IC₅₀ = 3 μM). In the continuing investigations into anti-inflammatory agents based on this plant extract, we identified that the n-butanol soluble fraction showed anti-inflammatory activity against acute, granulomatous and chronic inflammation models in mice and rats. From the n-butanol soluble fraction, we isolated three new hederagenin glycosides and elucidated their structures as 3-O-α-L-arabinopyranosyl hederagenin 28-O-α-L-rhamnopyranosyl (1→2)-[β-D-xylpyranosyl(1→6)]-β-D-glucopyranosyl ester (roniceroside A), 3-O-α-L-rhamnopyranosyl (1→2)-α-L-arabinopyranosyl hederagenin 28-O-α-L-rhamnopyranosyl (1→2)-[β-D-xylpyranosyl(1→6)]-β-D-glucopyranosyl ester (roniceroside B) and 3-O-β-D-glucopyranosyl hederagenin 28-O-α-L-rhamnopyranosyl (1→2)-[β-D-xylpyranosyl (1→6)]-β-D-glucopyranosyl ester (roniceroside C). Ronicerosides A and C showed anti-inflammatory activities against croton-oil and arachidonic acid induced mouse ear edema models at the dose of 100 mg/kg. Furthermore, roniceroside A, a major component of the n-butanol fraction, reduced adjuvant-induced arthritis in rats at the dose of 100 mg/kg/day.
References


