

## 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 PLA<sub>2</sub> enzyme purified from rat platelet (IC<sub>50</sub> = 3μM). 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, granulomatic 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-xylopyranosyl(1→6)]-β-D-glucopyranosyl ester (loniceroid A), 3-O-α-L-rhamnopyranosyl (1→2)-α-L-arabinopyranosyl hederagenin 28-O-α-L-rhamnopyranosyl (1→2)-[β-D-xylopyranosyl(1→6)]-β-D-glucopyranosyl ester (loniceroid B) and 3-O-β-D-glucopyranosyl hederagenin 28-O-α-L-rhamnopyranosyl (1→2)-[β-D-xylopyranosyl (1→6)]-β-D-glucopyranosyl ester (loniceroid C). Loniceroids 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, loniceroid A, a major component of the n-butanol fraction, reduced adjuvant-induced arthritis in rats at the dose of 100mg/kg/day.

## References

1. Son, K. H., Park, J. O., Chung, K. C., Chang, H. W., Kim, H. P., Kim, J. S. and Kang, S. S., Flavonoids from the aerial parts of *Lonicera japonica*, *Arch. Pharm. Res.*, 15, 365-370 (1992).
2. Lee, S. J., Son, K. H., Chang, H. W., Kang, S. S. and Kim, H. P., Antiinflammatory activity of *Lonicera japonica*, *Phytotherapy Res.*, 12, 445-447 (1998).
3. Lee, S. J., Shin, E. J., Son, K. H., Chang, H. W., Kang, S. S. and Kim, H. P., Anti-inflammatory activity of the major constituents of *Lonicera japonica*, *Arch. Pharm. Res.*, 18, 133-135 (1995).
4. Son, K. H., Jung, K. Y., Chang, H. W., Kim, H. P. and Kang, S. S., Triterpenoid saponins from the aerial parts of *Lonicera japonica*, *Phytochemistry*, 35, 1005-1008 (1994).