

Anti-rheumatoidal Arthritis Effect of Sulfuretin Isolated from *Rhus verniciflua*

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Abstract

The heartwood of *Rhus verniciflua* has been known to be effective for lingering intoxication and *diabetes mellitus* and rheumatoidal arthritis in traditional folk medicine in Korea. We have previously reported that antimutagenic effect of flavonoids derived from the heartwood extract of *R. verniciflua*, and sulfuretin was the active component. Recently, we have demonstrated that sulfuretin could be an anti-inflammatory principle of the *R. verniciflua* heartwood partially dependent on cyclooxygenase-inhibitory activity. The present study was undertaken to demonstrate the anti-rheumatoidal arthritis effect of the *R. verniciflua* heartwood extract, its EtOAc fraction and the main flavonoids, sulfuretin and fustin. All the test samples showed variably significant inhibitory effects on hind paw edema induced by Freund's complete adjuvant reagent (FCA reagent). Sulfuretin treatment with 10 mg/kg (i.p.) for seven days showed the inhibitory effect of $54.2 \pm 3.0\%$. Similar trends in RA- and CRP tests, vascular permeability test and trypsin inhibitor test were also found. In addition, no dead mouse was found even when the dose was increased up to 5,000 mg/kg (i.p.). Treatment with 250-1,500 mg/kg on normal rats did not show any marked toxicological significances in the tests of body weight gain, wet weight of organs and hepatic functions. These results suggested that the heartwood of *R. verniciflua* could be an adequate crude drug for *rheumatoidal arthritis* with an active component of sulfuretin. The toxicological safety of the heartwood of *R. verniciflua* is contrasted to known severe allergenic action of the stem bark or its exudate.