SUPPLEMENTARY MATERIAL

A new glycosidic antioxidant from *Ranunculus muricatus* L. (Ranunculaceae) exhibited lipoxygenase and xanthine oxidase inhibition properties

Naila Raziqa, Muhammad Saeedb, Muhammad Shaiq Alic, Salman Zafarid, Muhammad Shahida and Mehreen Lateefe

aDepartment of Pharmacy, Sarhad University of Science and Information Technology, Peshawar, Pakistan
bDepartment of Pharmacy, University of Peshawar, Peshawar, Pakistan
H.E.J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan
dInstitute of Chemical Sciences, University of Peshawar, Peshawar, Pakistan
ePharmaceutical Research Center, Pakistan Council of Scientific and Industrial Research Complex, Karachi, Pakistan

Abstract

Phytochemical investigation of *Ranunculus muricatus* L. (Ranunculaceae) led to the isolation of a new metabolite named as ranuncoside from the ethyl acetate fraction of the plant. Structure of the novel compound was elucidated through detailed spectroscopic analyses, using UV, IR, 1H-, 13C-NMR, and 2D-NMR in combination with EIMS and HR EI-MS techniques. The compound was evaluated for antioxidant activity using the 1,1-diphenyl-2-picryl-hydrazyl (DPPH) free radical scavenging assay. Its inhibitory potential was tested against lipoxygenase and xanthine oxidase enzymes. Ranuncoside potently scavenged the DPPH free radicals (IC50 = 56.7 ± 0.43 μM) and strongly inhibited the activities of lipoxygenase (IC50 = 63.9 ± 0.17 μM) and xanthine oxidase (IC50 = 43.3 ± 0.22 μM).

Keywords

*Ranunculus muricatus*; ranuncoside; free radicals inhibition; anti-inflammatory; enzyme inhibition.
Table S1: $^1$H and $^{13}$C NMR data of ranuncoside

| No. | Hydrogens | Carbons |
|-----|-----------|---------|
| 1   | -         | 202.0   |
| 2   | 5.88,s    | 126.2   |
| 3   | -         | 165.7   |
| 4   | 2.68, d, ($J = 9.5$ Hz) | 56.8 |
| 5   | -         | 37.2    |
| 6   | 2.04, d ($J = 16.5$ Hz); 2.47, d($J = 16.5$ Hz) | 48.4 |
| 7   | 5.75, dd ($J = 15.0, 9.0$ Hz) | 131.2 |
| 8   | 5.57, dd ($J = 15.5, 7.5$ Hz) | 137.0 |
| 9   | 4.48, m   | 75.0    |
| 10  | 1.27, d ($J = 6.5$ Hz) | 22.2 |
| 11  | 1.97, s   | 23.9    |
| 12  | 1.02, s   | 28.0    |
| 13  | 0.98, s;  | 27.4    |
| 1'  | 4.27, d ($J = 8.0$ Hz) | 101.2 |
| 2'  | 3.18, m   | 74.9    |
| 3'  | 3.23, m   | 71.7    |
| 4'  | 3.13, m   | 78.2    |
| 5'  | 3.64, m   | 74.7    |
| 6'  | 3.51, dd ($J = 11.0, 6.0$ Hz); 3.58, t($J = 5.0$ Hz) | 64.4 |
**Figure S1:** COSY correlations in ranuncoside.

**Figure S2:** HMBC correlations in ranuncoside.
