

CONSTITUENTS OF *Apocynum venetum*

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The perennial herbaceous plant *Apocynum venetum* L. (*A. scabrum*) (Apocynaceae) is broadly distributed in Central Asia, Iran, and China [1].

Flowers of *A. venetum* have long been used in folk and modern Chinese medicine as a medicinal tea. The plant extract increases blood pressure and exhibits hepatoprotective, hypolipidemic, hepatotropic, anti-oxidant, and antiviral properties [2].

We investigated flowers of *A. venetum* collected in Xinjiang Autonomous Region of the PRC. Ground air-dried raw material (5 kg) was extracted exhaustively with EtOH (70%) at room temperature. The solvent was vacuum distilled. The dry solid was worked up successively with petroleum ether (6 × 0.5 L), CHCl₃ (6 × 0.5 L), EtOAc (10 × 0.5 L), and *n*-BuOH (10 × 0.5 L).

The EtOAc extract (20 g) was chromatographed over a column (2.6 × 150 cm) of silica gel (550 g) with elution by CHCl₃:MeOH (97:3, 95:5, 90:10, 85:15). Seven compounds, **1-7**, were isolated.

A comparison of spectral data (UV, IR, PMR, ¹³C NMR) with the literature and direct comparison with authentic samples identified the isolated compounds as β -sitosterol (**1**) [3], salicylic acid (**2**), *p*-hydroxybenzoic acid (**3**), methyl-3,4-dihydroxybenzoate (**4**), β -sitosterol β -D-glucopyranoside (**5**), kaempferol (**6**), and quercetin (**7**).

Salicylic acid (2), C₇H₆O₃ [4], white crystals, mp 159.5°C (EtOAc).

IR spectrum (KBr, ν , cm⁻¹): 3229, 2926, 2855, 1660, 1612, 1484, 1443, 1325, 1226, 1209, 1154, 750, 696.

UV, PMR, and ¹³C NMR spectral data agreed with those for salicylic acid [4].

***p*-Hydroxybenzoic acid (3)**, C₇H₆O₃ [4], white powder, mp 159.5°C (EtOAc).

Methyl-3,4-dihydroxybenzoate (4), C₈H₈O₄. PMR spectrum (600 MHz, DMSO-d₆, δ , ppm, J/Hz, 0 = HMDS): 3.77 (3H, s, OCH₃-8), 6.84 (1H, d, J = 7.8, H-5), 7.44 (2H, dd, J = 1.2, 7.2, H-6), 7.44 (1H, d, J = 1.2, H-2), 9.84 (s, OH), 12.49 (s, OH).

¹³C NMR spectrum (150 MHz, DMSO-d₆, δ , ppm): 121.58 (C-1), 115.00 (C-2), 147.20 (C-3), 151.08 (C-4), 112.69 (C-5), 123.45 (C-6), 167.20 (C-7), 55.95 (C-8).

β -Sitosterol β -D-glucopyranoside (5), C₃₅H₆₀O₆, mp 275–277°C. PMR and ¹³C NMR spectral data of **5** agreed completely with those published [5].

Kaempferol (6), C₁₅H₁₀O₆ [6], yellow crystals, mp 276–277°C (EtOAc).

PMR and ¹³C NMR spectral data agreed with those published [6].

Quercetin (7), C₁₅H₁₀O₇ [7], mp 305–307°C (EtOAc).

Spectral data agreed with those published [7].

The listed compounds were isolated for the first time from *A. venetum*.

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