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CHEMICAL CONSTITUENTS FROM THE ROOTS OF *Actinidia chinensis*

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Actinidia chinensis Planch is a kind of *Actinidia* plant distributed only in China. Its root is used in Chinese folk medicine for the treatment of hepatitis and cancer [1]. The roots of *A. chinensis* were collected in June 2006 in Jiangxi Province, China. A voucher specimen (Ac 200605) has been deposited in the Herbarium of Tongji Medical College of Huazhong University of Science and Technology, Wuhan, China.

Phytochemical reports on the roots of *A. chinensis* have revealed the occurrence of 21 phenolic compounds and 7 other compounds [2–5]. Our chemical investigation of the roots of *A. chinensis* led to the isolation of 8 phenolic compounds **1–8**, together with 6 other constituents **9–14**. These compounds were isolated from the roots of *A. chinensis* for the first time, except compounds **1**, **2**, and **13**. Five phenolic compounds (**3–5**, **7** and **8**) and compounds **10**, **11** were obtained from the family Actinidiaceae for the first time.

Crushed roots of *A. chinensis* (16 kg) were extracted with 70% ethanol. The extracts were evaporated under vacuum to afford a gummy residue, which was partitioned in H_2O and extracted with $CHCl_3$, EtOAc, and *n*-BuOH successively. Compound **13** was obtained from the $CHCl_3$ fraction, and compounds **1** and **2** from the EtOAc fraction. Other compounds were all isolated from the *n*-BuOH fraction. These isolated compounds were identified by comparison of their physical and spectroscopic data (MS, ^1H and ^{13}C NMR) with those reported in the literature, or the behaviors on TLC compared with authentic samples.

(+)-Catechin (1) 12 mg; colorless needles; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [6].

(–)-*epi*-Catechin (2) 4.5 mg; colorless needles; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [7].

Tachioside (methoxyhydroquinone-3-*O*-β-D-glucopyranoside) (3) 13 mg; white powder; EI-MS *m/z*: 302 $[M]^+$; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [8].

Isotachioside (methoxyhydroquinone-1-*O*-β-D-glucopyranoside) (4) 24 mg; white powder; EI-MS *m/z*: 302 $[M]^+$; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [8].

5-Hydroxy-6-methoxy-7-*O*-β-D-glucosyl coumarin (5) 12.5 mg; white powder; mp 135–137°C; EI-MS *m/z*: 370 $[M]^+$, 208 $[M - Glc]^+$; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [9].

Fraxin (6) 8.5 mg; white powder; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [10].

Vanillic acid (7) 21 mg; white needles; mp 211–212°C; the data of ^1H and ^{13}C NMR spectra were identical to those reported in the literature [11].

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1-*O*-(β-D-Glucosyl)-2-[2-methoxy-4-(ω-hydroxypropyl)-phenoxy]-propan-3-ol (8) 24 mg; white powder; EI-MS *m/z*: 418 $[M]^+$; ^{1}H NMR (400 MHz, DMSO-d_6, δ, ppm, J/Hz): 6.97 (1H, dd, J = 8.4, 2.1, H-5′), 6.79 (1H, d, J = 2.1, H-3′), 6.67 (1H, d, J = 8.4, H-6′), 4.55 (1H, m, H-2), 4.20 (1H, d, J = 7.6, H-1″), 3.57 (2H, br.t, J = 6.2, H-9′), 3.2–4.0 (6H, m, H-2″~H-6″), 3.39 (2H, m, H-1), 2.94 (2H, m, H-3), 2.51 (2H, t, J = 7.6, H-7′), 1.69 (2H, m, H-8′); ^{13}C NMR (100 MHz, DMSO-d_6, δ, ppm): 149.6 (C-2′), 145.0 (C-1′), 135.5 (C-4′), 120.0 (C-5′), 116.1 (C-3′), 112.7 (C-6′), 103.3(C-1″), 78.8 (C-2), 76.8 (C-5″), 76.3 (C-3″), 73.3 (C-2″), 70.0 (C-4″), 67.8 (C-1), 63.0 (C-3), 60.9 (C-6″), 60.0 (OMe), 55.5 (C-9′), 34.3 (C-7′), 31.2 (C-8′). The data of ^{1}H NMR spectra were identical to those in the literature [12], while the data of ^{13}C NMR spectra were obtained for the first time.

***n*-Butyl-β-D-fructopyranoside (9)** 50 mg; white needles; mp 150–152°C; the data of ^{1}H and ^{13}C NMR spectra were identical to those reported in the literature [13].

Compounds **10–14** were identified as uracil, adenine, myo-inositol, β-sitosterol, and β-daucosterol, respectively, by comparison of their behaviors on TLC with authentic samples.

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