Supporting Information to:

*In Vitro* Neuroprotective Activities of Phenylethanoid Glycosides from *Callicarpa dichotoma*

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Experimental Procedures

**GC method for the separation of the D and L forms of the sugars**

The gas chromatographic (GC) analytical method used to determine the D or L form of glucose and rhamnose is as follows.

The isolated compounds (1 mg each) were dissolved in 0.25 mL of 1 N HCl and then heated in a water bath at 80 °C for 4 h. After cooling, the solution was evaporated under a stream of N₂. The residue was dissolved in 500 μL of a mixture of 1-(trimethyl silyl)imidazole and pyridine (0.1 mL), and the solution was stirred at 60 °C for 10 min. After drying, the residue was separated by water and CH₂Cl₂ (1 mL, 1:1). The CH₂Cl₂ layer was analyzed by GC performed using a Hewlett Packard 5890 Series II gas chromatograph equipped with flame ionization detector and an Alltech 1-Chirasil-Val column (0.32 mm × 25 m; temperature for injector and detector, 200 °C; temperature gradient system for the oven; starting at 100 °C for 1 min and increasing to 180 °C at a rate of 5 °C/min). Peaks of D-glucose and L-rhamnose in the hydrolysate of the compounds were detected at 14.62 min and 12.88 min, respectively. Retention times for authentic samples were 14.64 min (D-glucose) and 14.76 min (L-glucose), 12.77 (D-rhamnose) and 12.86 min (L-rhamnose), respectively. Co-injection of each hydrolysate with standard D-glucose and L-rhamnose gave single peaks.

The analytical method used to determine the absolute configuration of apiose in 1 is as follows. A solution of 1 (7 mg) in 2 mL of 9% HCl-MeOH was refluxed in a water bath at 100 °C for 3 h. After cooling, the reaction mixtures were neutralized with Ag₂CO₃ powder and then filtered to
remove the inorganic materials. The product (4.5 mg), obtained by evaporation of the solvent from the filtrate under reduced pressure, was subjected to silica gel column chromatography (3 g, CHCl₃-MeOH-H₂O, 6:4:1) to yield D-apiose (1.1 mg); [α]D: +8.3° (c 0.05, H₂O, 20 °C).

**Physicochemical data of Z-tubuloside E**

**Z-Tubuloside E (10):** amorphous powder; [α]D¹⁸: −68.4° (c 1.0 in MeOH); FAB-MS: m/z = 651 [M + H]+; IR: ν max = 3400 (OH), 1713 (CO), 1602, 1517 cm⁻¹ (arom. C=C); ¹H-NMR (300 MHz, CD₃OD): δ = 7.75 (2H, d, J = 8.7 Hz, H-3′,5′), 6.97 (1H, d, J = 12.8 Hz, H-β′), 6.77 (2H, d, J = 8.7 Hz, H-2′,6′), 6.68 (1H, d, J = 8.0 Hz, H-5), 6.65 (1H, d, J = 2.0 Hz, H-2), 6.53 (1H, dd, J = 8.0, 2.0 Hz, H-6), 5.80 (1H, d, J = 12.8 Hz, H-α′), 5.01 (1H, t, J = 9.2 Hz, H-4′′), 4.87 (1H, m, H-2′′), 4.81 (1H, d, J = 1.3 Hz, H-1′′), 4.52 (1H, d, J = 8.0 Hz, H-1′′), 4.08 (1H, m, H-αa), 3.97 (1H, t, J = 9.2 Hz, H-3′′), 3.64 (2H, m, H-6′′b, 2′′), 3.58 (1H, m, H-5′′), 3.56 (2H, m, H-αb, 6′′a), 3.54 (1H, m, H-3′′), 3.53(1H, m, H-5′′′), 2.69 (2H, t, J = 7.1 Hz, H-β), 2.00 (3H, s, OAc), 1.15 (3H, d, J = 6.2 Hz, CH₃ of rhamnose); ¹³C NMR (100 MHz, CD₃OD): δ = 172.3 (C=O, OAc), 167.4 (C=O, Caf.) 161.2 (C-4′), 148.3 (C-β′), 146.9 (C-3), 145.4 (C-4), 135.2 (C-2′,6′), 132.6 (C-1), 128.3 (C-1′), 122.1 (C-6), 117.9 (C-2) 116.6 (C-3′, 5′), 116.5 (C-5), 115.4 (C-α′), 104.3 (C-1′′′), 102.5 (C-1′′), 81.6 (C-3′′), 76.9 (C-5′′), 75.8 (C-2′′), 74.5 (C-4′′′), 73.4 (C-2′′′), 72.7 (C-α), 72.6 (C-3′′′), 71.5 (C-4′′′), 71.4 (C-5′′′), 63.0 (C-6′′), 37.1 (C-β), 21.7 (CH₃, OAc), 19.0 (C-6′′′).