Supporting Information

Imperialine and Verticinone from Bulbs of *Fritillaria wabuensis* inhibit pro-inflammatory mediators in LPS-stimulated RAW 264.7 macrophages

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MS data of compounds 1 and 2

**Compound 1**, ESI-MS (m/z): 430.5 [M + H]⁺, ¹H-NMR (400 MHz, CDCl₃), δ: 0.73 (3H, s, H-19), 1.04 (3H, s, H-21), 1.06 (3H, d, J = 7.0 Hz, H-27), 3.57 (1H, m, H-3). ¹³C-NMR (100 MHz, CDCl₃), δ: 37.4 (C-1), 30.5 (C-2), 70.9 (C-3), 30.3 (C-4), 56.4 (C-5), 210.8 (C-6), 46.9 (C-7), 40.2 (C-8), 56.6 (C-9), 38.2 (C-10), 29.9 (C-11), 39.1 (C-12), 34.2 (C-13), 42.0 (C-14), 26.8 (C-15), 18.7 (C-16), 46.5 (C-17), 59.8 (C-18), 12.6 (C-19), 72.0 (C-20), 22.3 (C-21), 63.4 (C-22), 19.6 (C-23), 29.5 (C-24), 27.7 (C-25), 61.3 (C-26), 17.2 (C-27).

**Compound 2**, ESI-MS (m/z): 430.7 [M + H]⁺, ¹H-NMR (400 MHz, CDCl₃), δ: 0.75 (3H, s, H-19), 1.00 (3H, s, H-21), 1.06 (3H, d, J = 7.0 Hz, H-27), 3.57 (1H, m, H-3). ¹³C-NMR (100 MHz, CDCl₃), δ: 36.9 (C-1), 30.4 (C-2), 70.9 (C-3), 30.0 (C-4), 56.4 (C-5), 211.0 (C-6), 45.9 (C-7), 41.9 (C-8), 56.6 (C-9), 38.2 (C-10), 29.3 (C-11), 40.8 (C-12), 39.2 (C-13), 43.9 (C-14), 24.5 (C-15), 20.5 (C-16), 40.8 (C-17), 61.7 (C-18), 12.7 (C-19), 70.9 (C-20), 20.2 (C-21), 70.2 (C-22), 18.9 (C-23), 29.0 (C-24), 27.5 (C-25), 62.2 (C-26), 17.2 (C-27).

Toxicity assay

The toxicity profile of the two compounds has been strengthened by testing the compounds against normal a liver cell line (LO2) and a liver cancer cell line (HepG2). Briefly, LO2 or HepG2 cells were plated at a density of 4 × 10⁴ per well in a 96-well plate containing RPMI 1640 supplemented with 10% FCS, after 24 h incubation, the cells were pretreated with several concentrations (0, 100, 200, 400 and 600 μM) of imperialine or verticinone for 24 h or 48 h. Berberine (HPLC > 98.0%) with a final concentration of 10 μM was used as a positive control. To each group, at least 3 parallel wells were assigned. After treatment, 10 μL MTT (3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide) solution (final concentration is 5 mg/mL) was added, and the cells were incubated for another 4 h at 37°C. After removing the supernatant, 150 μL of DMSO were added to the cells to
dissolve the formazan. The absorbance of each group was measured by using a microplate reader at a wavelength of 570 nm. The optical density of the formazan formed in the control (untreated) cells was considered as 100% viability. The MTT results are shown in Figs. S10 and S11.

Fig. S1

![Image](https://example.com/image1)

![Image](https://example.com/image2)

**Fig S1** Fresh plants of *Fritillaria unibracteata* Hsiao et K.C.Hsia var. *wabuensis* (S.Y.Tang et S.C. Yue), Z.D.Liu, S. Wang et S. C. Chen.

Fig. S2

![Image](https://example.com/image3)

![Image](https://example.com/image4)

**Fig S2** Bulbs of *F. unibracteata*. 
Fig S3 HPLC-ELSD analysis of extract of bulbs of *F. unibracteata*.

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**Fig. S4**

A, HPLC-ELSD graph of compound 1
**Fig. S4** Compound 1 and standard compound of imperialine had the same retention time in HPLC-ELSD graphs.

**Fig. S5**

A, HPLC-ELSD graph of compound 2
Fig. S5 Compound 2 and standard compound of verticinone had the same retention time in HPLC-ELSD graphs.
Fig. S6 $^1$H-NMR (400 MHz, CDCl$_3$) graph of compound 1.
Fig. S7 $^{13}$C-NMR (100 MHz, CDCl$_3$) graph of compound 1.
Fig. S8. $^1$H-NMR (400 MHz, CDCl$_3$) graph of compound 2.
Fig. S9 $^{13}$C-NMR (100 MHz, CDCl$_3$) graph of compound 2.
**Fig. S10** The viability effects of verticinone and imperialine on LO2 cells. LO2 cells were treated with compounds verticinone or imperialine at various concentrations (0–600 μM) and control (DMSO) for 24 h or 48 h. MTT solution was added, and the percentage of viable cells was quantitated at 570 nm. The data represent mean ± SD values of 3 experiments. *P < 0.05 compared with control group; **p < 0.01 compared with control group. Tukey’s test, (ANOVA).
**Fig. S11** The viability effects of verticinone and imperialine on HepG2 cells. HepG2 cells were treated with compounds verticinone or imperialine at various concentrations (0–600 μM) and control (DMSO) for 24 h or 48 h. MTT solution was added, and the percentage of viable cells was quantitated at 570 nm. The data represent mean ± SD values of 3 experiments. *P < 0.05 compared with control group; **p < 0.01 compared with control group. Tukey’s test, (ANOVA).