SUPPLEMENTARY METHODS

1. Analytical Instrumentation.

NMR spectra were recorded on a Bruker Avance III 400 spectrometer at 400 MHz for ^{1}H NMR and 100 MHz for ^{13}C NMR using residual $CHCl_3$ as an internal reference. Low-resolution MS was recorded on a ThermoScientific LXQ mass spectrometer.

2. Extraction and Isolation.

Dried and powdered aerial parts (1004.3 g) of aeroponically grown[1] *Physalis acutifolia* (family: Solanaceae) was extracted with CH_3OH (4.6 L × 2) for 2 h at room temperature in an ultrasonic bath. Evaporation of CH_3OH under reduced pressure yielded the crude extract (122.36 g) which was subjected to solvent-solvent partitioning with hexanes (500 mL) and 80% aqueous CH_3OH (4:1, v/v) (500 mL). The 80% aqueous CH_3OH layer was diluted with H_2O to make it to 50% aqueous CH_3OH, which was then extracted with $CHCl_3$ (500 mL × 2). The $CHCl_3$ layer was evaporated to yield the $CHCl_3$ fraction (4.1 g) which was found to contain physalins. This fraction was subjected to chromatography over HP-20SS resin (500 g) and successively eluted with CH_2Cl_2/hexanes (4:1, 700 mL), CH_2Cl_2/acetone (4:1, 600 mL), CH_2Cl_2/acetone (2:3, 600 mL), and CH_3OH (600 mL) to yield seven fractions [A (134 mg), B (139 mg), C (751 mg), D (699 mg), E (343 mg), F (547 mg), and G (1452 mg)] combined based on their TLC profiles. Fraction C was separated by silica gel chromatography (60 g) and elution with mixtures of hexane/EtOAc (6:1, 4:1, and 2:1, each 400 mL) to provide ten combined fractions, C1–C10 of which C7 was found to contain physalins. Further fractionation of C7 (428 mg) by silica gel (40 g) column chromatography and elution with CH_2Cl_2/EtOAc (10:1, 700 mL) afforded a white amorphous solid (331 mg) which was identified as physalin F by comparison of its ^{1}H NMR, ^{13}C NMR and MS data with those reported.[2,3]

References

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