SUPPLEMENTARY MATERIAL

Cytotoxic activities of flavonoids from a Traditional Mongolian medicinal herb Clematis aethusifolia Turcz.

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Abstract: In the course of our search for anti-tumor constituents from the traditional Mongolian medicinal herb Clematis aethusifolia Turcz., 11 flavonoids were isolated for the first time from the dried aerial parts of the plant by flash C18 column chromatography, Sephadex LH-20, and reversed-phase preparative HPLC. The planar structures of these flavonoids were established based on 1D and 2D NMR and high-resolution mass spectrometry. Compounds 1, 2, 4, and 5 showed moderate cytotoxicity against a panel of five human solid tumor cell lines, including A-375, a human melanoma cell line; SK-OV-3, a human ovarian cancer cell line; A549, a human lung cancer cell line; HCT-15, a human colorectal adenocarcinoma cell line; and SH-SY5Y, a human neuroblastoma cell line (with IC_{50} values of 20-70 μM). The obtained cytotoxic apigenin and its derivatives may be useful as standard compounds for the quality control of the crude drug and its preparations.

Keywords: Clematis aethusifolia; chemical constituents; cytotoxicity; flavonoids; traditional Mongolian medicine
Table S1. Cytotoxicity of flavonoids from Clematis aethusifolia against five human tumor cell lines

| Compound | A375  | SK-OV-3 | A549  | HCT-15 | SH-SY5Y |
|----------|-------|---------|-------|--------|---------|
| 1        | 57.4  | 100.0   | 100.0 | >200.0 | 20.0    |
| 2        | >200.0| >200.0  | >200.0| 200.0  | 46.9    |
| 3        | >200.0| >200.0  | >200.0| >200.0 | 100.0   |
| 4        | 100.0 | 28.5    | 40.7  | 100    | >200.0  |
| 5        | >200.0| 70.2    | >200.0| >200.0 | 200.0   |
| 6        | >200.0| >200.0  | >200.0| >200.0 | >200.0  |
| 7        | 100.0 | >200.0  | >200.0| >200.0 | >200.0  |
| 8        | >200.0| >200.0  | >200.0| >200.0 | >200.0  |
| 9        | >200.0| >200.0  | >200.0| >200.0 | >200.0  |
| 10       | >200.0| >200.0  | >200.0| >200.0 | 100.0   |
| 11       | >200.0| >200.0  | >200.0| >200.0 | >200.0  |
| Paclitaxel| 4.21  | 4.68    | 4.89  | 827.51 | 26.39   |

a Data expressed in IC$_{50}$ values (compound 1-11: μM, Paclitaxel: nM). A-375, human melanoma cell line; SK-OV-3, human ovarian cancer cell line; A549, human lung cancer cell line; HCT-15, human colorectal adenocarcinoma cell line; SH-SY5Y, human neuroblastoma cell line.

**Experimental**

**General Experimental Procedures**

1D and 2D NMR spectra were recorded on a Bruker AVANCE III 600 MHz and Bruker AV 500MHz instruments (Billerica, MA, USA). Chemical shifts were reported with reference to the respective residual solvent or deuterated solvent peaks ($\delta_H$ 2.5 and $\delta_C$ 39.5 for DMSO-$d_6$; $\delta_H$ 3.3 and $\delta_C$ 49.0 for CD$_3$OD). High-resolution mass spectrometry (HRMS) data were obtained on a Thermo Fisher Scientific Q-Exactive...
high-resolution mass instrument with a heated electrospray ionization source, a Quadropole-Orbitrap mass analyzer, and an X-caliber data processing system. Pre-HPLC was performed on a Shimadzu LC-20AT series with RID-10A detector (Kyoto, Japan), and a Shim pack PRC-ODS column (250 × 20 mm i.d., 15 μm, 80 Å).

**Plant Materials**

*Clematis aethusifolia* was collected in Zhenglan Banner of the Inner Mongolian autonomous region in August 2014, and the original plant was identified by Prof. Baoquan Bao. The voucher specimen (No. 20140817) was stored in the College of Pharmacy, Inner Mongolia Medical University, Hohhot, China.

**Cell lines**

The human melanoma cell line A-375, human ovarian cancer cell line SK-OV-3, human lung cancer cell line A549, and human colorectal adenocarcinoma cell line HCT-15 were obtained from Shanghai Chinese Academy of Sciences (Shanghai, China). The human neuroblastoma cell line SH-SY5Y was purchased from Beijing Chinese Academy of Medical Sciences (Beijing, China). All the cells were maintained in suitable medium supplemented with 10% fetal bovine serum (DMEM for A-375, McCOY’s 5A for SK-OV-3, F12K for A549, RPMI-1640 for HCT-15 and SH-SY5Y) and incubated at 37°C with 5% CO₂.

**Extraction and Isolation**

Dried and powdered aerial parts of *C. aethusifolia* (4.10 kg) were extracted with 95% ethanol 3 times. The extract was concentrated by reducing the pressure and then dried by vacuum, then suspended in water and partitioned with EtOAc and *n*-BuOH in turn. The EtOAc fraction (23.25 g) was subjected to reversed-phase C₁₈ flash column chromatography with a stepped gradient solvent system of 30 %, 50 %, 80 %, and 95 % MeOH in water to yield 4 fractions. The 80 % MeOH/H₂O fraction (1.68 g) was applied to a reversed-phase preparative HPLC C₁₈ and eluted with 80 % MeOH/H₂O, and compounds 1, 2, 3, and 5 (1: 4.31 mg, 2: 33.4 mg, 3: 13.99 mg, 5: 31.80 mg) were obtained. Next, the BuOH fraction (23.05 g) was subjected to reversed-phase C₁₈ flash column chromatography with a stepped gradient solvent system of 10-100 % MeOH in water to collect 10 fractions. The 30 % MeOH/H₂O fraction (1.45 g) was applied to Sephadex LH-20 column chromatography (solvent: 40 % MeOH/H₂O) for purification.
and then pre-HPLC C\textsubscript{18} elution with 40 % MeOH/H\textsubscript{2}O to give compounds 6, 7, and 10 (6: 1.0 mg, 7: 2.5 mg, 10: 0.6 mg). The 40 % MeOH/H\textsubscript{2}O fraction (0.99 g) was applied for Sephadex LH-20 column chromatography (solvent: 50 %MeOH/H\textsubscript{2}O) for purification, and then use pre-HPLC C\textsubscript{18} elution with 55 % MeOH/H\textsubscript{2}O to give compounds 4, 8, 9, and 11 (4: 1.3 mg, 8: 10.3 mg, 9: 1.6 mg, 11: 5.2 mg).

**Compound 1**

Yellow amorphous powder. The $^1$H-NMR spectrum (CD\textsubscript{3}OD, 600 MHz): $\delta$ 7.83 (2H, d, J=8.4 Hz, H-2′, 6′), 6.92 (2H, d, J=8.4 Hz, H-3′, 5′), 6.58 (1H, s, H-3), 6.44 (1H, d, J=1.8 Hz, H-8), 6.20 (1H, d, J=1.8 Hz, H-6). The $^{13}$C-NMR spectrum (CD\textsubscript{3}OD, 150 MHz): $\delta$ 166.0 (C-2), 105.3 (C-3), 183.9 (C-4), 159.4 (C-5), 100.1 (C-6), 166.3 (C-7), 95.0 (C-8), 162.8 (C-9), 103.9 (C-10), 123.3 (C-1′), 129.5 (C-2′, 6′), 117.0 (C-3′, C-5′), 163.2 (C-4′).

**Compound 2**

Yellow amorphous powder. HRMS (m/z): 431.09866 [M-H]$^-$ (cal.431.09837, $\Delta$+0.6727ppm) established the molecular formula as C\textsubscript{21}H\textsubscript{20}O\textsubscript{11}. The $^1$H-NMR spectrum (DMSO-d\textsubscript{6}, 600 MHz): $\delta$ 7.97 (1H, d, J=8.4 Hz, H-2′, 6′), 6.95(1H, d, J=8.4 Hz, H-3′, 5′), 6.89 (1H, s, H-3), 6.84 (1H, d, J=1.8 Hz, H-8), 6.46 (1H, d, J=1.8 Hz, H-6), 5.09 (1H, d, J=7.2 Hz, Glc-H-1″), 3.73 (1H, d, J=10.8 Hz, Glc-H-6″a), 3.50 (1H, dd, J=10.6, 5.4 Hz, Glc-H-6″b), 3.47 (1H, t, J=9.0 Hz, Glc-H-5″), 3.33 (1H, t, J=9.0 Hz, Glc-H-3″), 3.29 (1H, t, J=9.0 Hz, Glc-H-2″), 3.21 (1H, t, J=9.0 Hz, Glc-H-4″). The $^{13}$C-NMR spectrum (DMSO-d\textsubscript{6}, 150 MHz): $\delta$ 164.4 (C-2), 103.2(C-3), 182.2 (C-4), 161.3 (C-5), 99.6 (C-6), 163.1 (C-7), 95.0(C-8), 157.1 (C-9), 105.5 (C-10), 121.2 (C-1′), 128.8 (C-2′, 6′), 116.2 (C-3′, 5′), 161.5 (C-4′), 100.0 (Glc-C-1″), 73.2 (Glc-C-2″), 76.6 (Glc-C-3″), 69.7 (Glc-C-4″), 77.3 (Glc-C-5″), 60.7 (Glc-C-6″).

**Compound 3**

Yellow amorphous powder. HRMS (m/z): 473.10967 [M-H]$^-$ (cal. 473.10894, $\Delta$+1.543ppm), and 431.09899 [M-C\textsubscript{2}H\textsubscript{3}O]$^-$ (Cal. 431.09837, $\Delta$+1.438ppm) established the molecular formula as C\textsubscript{23}H\textsubscript{22}O\textsubscript{11}. The $^1$H-NMR spectrum (DMSO-d\textsubscript{6}, 600 MHz): $\delta$ 7.96 (2H, d, J=8.4 Hz, H-2′, 6′), 6.96(2H, d, J=8.4 Hz, H-3′, 5′), 6.88 (1H, s, H-3), 6.81 (1H, s, H-8), 6.44 (1H, s, H-6), 5.11 (1H, d, J=7.2Hz, Glc-H-1″), 4.34 (1H, d, J=10.8 Hz, Glc-H-6″a), 4.06 (1H, dd, J=12.0, 7.2 Hz, Glc-H-6″b), 3.75 (1H, t, J=7.8 Hz, Glc-H-2″),
3.27-3.43 (3H, m, Glc-H-3‴, 4‴, 5‴), 2.01 (3H, s, H-2‴). The 13C-NMR spectrum (DMSO-d6, 150 MHz): δ 164.3 (C-2), 103.2 (C-3), 182.1 (C-4), 161.7 (C-5), 99.6 (C-6, Glc-C-1‴′), 162.8 (C-7), 94.9 (C-8), 157.0 (C-9), 105.5 (C-10), 120.9 (C-1‴), 128.6 (C-2‴, 6‴), 116.1 (C-3‴, 5‴), 164.4 (C-4‴), 74.0 (Glc-C-2‴), 76.3 (Glc-C-3‴), 69.9 (Glc-C-4‴), 73.1 (Glc-C-5‴), 63.2 (Glc-C-6‴), 170.3 (C-1‴′), 21.1 (C-2‴′). The HMBC correlations from H-6″a, b (δH 4.34, 4.06) to C-1‴′ (δC 170.3) and H-1‴ (δH 5.11) to C-7 (δC 162.8) indicated the correlations of acetyl moiety to glucopyranosyl and the glucopyranosyl moiety to apigenin.

**Compound 4**

Yellow amorphous powder. HRMS (m/z): 461.11049 [M-H]⁻ (cal. 461.10894, Δ+3.361ppm) established the molecular formula as C22H20O11. The 1H-NMR spectrum (CD3OD, 500MHz): δ 7.53 (1H, dd, J=8.5, 2.0 Hz, H-6‴), 7.47 (1H, brs, H-2‴), 6.89 (1H, d, J=8.5 Hz, H-5‴), 6.83 (1H, d, J=2.0 Hz, H-8), 6.66 (1H, brs, H-3), 6.45 (1H, d, J=2.0 Hz, H-6), 5.05 (1H, d, J=7.0 Hz, Glc-H-1‴), 3.93 (3H, s, 3‴OCH3), 3.92 (1H, dd, J=15.0, 4.5 Hz, Glc-H-6″b), 3.70 (1H, dd, J=15.0, 4.5 Hz, Glc-H-6″a), 3.55 (1H, m, Glc-H-5‴), 3.50 (1H, m, Glc-H-3‴), 3.49 (1H, m, Glc-H-2‴), 3.40 (1H, m, Glc-H-4‴). The 13C-NMR spectrum (CD3OD, 500MHz): δ 167.1 (C-2), 104.0 (C-3), 187.1 (C-4), 162.0 (C-5), 101.2 (C-6), 165.0 (C-7), 96.1 (C-8), 159.0 (C-9), 108.0 (C-10), 122.2 (C-1‴, 6‴), 110.7 (C-2‴), 148.4 (C-3‴), 150.9 (C-4‴), 117.2 (C-5‴), 101.7 (Glc-C-1‴′), 74.8 (Glc-C-2‴′), 77.9 (Glc-C-3‴′), 71.3 (Glc-C-4‴′), 78.5 (Glc-C-5‴′), 62.5 (Glc-C-6‴′), 56.7 (3‴OCH3). The HMBC correlations from -OCH3 (δH 3.93) to C-3‴ (δC 148.4) indicated that the methoxy moiety was connected to carbon C-3‴.

**Compound 5**

Yellow amorphous powder. HRMS (m/z): 577.13617 [M-H]⁻ (cal.577.13515, Δ+1.780ppm) established the molecular formula as C30H26O12. The 1H-NMR spectrum (DMSO-d6, 600 MHz): δ 7.96 (2H, d, J=9.0 Hz, H-2‴, 6‴, 2″, 6″), 7.50 (1H, d, J=15.6 Hz, H-7″), 6.90 (2H, d, J=9.0 Hz, H-3‴, 5‴), 6.89 (1H, s, H-3), 6.83 (1H, d, J=1.2 Hz, H-8), 6.68 (2H, d, J=7.2 Hz, H-3″, 5″), 6.46 (1H, d, J=1.2 Hz, H-6), 6.35 (1H, d, J=15.6 Hz, H-8″), 5.18 (1H, d, J=7.2 Hz, Glc-H-1″), 4.47 (1H, d, J=10.8 Hz, Glc-H-6″a), 4.19 (1H, m, Glc-H-6″b), 3.85 (1H, m, Glc-H-2″), 3.27~3.36(3H, m, Glc-H-3″, 4″, 5″). The 13C-NMR spectrum (DMSO-d6, 150 MHz): δ 161.5 (C-2), 103.1 (C-3), 182.1 (C-4),
161.3 (C-5), 99.6 (C-6, Glc-C-1″′), 162.8 (C-7), 94.8 (C-8), 157.0 (C-9), 105.4 (C-10), 121.2 (C-1′), 128.7 (C-2′, 6′), 116.1 (C-3′, 5′), 164.4 (C-4′), 124.9 (C-1″), 130.2 (C-2″, 6″), 115.7 (C-3″, 5″), 159.9 (C-4″), 145.1 (C-7″), 113.8 (C-8″), 166.6 (C-9″), 73.0 (Glc-C-2″′), 76.4 (Glc-C-3″′), 70.0 (Glc-C-4″′), 73.9 (Glc-C-5″″), 63.5 (Glc-C-6″″). The HMBC correlations from Glc-H-6″b (δ_H 4.19) to C-9″ (δ_C 166.6) and Glc-H-1″′ (δ_H 5.18) to C-7 (δ_C 162.8) indicated that the E-p-coumaroyl moiety was connected to glucopyranosyl and the glucopyranosyl moiety was connected to apigenin.

Compound 6

Yellow amorphous powder. HRMS (m/z): 649.13904 [M+Na]^+ (cal. 649.13752, Δ+2.342ppm) established the molecular formula as C_{27}H_{30}O_{17}. The \textsuperscript{1}H-NMR spectrum (CD$_3$OD, 500 MHz): δ 7.69 (1H, d, J=2.0 Hz, H-2′), 7.55 (1H, dd, J=7.5, 2.0 Hz, H-6′), 6.90 (1H, d, J=7.5 Hz, H-5′), 6.37 (1H, d, J=2.0 Hz, H-8), 6.19 (1H, d, J=2.0 Hz, H-6), 5.35 (1H, d, J=7.5 Hz, Glc-H-1″), 4.78 (1H, d, J=7.5 Hz, Glc-H-1″′), 3.81 (1H, dd, J=12.0, 4.0 Hz, Glc-H-6″a), 3.74 (1H, dd, J=12.0, 4.0 Hz, Glc-H-6″b), 3.72 (1H, dd, J=12.0, 2.0 Hz, Glc-H-6″a), 3.55 (1H, dd, J=12.0, 4.0 Hz, Glc-H-6″b), 3.45-3.20 (8H, m, Glc-H-2″, 3″, 4″, 4″′, 5″, 5″′). The \textsuperscript{13}C-NMR spectrum (CD$_3$OD, 125 MHz): δ 156.3 (C-2), 133.3 (C-3), 177.3 (C-4), 161.2 (C-5), 98.6 (C-6), 164.1 (C-7), 93.5 (C-8), 156.3 (C-9), 104.0 (C-10), 121.1 (C-1′), 115.2 (C-2′), 144.7 (C-3′), 148.4 (C-4′), 116.2 (C-5′), 121.6 (C-6′), 100.9 (Glc-C-1″), 81.3(Glc-C-2″), 76.5 (Glc-C-3″), 70.1 (Glc-C-4″), 76.3 (Glc-C-5″), 60.7 (Glc-C-6″, 6″′), 103.1 (Glc-C-1″′), 74.0 (Glc-C-2″′), 76.5 (Glc-C-3″′), 69.5 (Glc-C-4″′), 76.4 (Glc-C-5″′).

Compound 7

Yellow amorphous powder. HRMS (m/z): 487.08595 [M (C_{21}H_{20}O_{12})+Na]^+ (cal.487.08470, Δ+2.566ppm). The \textsuperscript{1}H-NMR spectrum (CD$_3$OD, 500 MHz): δ 7.73 (1H, d, J=2.0 Hz, H-6′), 7.61 (1H, dd, J=6.5, 2.0 Hz, H-2′), 6.89 (1H, dd, J=6.5, 2.0 Hz, H-5′), 6.40 (1H, d, J=2.0 Hz, H-8), 6.21 (1H, d, J=2.0 Hz, H-6), 5.27 (1H, d, J=7.5 Hz, Glc-H-1″), 3.74 (1H, dd, J=12.0, 2.5 Hz, Glc-H-6″a), 3.60 (1H, dd, J=12.0, 6.0 Hz, Glc-H-6″b), 3.50 (1H, t, J=7.5 Hz, Glc-H-2″′), 3.38 (1H, m, Glc-H-4″), 3.37 (1H, m, Glc-H-3″), 3.25 (1H, m, Glc-H-5″). The \textsuperscript{13}C-NMR spectrum (CD$_3$OD, 125 MHz): δ 157.1 (C-2), 135.6 (C-3), 179.9 (C-4), 163.0 (C-5), 98.6 (C-6), 166.0 (C-7), 93.4 (C-8), 158.5 (C-9), 104.1 (C-10), 121.8 (C-1′), 114.7 (C-2′), 144.5 (C-3′), 148.5 (C-4′), 116.3 (C-5′),
121.6 (C-6'), 102.9 (Glc-C-1''), 74.3 (Glc-C-2''), 76.7 (Glc-C-3''), 69.8 (Glc-C-4''), 76.9 (Glc-C-5''), 61.2 (Glc-C-6'').

**Compound 8**

Yellow amorphous powder. HRMS (m/z): 609.14677 [M-H]− (cal.609.14611, Δ+1.083ppm) established the molecular formula as C_{27}H_{30}O_{16}. The \(^1\)H-NMR spectrum (CD\(_3\)OD, 500 MHz): \(\delta\) 7.64 (1H, s, H-2'), 7.62 (1H, d, J=8.5 Hz, H-6'), 6.87 (1H, d, J=8.5 Hz, H-5'), 6.38 (1H, s, H-8), 6.20 (1H, s, H-6), 5.10 (1H, d, J=7.5 Hz, Glc-H-1''), 4.52 (1H, s, Rha-H-1''), 3.81 (1H, d, J=12.0 Hz, Glc-H-6''a), 3.64 (1H, brs, Rha-H-2''), 3.54 (1H, dd, J=9.5, 3.0 Hz, Rha-H-3''), 3.47 (1H, t, J=7.5 Hz, Glc-H-2''), 3.45 (1H, m, Rha-H-5''), 3.45 (1H, m, Glc-H-3''), 3.40 (1H, m, Glc-H-6''b), 3.30 (1H, m, Glc-H-5''), 3.28 (1H, m, Rha-H-4''), 3.26 (1H, m, Glc-H-4''), 1.12 (1H, d, J=6.0 Hz, Rha-H-6''). The \(^{13}\)C-NMR spectrum (CD\(_3\)OD, 125 MHz): \(\delta\) 158.5 (C-2), 135.6 (C-3), 179.3 (C-4), 162.9 (C-5), 100.0 (C-6), 166.2 (C-7), 94.9 (C-8), 159.3 (C-9), 105.5 (C-10), 123.1 (C-1''), 116.0 (C-2''), 145.8 (C-3''), 149.8 (C-4''), 117.6 (C-5''), 123.5 (C-6''), 104.7 (Glc-C-1''), 75.7 (Glc-C-2''), 78.2 (Glc-C-3''), 71.4 (Glc-C-4''), 77.2 (Glc-C-5''), 68.5 (Glc-C-6''), 102.4 (Rha-C-1''), 72.1 (Rha-C-2''), 72.2 (Rha-C-3''), 73.9 (Rha-C-4''), 69.7 (Rha-C-5''), 17.9 (Rha-C-6'').

**Compound 9**

Yellow amorphous powder. HRMS (m/z): 623.16398 [M-H]− (cal.623.16176, Δ+3.562ppm) established the molecular formula as C_{28}H_{32}O_{16}. The \(^1\)H-NMR spectrum (CD\(_3\)OD, 500 MHz): \(\delta\) 7.95 (1H, d, J=2.0 Hz, H-2'), 7.62 (1H, dd, J=8.5, 2.0 Hz, H-6'), 6.91 (1H, d, J=8.5 Hz, H-5'), 6.39 (1H, s, H-8), 6.19 (1H, s, H-6), 5.22 (1H, d, J=7.5 Hz, Glc-H-1''), 4.53 (1H, brs, Rha-H-1''), 3.95 (3H, s, 3′-OCH\(_3\)), 3.82 (1H, d, J=10.0 Hz, Glc-H-6''a), 3.62 (1H, m, Rha-H-2''), 3.50 (1H, m, Rha-H-3''), 3.49 (1H, m, Rha-H-3''b), 3.48 (1H, m, Glc-H-2''), 3.45 (1H, m, Glc-H-5''), 3.42 (1H, m, Glc-H-6''b), 3.41 (1H, m, Rha-H-5''), 3.27 (1H, m, Glc-H-4''), 3.24 (1H, m, Rha-H-4''), 1.11 (3H, d, J=6.5 Hz, Rha-H-6''). The \(^{13}\)C-NMR spectrum (CD\(_3\)OD, 125 MHz): \(\delta\) 158.6 (C-2), 135.4 (C-3), 179.2 (C-4), 162.8 (C-5), 100.0 (C-6), 167.1 (C-7), 95.1 (C-8), 158.7 (C-9), 105.0 (C-10), 123.0 (C-1''), 114.6 (C-2''), 148.4 (C-3''), 150.9 (C-4''), 116.1 (C-5''), 124.0 (C-6''), 104.5 (Glc-C-1''), 75.9 (Glc-C-2''), 77.4 (Glc-C-3''), 73.9 (Glc-C-4''), 78.2 (Glc-C-5''), 68.5 (Glc-C-6''), 102.5 (Rha-C-1''), 72.1(Rha-C-2''), 72.3 (Rha-C-3''), 71.6 (Rha-C-4''), 69.8
proliferation of the various tumor cell lines. Cells were seeded into 96-Well Plates and

**Cell Counting Kit-8 (CCK-8) assay**

The CCK-8 assay was performed to evaluate the effect of all 11 compounds on cell proliferation of the various tumor cell lines. Cells were seeded into 96-well plates and
incubated overnight. The 11 compounds were serially diluted to the following concentrations: 200, 100, 50, 25, 5, and 1 μM (paclitaxel served as reference drug: 1000, 100, 10, 1, 0.1, 0.01 nM) and were added to the cells. The assay plates were further cultured for 72 hours at 37°C. Next, 100 μl of CCK-8 reagents (DOJINDO, Kumamoto, Japan) was added to each well and incubated for an additional 30 min to 180 min. Subsequently, the optical density (OD) values were measured at 450 nm in a microplate reader (Thermo Fisher, Waltham, MA, USA). The effects of each compound were given as 50% inhibitory concentrations (IC₅₀), which were calculated based on sigmoidal curve fittings. The experiments were repeated 3 times.
Spectrums of compound 1
Spectrums of compound 2
Sample: JCN13

JCN13 同位素分布
Spectrums of compound 3
Spectrums of compound 4
Spectrums of compound 5
Spectrums of compound 6
Spectrums of compound 7
Spectrums of compound 8
Spectrums of compound 9
Spectrums of compound 10
Spectrums of compound 11
