SUPPLEMENTARY MATERIAL

A new potent immunosuppressive isoflavanonol from *Campylotropis hirtella*

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Abstract: Four new flavonoids were isolated from *Campylotropis hirtella* and these are a chromone and a 2H-chromene, an isoflavone and an isoflavanonol. The structures of these compounds were elucidated by extensive spectroscopic measurements. All of the compounds were assessed for immunosuppressive activity. Compound 4 showed very strong T lymphocyte suppression activity (IC₅₀: 0.13 μM) and potent B lymphocyte suppression activity (IC₅₀: 0.26 μM). Due to its potent immunosuppressive activity and lower cytotoxicity, further structure-activity studies will be pursued on this compound.

Keywords: *Campylotropis hirtella*; immunosuppression; isoflavanoid

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Table S1. NMR spectroscopic data of compounds **1-4**^a (δ values in ppm, J values in Hz)

	1		2		3		4	
	δ_C	δ_H	δ_C	δ_H	δ_C	δ_H	δ_C	δ_H
2	146.9	8.02 (1H, s)	76.9	/	153.2	8.19 (1H, s)	73.0	4.48 (1H, d, 12.0), 4.88 (1H, d, 12.0)
3	142.0	/	128.0	5.76 (1H, d, 10.0)	123.6	/	73.5	/
4	177.5	/	115.6	6.62 (1H, d, 10.0)	180.2	/	195.2	/
5	162.2	/	157.8	/	162.6	/	169.9	/
6	99.1	6.24 (1H, d, 2.0)	100.5	/	98.5	6.30 (1H, s)	99.8	/
7	165.4	/	163.8	/	163.7	/	166.9	/
8	94.0	6.36 (1H, d, 2.0)	99.9	6.19 (1H, s)	93.2	6.43 (1H, s)	95.0	6.02 (1H, s)
9	158.4	/	159.6	/	157.6	/	165.0	/
10	105.1	/	108.1	/	104.8	/	95.9	/
11			163.5	/			170.3	/
1'	137.8	/	143.6	/	122.6	/	115.5	/
2'	146.9	/	142.5	/	112.3	7.04 (1H, s)	156.1	/
3'	117.5	/	110.1	6.81 (1H, s)	146.2	/	114.3	/
4'	153.6	/	150.0	/	115.5	7.14(1H, d, 1.2)	153.9	/
5'	105.8	6.28 (1H, d, 8.8)	113.7	/	146.1	/	106.2	6.42 (1H, d, 8.8)
6'	116.3	6.74 (1H, d, 8.8)	116.8	7.56 (1H, s)	119.7	7.04 (1H, d, 1.2)	124.0	7.05 (1H, d, 8.4)
7'			163.5	/				
1''	22.5	3.37 (2H, d, 3.2)	60.0	4.16 (2H, m)	65.1	4.69(2H, d, 6.4)	21.5	3.38 2H, d, 7.2)
2''	123.0	5.29 (1H, t, 6.4)	12.8	1.15 (3H, t, 7.0)	119.5	5.53 (1H, t, 7.0)	122.2	5.27 1H, t, 6.7)
3''	134.2	/			140.0	/	133.9	/
4''	40.1	1.97 (2H, m)			39.4	2.07 (2H, m)	39.2	1.97 (2H, brd)
5''	43.1	1.47 (2H,m)			21.7	1.56 (2H, m)	26.0	2.22 (1H, m) 1.90 (1H, m)
6''	22.5	1.43 (2H,m)			42.9	1.42 (2H, m)	123.8	5.09 (1H, t, 6.8)
7''	70.3	/			68.8	/	130.3	/
3''-Me	15.0	1.80 (3H,s)			15.2	1.77 (3H,s)	14.9	1.77 (3H, s)
7''-Me	28.0	1.15 (6H, s)			28.3	1.17 (6H, s)	16.3	1.57 (3H, s), 24.4 1.62 (3H, s)
2-Me			26.9	1.46 (6H, s)				
5-OH						13.05 (1H, s)		13.72 (1H, s)
5-OMe			62.0	3.89 (3H,s)				
7-OH				11.29 (1H, s)				8.16 (1H, s)
11-OMe							51.5	3.94 (3H, s)

Notes: ^a ¹H (400 MHz) and ¹³C (100 MHz) NMR of compound **1** was tested in DMSO and compound **2, 3, 4** were tested in (CD₃)₂CO.

Figure S1. Key HMBC (H-C) correlations of compounds **1-4**.

Figure S2. HPLC Chromatogram of Hirtellanine N

(Chiral column: AD-H; flow: 1.0ml/min; eluent: n-hexane: 2-propanol=9:1)

Compound 1 (^1H NMR 400 MHz; ^{13}C NMR 100 MHz)

^1H NMR spectrum of the new compound 1 in DMSO- d_6

^{13}C NMR spectrum of the new compound 1 in DMSO- d_6

^1H - ^1H COSY spectrum of the new compound 1 in DMSO-d_6

HSQC spectrum of the new compound 1 in DMSO-d_6

HMBC spectrum of the new compound 1 in DMSO-d₆

NOESY spectrum of the new compound 1 in DMSO-d₆

Compound **2** (^1H NMR 400 MHz; ^{13}C NMR 100 MHz)

^1H NMR spectrum of the new compound **2** in Acetone- d_6

^{13}C NMR spectrum of the new compound **2** in Acetone- d_6

^1H - ^1H COSY spectrum of the new compound 2 in Acetone- d_6

HSQC spectrum of the new compound 2 in Acetone- d_6

HMBC spectrum of the new compound 2 in Acetone-d₆

NOESY spectrum of the new compound 2 in Acetone-d₆

Compound **3** (^1H NMR 400 MHz; ^{13}C NMR 100 MHz)

^1H NMR spectrum of the new compound 3 in Acetone- d_6

^{13}C NMR spectrum of the new compound 3 in Acetone- d_6

^1H - ^1H COSY spectrum of the new compound 3 in Acetone- d_6

HSQC spectrum of the new compound 3 in Acetone- d_6

HMBC spectrum of the new compound 3 in Acetone-d₆

NOESY spectrum of the new compound 3 in Acetone-d₆

Compound **4** (^1H NMR 400 MHz; ^{13}C NMR 100 MHz)

^1H NMR spectrum of the new compound **4** in Acetone- d_6

^{13}C NMR spectrum of the new compound **4** in Acetone- d_6

^1H - ^1H COSY spectrum of the new compound 4 in Acetone- d_6

HSQC spectrum of the new compound 4 in Acetone- d_6

HMBC spectrum of the new compound 4 in Acetone-d₆