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Gnetupendin C, a New Stilbene Dimer from the Lianas of *Gnetum Pendulum*

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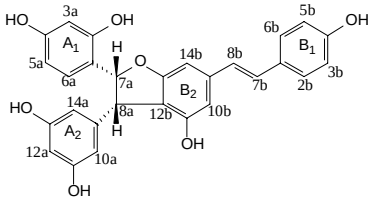
Abstract: Gnetupendin C, a new dimer coupled by a resveratrol and an oxyresveratrol unit, was isolated from the lianas of *Gnetum pendulum* C.Y. Cheng (Gnetaceae). Its structure was established on the basis of spectroscopic evidence, especially 2D techniques.

Keywords: Gnetupendin C, *Gnetum pendulum*, Gnetaceae, resveratrol, oxyresveratrol, dimer.

Continuous investigation on stilbenoids from the lianas of *Gnetum pendulum*[1] resulted in the isolation of a new dimer, Gnetupendin C (**1**), a *cis*-2, 3-dihydrobenzofuran dimer of resveratrol and oxyresveratrol.



1

Gnetupendin C (**1**) was obtained as yellowish amorphous power, $[\alpha]_D^{18}$ -220.0 (*c* 0.100, MeOH). UV (*c* 0.02, MeOH) λ_{max} (log ε): 222 (4.5), 288 (sh), 310 (sh), 327 (4.4) nm. The high resolution EIMS, *m/z* 470.1344, agreed with a molecular formula of $C_{28}H_{22}O_7$ (requires 470.1366) and the ^{1}H NMR and ^{13}C NMR spectra correspond to a dimer of resveratrol and oxyresveratrol. The ^{1}H NMR spectrum presented one set of ABX system signals for ring A_1; one set of AB_2 system signals for ring A_2; one set of A_2B_2 system signals for ring B_1; two meta-coupled protons for ring B_2 and two coupled doublets for two olefinic protons (**Table 1**). The HMBC spectrum (**Figure 1**, **a**) showed significant CH long-range correlations between H-6a/C-7a, H-7a/C-2a, 6a, 9a, H-8a/C-10(14)a, 13b, H-10b/C-12b, H-14b/C-12b, 13b, which suggested that the resveratrol unit and the oxyresveratrol unit were connected by a dihydrobenzofuran ring (B_2). The connectivity was different from that of gnetuhainin A (**2**)[2]. In the NOESY spectrum (**Figure 1, b**), the NOEs between H-7a/H-8a, H-6a/H-10(14)a indicated a *cis* orientation of ring A_1 and A_2, namely H-7a and H-8a were in *cis* orientation, Thus, the

relative structure of **1** was determined to be *rel*-(7a*R*, 8a*S*), as shown in **1**, it is a diastereoisomer of gnetulin D (**3**)[3].

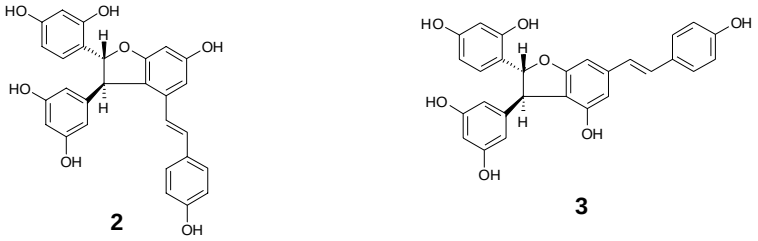


Figure 1 CH long-range correlations from the HMBC spectrum (a) and NOE interactions from the NOESY spectrum (b) of **1**.

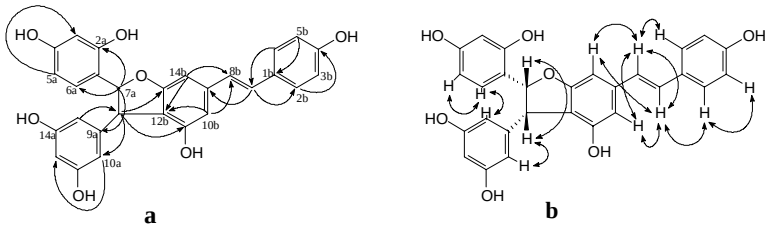


Table 1 ^{1}H and ^{13}C NMR spectra data for compound **1** (δ in ppm, *J* in Hz)[a]

Position	^{1}H	^{13}C	Position	^{1}H	^{13}C
1a		116.2	1b		129.9
2a		155.1	2(6)b	7.45 d (8.4)	128.6
3a	6.27 d (2.1)	102.4	3(5)b	6.85 d (8.4)	116.3
4a		158.0	4b		158.0
5a	6.09 dd (2.1, 8.4)	106.8	7b	7.13 d (16.2)	128.9
6a	7.45 d (8.4)	128.6	8b	6.99 d (16.2)	126.8
7a	6.03 d (8.1)	86.1	9b		140.5
8a	4.66 d (8.1)	49.8	10b	6.75 br s	99.3
9a		142.6	11b		162.8
10(14)a	5.95 d (2.1)	108.1	12b		117.4
11(13)a		158.3	13b		155.1
12a	5.81 t (2.1)	101.4	14b	6.60 d (1.5)	108.1

[a]Measured in CD_3COCD_3 at 300MHz for ^{1}H NMR, 75 MHz for ^{13}C NMR, respectively.

References

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