

## Gnetuhainin P, a New Isorhapontigenin Dimer from the Lianas of *Gnetum hainanense*

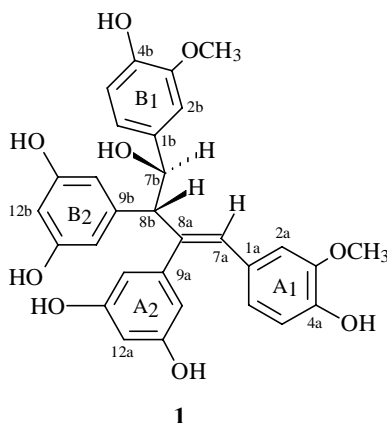
Ying Hong WANG, Kai Sheng HUANG, Mao LIN\*

Institute of Materia Medica, Chinese Academy of Medical Sciences  
and Peking Union Medical College, Beijing 100050

**Abstract:** Gnetuhainin P, a new isorhapontigenin dimer, was isolated from the Lianas of *Gnetum hainanense* C. Y. Cheng. Its structure was established on the basis of spectroscopic evidence, especially 2D NMR techniques.

**Keywords:** Gnetuhainin P, *Gnetum hainanense*, Gnetaceae, Isorhapontigenin, dimer.

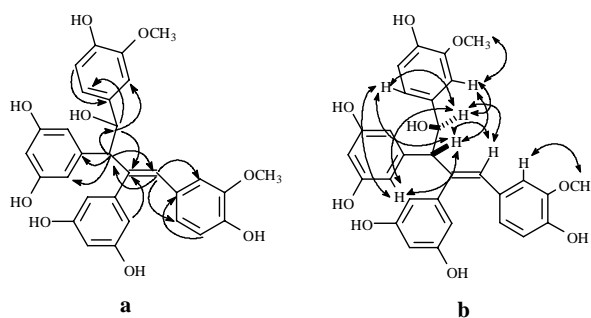
Continuous investigation on oligostilbenes from the lianas of *Gnetum hainanense* resulted in the isolation of a new rhapontigenin dimer, Gnetuhainin P (**1**), in addition to the dimers of resveratrol and oxyresveratrol reported previously<sup>1</sup>.



Gnetuhainin P (**1**) was obtained as a yellowish amorphous powder,  $[\alpha]_D^{25} +6.6$  ( $c$  0.092, MeOH). The high resolution FABMS  $m/z$  533.1866  $[M+H]^+$  gave a molecular formula of  $C_{30}H_{28}O_9$  ( $C_{30}H_{29}O_9$  requires 533.1812), which corresponds to a isorhapontigenin dimer. The  $^1H$  NMR spectrum presented two sets of ABX system signals for rings A<sub>1</sub> and B<sub>1</sub>; two sets of AB<sub>2</sub> system signals for ring A<sub>2</sub> and B<sub>2</sub>, two coupled doublets for two methine protons, a singlet for an olefinic proton and two singlets for the methoxy groups. The HMBC spectrum (**Figure 1, a**) showed significant CH long-range correlations between H-7a/C-2a, 6a, 8b, H-10(14)a/C-8a,

H-8b/C-7a, 8a, 10(14)b, H-7b/C-8a, 2b, 6b, which suggested that compound **1** was polymerized by two isorhapontigenin units through a linkage between C-8a and C-8b. The connectivity was different from that of gnetifolin O<sup>2</sup>. In the NOESY spectrum (Figure 1, b), the NOEs between H-7a/H-8b, H-7a/H-7b indicated a *cis* orientation of ring A<sub>1</sub> and A<sub>2</sub>, and NOEs between H-8b/H-2b, 6b, H-7b/H-10(14)b suggested that H-7b and H-8b were in *trans* orientation, Thus the stereochemistry was determined to be as shown in **1**.

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



**Table 1.** <sup>1</sup>H and <sup>13</sup>C NMR spectral data for compound **1** (δ in ppm, *J* in Hz).<sup>a</sup>

Position	<sup>1</sup> H	<sup>13</sup> C	Position	<sup>1</sup> H	<sup>13</sup> C
1a		130.3	1b		136.3
2a	6.45 d (2.1)	112.6	2b	6.84 d (2.1)	111.7
3a		147.4	3b		147.4
4a		146.0	4b		146.0
5a	6.62 d (8.4)	115.0	5b	6.61 d (8.4)	114.8
6a	6.65 dd (8.4, 2.1)	123.7	6b	6.74 dd (8.4, 2.1)	120.6
7a	6.77 s	127.9	7b	5.05 d (9.9)	75.7
8a		141.6	8b	3.70 d (9.9)	64.7
9a		144.9	9b		143.8
10(14)a	6.08 d (2.1)	108.7	10(14)b	6.06 d (2.1)	108.4
11(13)a		159.4	11(13)b		158.4
12a	6.24 t (2.1)	101.8	12b	6.03 t (2.1)	101.3
OMe-3a	3.46 s	55.3	OMe-3b	3.70 s	56.0

<sup>a</sup> Measured in CD<sub>3</sub>COCD<sub>3</sub> at 300 MHz for <sup>1</sup>H NMR, 75 MHz for <sup>13</sup>C NMR, respectively.

## References

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