Chinese Chemical Letters Vol. 13, No. 3, pp 231 – 232, 2002
http://www.imm.ac.cn/journal/ccl.html


# A New Bibenzyl Derivative from *Bletilla striata*

Guang Xuan HAN, Li Xin WANG, Zheng Bing GU,
Wei Dong ZHANG*, Hai Sheng CHEN

College of Pharmacy, Second Military Medical University, Shanghai 200433

**Abstract:** A new compound was isolated from *Bletilla striata.* Its structure was elucidated as 5-hydroxy-4-(*p*-hydroxybenzyl)-3′, 3-dimethoxybibenzyl by spectroscopic method.

**Keywords:** *Bletilla striata*, 5-hydroxy-4-(*p*-hydroxybenzyl)-3′, 3-dimethoxybibenzyl.

*Bletilla striata* (Thunb.) Reichb. f. is a perennial herb growing abundantly in Henan, Hunan, Hubei and Sichuan provinces of China. Many compounds have been found previously in this plant[1]. We report here the isolation and structural elucidation of a new bibenzyl derivative, compound **1** from the EtOAc extraction of roots of *B. striata*.

The MeOH extract of the crushed herb was partitioned with petroleum ether, EtOAc and *n*-BuOH successively. The EtOAc fraction was fractionated by silica gel and Sephadex LH-20 column to afford **1** as a white powder, mp 173~174°C. EI-MS *m/z*: 364 [$M^+$], 258, 243 (base), 135, 121, 107, 91, 77. Its IR spectrum showed the presence of hydroxyl group (3388 $cm^{-1}$) and benzenoid (1595, 1512, 1495, 1452 $cm^{-1}$). The $^{13}$CNMR DEPT spectrum of **1** gave rise to two methoxyl groups, three methylenes, ten methines and eight quaternary carbons including four oxygenated carbons signals. The $^1$HNMR spectrum of **1** exhibited ten aromatic protons indicating a *p*-substituted, an *o*-substituted and a tetrasubstituted aromatic rings, along with a benzylic methylene, an ethylene linkage of bibenzyl derivatives[2,3] and two methoxyl group (See **Table 1**). In the NOESY experiments, NOEs were observed from the ethylene protons to H-2, H-6, H-2′ and H-6′, the methoxyl groups to H-2, H-2′ and H-4′. The HMBC spectra analysis of **1** displayed correlation peaks between γ-H with C-3, C-5, C-1", C-2", 6" and C-4; the methoxyl signals with C-3′ and C-3 (See **Figure 1**). Therefore, **1** is identified as 5-hydroxy-4-(*p*-hydroxybenzyl)-3′, 3-dimethoxybibenzyl.

* E-mail: Wang YHK@online.sh.cn

**Figure 1** Selective HMBC connectivities in **1**

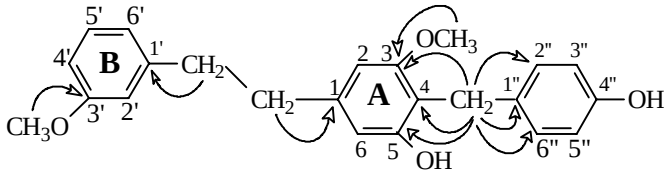


**Table 1** $^{1}H$, $^{13}CNMR$ spectral data of **1**

| No. | $\delta_C$ | $\delta_H$ ($J_{Hz}$) | No. | $\delta_C$ | $\delta_H$ ($J_{Hz}$) |
|---|---|---|---|---|---|
| 1 | 141.4 | | 1" | 132.8 | |
| 2 | 103.8 | 6.21 (d, 1.2) | 2" | 129.4 | 7.01 (d, 8.5) |
| 3 | 158.2 | | 3" | 115.2 | 6.58 (d, 8.5) |
| 4 | 113.5 | | 4" | 153.6 | |
| 5 | 154.4 | | 5" | 115.2 | 6.58 (d, 8.5) |
| 6 | 108.6 | 6.28 (d, 1.2) | 6" | 129.4 | 7.01 (d, 8.5) |
| 1' | 143.4 | | α | 37.6 | 2.73 (m) |
| 2' | 114.2 | 6.63 (dd, 7.5, 2.7) | β | 37.8 | |
| 3' | 159.4 | | γ | 27.6 | 2.73 (s) |
| 4' | 111.2 | 6.64 (dd, 7.5, 2.7) | 3-OMe | 55.1[a] | 3.64 (s) |
| 5' | 129.3 | 7.09 (dd, 7.5, 7.5) | 3′-OMe | 55.7[a] | |
| 6' | 120.9 | 6.71 (dd, 7.5, 2.7) | | | |

[a] Data with the same labels in a column may be interchangeable

## References

1. X. G. Luo, W. Y. Liu, W. D. Zhang *et al. The Journal of Pharmaceutical Practice.* **1999**, *17* (6), 359.
2. S. Takagi, M. Yamaki, K. Inouc, *Phytochemistry*. **1983**, *22* (4), 1011.
3. M. Yamaki, T. Kato, L. Bai *et al. Phytochemistry.* **1991**, *30* (8), 2759.

Received 25 June, 2001