Chinese Chemical Letters Vol. 12, No. 9, pp 791 – 792, 2001
http://www.imm.ac.cn/journal/ccl.html

A New Flavone from the Roots of *Uvaria macrophylla*

Hai Ling ZHANG, Ruo Yun CHEN*

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

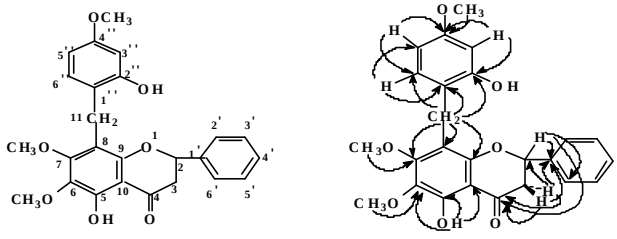
Abstract: A New flavone named Macrophyllol was isolated from the roots of *Uvaria macrophylla*. The structure of **1** was elucidated on the basis of spectroscopic evidence.

Keywords: Uvaria macrophylla, flavone, Macrophyllol.

Uvaria macrophylla is an evergreen tree of the family annonaceae, distributed in Hainan Province, China[1]. A new flavone, macrophyllol was isolated from the roots of *Uvaria macrophylla*. In this article we report the structure elucidation of **1**.

Macrophyllol **1** was isolated as yellow plate crystals, mp: 132-133°C, $[\alpha]_D^{18}$ +4.92 (c 0.06, MeOH). The HREIMS of **1** exhibited $[M]^+$ at *m/z* 436.1504 corresponding to the molecular formula $C_{25}H_{24}O_7$ (calc.436.1522). The IR spectrum of **1**, showed the presence of hydroxyl

Figure 1 Structure and key HMBC of **1**



1 2

(3467 cm^{-1}, br) and aromatic groups (1583, 1458 cm^{-1}). The UV spectrum of **1** λ_{max}^{MeOH} (log ε) 204 (3.56), 295 (3.14) nm suggested the flavone skeleton. The ^{13}CNMR spectrum and DEPT experiments of **1** revealed 25 signals, composed of three methyls, two methylenes, nine methines and eleven quaternary carbons. The ^{1}HNMR: δ 3.86 (s, 3H), 4.17 (s, 3H), 3.57 (s, 3H) and ^{13}CNMR: δ 61.23, 62.17, 55.67 showed the presence of three methoxyls (**Table 1**). In the ^{1}HNMR spectrum of **1**, a proton singlet at δ 12.36 being typical C-5 hydroxyl correlated to C-(5, 6, 10) in the HMBC analysis. The multiple signals at δ 7.29-7.55 (m, 5H) in downfield region indicated that B ring must

* E-mail: rych@imm.ac.cn

not be substituted and A ring must all be substituted. The data of ^{1}H and ^{13}CNMR, together with the HMQC, HMBC spectrum of **1** indicated the presence a 2″ -hydroxyl, 4″ -methoxy benzyl group[2]. In the HMBC spectrum of **1**, the HMBC H-11/C-(7, 8, 9, 1″ , 2″ , 6″) suggested that the benzyl group was linked to C-8. The EI-MS of 1 *m/z* (%) 436 (M^{+}, 55), 406 (10), 300 (100), 196 (42), 181 (20) also supported the structure.

Table 1 ^{13}C and ^{1}H Spectral data of **1** in $CDCl_3$ (500Hz for ^{1}H and 125Hz for ^{13}C). (δ ppm, *J* Hz)

No.	H	C	No.	H	C
2	5.45 dd (13.5, 2.5)	80.10	3′		129.32
3	3.16 dd (17.5, 3.0)	43.94	4′		129.46
	2.87 dd (13.5, 17.5)		5′		129.32
4		197.53	6′		126.59
5		155.16	1″		148.05
6		134.57	2″		126.27
7		158.04	3″	6.79 d (3.0)	116.55
8		111.60	4″		153.28
9		155.40	5″	6.66 dd (3.0, 9.0)	113.98
10		105.49	6″	6.77 d (9.0)	117.12
11	3.79 d (5.0)	24.72	6-OCH_3	3.86 s	61.23
1′		138.22	7-OCH_3	4.17 s	62.17
2′	6.65-7.55 (2'-H--6'-H)	126.59	4″ -OCH_3	3.57 s	55.67

Acknowledgment

This project is supported by the National Natural Science Foundation of Beijing

References

1. M. Leboeuf, A. Cave, P. K. Bhaumik, R. Mukherjee, *Phytochemistry*, **1982**, *21* (12), 2783.
2. H. Ei-Sohly, W. Lasswell, Jr., C. Hufford, *Journal of Natural Products***, 1979,** *42* (3), 264.

Received 22 February, 2001