

Δ^7 -豆甾烯醇: $^1\text{H-NMR}$ (500 MHz, CDCl_3) δ 0.53 (3H, s, Me-18), 0.79 ~ 0.84 (12H, s, Me-19, 26, 27, 29), 0.92 (3H, d, $J=6.5$ Hz, Me-21), 3.60 (1H, m, H-3), 5.16 (1H, m, H-7)。 $^{13}\text{C-NMR}$ (125 MHz, CDCl_3) δ 37.1 (C-1), 31.4 (C-2), 71.0 (C-3), 38.0 (C-4), 40.2 (C-5), 29.6 (C-6), 117.4 (C-7), 139.6 (C-8), 49.4 (C-9), 34.2 (C-10), 21.5 (C-11), 39.5 (C-12), 43.3 (C-13), 55.0 (C-14), 23.0 (C-15), 27.9 (C-16), 56.0 (C-17), 11.8 (C-18), 13.0 (C-19), 36.6 (C-20), 19.0 (C-21), 33.8 (C-22), 26.1 (C-23), 45.8 (C-24), 29.1 (C-25), 19.8 (C-26), 19.0 (C-27), 23.0 (C-28), 11.9 (C-29)。

菠甾醇: $^1\text{H-NMR}$ (500 MHz, CDCl_3) δ 0.55 (3H, s, Me-18), 0.80 ~ 0.82 (9H, m, Me-19, 27, 29), 0.85 (3H, d, $J=6.5$ Hz, Me-26), 1.02 (3H, d, $J=6.5$ Hz, Me-21), 3.59 (1H, m, H-3), 5.02 (1H, dd, $J=9, 15$ Hz, H-7), 5.15 (2H, m, H-22, 23)。 $^{13}\text{C-NMR}$ (125 MHz, CDCl_3) δ 37.1 (C-1), 31.4 (C-2), 71.0 (C-3), 38.0 (C-4), 40.2 (C-5), 29.6 (C-6), 117.4 (C-7), 139.5 (C-8), 49.4 (C-9), 34.2 (C-10), 21.5 (C-11), 39.4 (C-12), 43.3 (C-13), 55.1 (C-14), 23.0 (C-15), 28.5 (C-16), 55.8 (C-17), 12.0 (C-18), 13.0 (C-19), 40.8 (C-20), 21.4 (C-21), 138.2 (C-22), 129.4 (C-23), 51.2 (C-24), 31.9 (C-25), 21.1 (C-26), 19.0 (C-27), 25.4 (C-28), 12.3 (C-29)。

化合物 IX: 白色无定形粉末, 易溶于甲醇, 与 5% 磷钼酸乙醇溶液显蓝色。UV $\lambda_{\text{max}}^{\text{MeOH}}$ nm: 270, 227。 $^1\text{H-NMR}$ (500 MHz, $\text{DMSO}-d_6$) δ 6.33 (2H, s, H-2, 6), 3.57 (3H, s, 4-OCH₃), 3.73 (6H, s, 3, 5-OCH₃), 4.78 (1H, d, $J=7.0$ Hz, glc H-1), 4.79 (1H, d, $J=3.0$ Hz, api H-1), 3.56 (1H, d, $J=10.0$ Hz, api H-4a), 3.83 (1H, d, $J=10.0$ Hz, api H-

4b)。 $^{13}\text{C-NMR}$ (125 MHz, $\text{DMSO}-d_6$) δ 132.4 (C-1), 94.2 (C-2), 153.1 (C-3), 153.9 (C-4), 153.1 (C-5), 94.2 (C-6), 55.8 (3, 5-OCH₃), 60.7 (4-OCH₃), glc: 100.8 (C-1), 73.1 (C-2), 76.4 (C-3), 70.0 (C-4), 75.5 (C-5), 67.8 (C-6), api: 109.1 (C-1), 75.8 (C-2), 78.7 (C-3), 73.2 (C-4), 62.8 (C-5)。以上数据与文献报道的 3, 4, 5-三甲氧基苯基-1-O- β -D-呋喃芹糖基-(1 $\rightarrow$ 6)-O- β -D-吡喃葡萄糖苷(3, 4, 5-trimethoxyphenyl-1-O- β -D-apiofuranosyl-(1 $\rightarrow$ 6)-O- β -D-glucopyranoside)一致^[2]。

参考文献:

- [1] 江苏新医学院 中药大辞典. [M]. 上册. 上海: 上海科技出版社, 1977
- [2] Jiang J S, Feng Z M, Wang Y H, *et al*. New phenolics from the roots of *Symplocos caudata* Wall [J]. *Chem Pharm Bull*, 2005, 53(1): 110-113
- [3] Huo C H, Liang H, Zhao Y Y, *et al*. Neolignan glycosides from *Symplocos caudata* [J]. *Phytochemistry*, 2008, 69(3): 788-795
- [4] Matsuda N, Sato H, Yaoita Y, *et al*. Isolation and absolute structures of the neolignan glycosides with the enantiometric aglycones from the leaves of *Viburnum awabuki* K. Koch [J]. *Chem Pharm Bull*, 1996, 44(5): 1122-1123
- [5] Takeda Y, Mima C, Masuda T, *et al*. Glochidioboside, a glucoside of (7S, 8R)-dihydrodehydrodiconiferyl alcohol from leaves of *Glochidion obovatum* [J]. *Phytochemistry*, 1998, 49(7): 2137-2139
- [6] Zhu H, Tu P F. A new triterpenoid saponin and two neolignans from *Ligularia veitchiana* [J]. *Z Naturforsch B: Chem Sci*, 2004, 59(9): 1063-1066
- [7] Ida Y, Satoh Y, Ohtsuka M, *et al*. Phenolic constituents of *Phellodendron amurense* bark [J]. *Phytochemistry*, 1994, 35(1): 209-215
- [8] Kanchanapoom T, Kasai R, Yamasaki K. Iridoid and phenolic glycosides from *Morinda coreia* [J]. *Phytochemistry*, 2002, 59(5): 551-556
- [9] Siddiqui S, Hafeez F, Begum S, *et al*. Oleanderol, a new pentacyclic triterpene from the leaves of *Nerium oleander* [J]. *J Nat Prod*, 1988, 51(2): 229-233
- [10] 苏艳芳, 陈磊, 罗洋, 等. 金龙胆草化学成分及其抗溃疡活性研究[J]. 中草药, 2007, 38(3): 332-334

欢迎订阅《中草药》杂志 1996—2008 年增刊

为了扩大学术交流, 提高新药研究水平, 经国家新闻出版主管部门批准, 我部从 1996 年起, 每年出版增刊一册。

1996~2008 年增刊 包括中药创新药物开发的思路和方法、中药现代化研究、中药知识产权保护、中药专利的申请及中药走向国际等热点内容。

以上各卷增刊选题广泛、内容新颖、学术水平高、科学性强, 欢迎广大读者订阅。以上增刊为我部自办发行, 邮局订阅《中草药》不含增刊, 但能提供订阅凭证者, 购买增刊 7 折优惠, 款到寄刊。

地址: 天津市南开区鞍山西道 308 号

邮编: 300193

网 址: www.tjpr.com

电话: (022)27474913 23006821

传真: (022)23006821

E-mail: zcyzjb@sina.com