

粗梗胡椒化学成分研究(II)

中国医学科学院药用植物资源开发研究所(北京,100094) 侯翠英 张聿梅 张建强 刘永澄

粗梗胡椒 *Piper macropodum* C. DC. 为胡椒科胡椒属植物, 云南西双版纳地区以藤茎入药, 用于治疗跌打损伤, 风湿骨痛等症, 有较好的疗效^[1]。前已报道^[2], 我们从该植物藤茎中分得一个新的酰胺类化合物, 在进一步研究中, 我们又分得7个单体, 根据理化常数和光谱分析, 其中5个鉴定为赛法洛二酮甲 (cepharodione A, I), 墙草碱

(pellitorine, II), N-异丁基-十三-13(3,4-二甲氧苯基)-2E,4E,12E-三烯酰胺.[N-isobutyltrideca 13-(3,4methylenedioxy-phenyl)-2,4,12-trienamide, (III)], 廿二碳烷酸 (docosanic acid, IV) 和廿六碳烷酸 (hexacosanic acid, V)。以上化合物均为首次自本植物中分到。化合物 I~III 的结构式见图。

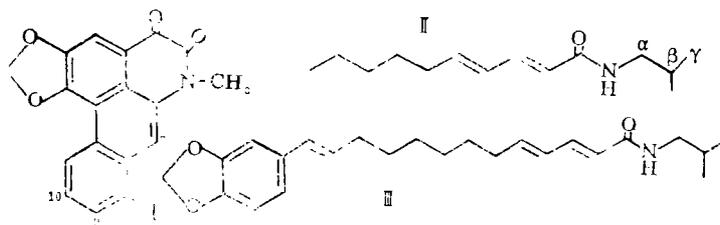


图 化合物 I~III 的化学结构式

1 提取和分离

1.9kg 原料经乙醇提取得浸膏138.3g, 该浸膏经石油醚脱脂, 分别得到121.3g脱脂后的醇提取物和17g石油醚提取物。121.3g脱脂物进行硅胶柱层析, 用二氯甲烷-甲醇梯度洗脱, 第26份得 I 50mg; 第23~24份合并浓缩后再行硅胶柱层析, 己烷-乙酸乙酯梯度洗脱, 分别得 II 20mg, III 15mg; 17g石油醚提取物进行硅胶柱层析, 己烷-乙酸乙酯梯度洗脱, 得到 IV 1.0g; V 1.6g。

2 鉴定

I: 桔红色针晶(丙酮), mp322~324°C(分解)。UV $\lambda_{\text{max}}^{\text{CHCl}_3}$ nm: 278, 302, 314, 431。IR (KBr) cm^{-1} : 3430, 1670, 1650, 1592, 1461, 1410, 1370, 1243, 1043, 936。¹HNMR (CDCl₃) δ ppm: 3.85 (3H, s, N-CH₃), .44 (2H, s, -OCH₂O-), 7.23 (1H, s, C₇-6H), 7.49~7.90 (3H, m, C₈, ₉, ₁₀-H), 8.97 (1H, m, C₁₁-H), 8.12 (1H, s, C₅-H)。MSm/z (%): 305 (M⁺, 65.47), 277 (100), 260 (13.8), 248 (12.7), 219 (7.10), 190 (9.10), 163 (24.5), 150 (8.3), 138 (8.3), 95 (5.49)。以上数据与文献^[3]报道的赛法洛二酮甲一致。

II: 白色针晶(己烷), mp78~80°C。UV

$\lambda_{\text{max}}^{\text{CHCl}_3}$ nm: 259。MSm/z (%): 223 (M⁺, 28.97), 152 (31.1), 151 (100), 113(10.1), 96 (51.5), 81 (61.2)。¹HNMR (CDCl₃) δ ppm: 0.89 (3H, t, C₁₀-H), 0.92 (6H, d, r-H), 1.32 (6H, m, C₇, ₈, ₉-H), 1.80 (1H, m, β -H), 2.14 (2H, m, C₆-H), 3.16 (2H, t, α -H), 5.48 (1H, br, s, NH), 5.73 (1H, d, J=15Hz, C₁-H), 5.98~6.24 (2H, m, C₄, ₅-H), 7.03~7.20 (1H, m, C₃-H)。该化合物不稳定, 放数日后变成橙黄色液体。以上光谱数据和物化性质与文献^[4]报道的墙草碱一致。

III: 白色粉末(己烷-乙酸乙酯), mp104~106°C。UV $\lambda_{\text{max}}^{\text{CHCl}_3}$ nm: 209, 258, 304。IR (KBr) cm^{-1} : 3440, 3303, 3080, 2925, 2872, 1655, 1615, 1491, 1256, 1045。¹HNMR (CDCl₃) δ ppm: 0.92 (6H, d, J=7Hz, r-H), 1.35 (8H, m, C₇, ₈, ₉, ₁₀-H), 1.80 (1H, m, β -H), 2.13 (4H, m, C₆, ₁₁-H), 3.16 (2H, t, J=6.5Hz, α -H), 5.50 (1H, s, br, NH), 5.72 (1H, d, J=15Hz, C₁-H), 5.89 (2H, s, C_{7'}-H), 6.04 (2H, dt, J=15, 6.5Hz, C₅, ₁₂-H), 6.10 (2H, dd, J=15Hz, 10Hz, C₄, ₁₃-H), 6.71 (2H, s, C_{5'}, _{6'}-H), 6.86 (1H, s, C_{2'}-H), 7.20 (1H, dd, J=15, 10Hz,

By one trial passive avoidance response-step-down task and water maze spatial localization task, the effect of Ginseng and Angelica Sinensis Decotion (GASD) on pathological models of the annesia rat with hippocampal lesions induced by quinolinic acid was studied. Results suggest that GASD can improve learning and memory deficiency in rats with bilateral hippocampal lesions after administration of quinolinic acid. The major mechanism of GASD may be related to the regulation of the glutamatergic function and prevention of the neurotoxicity of quinolinic acid.

(Original article on page 474)

On the Ultrastructure of Mongolian Milkvetch (*Astragalus mongholicus*) and a Comparison of Their Isozymes and Lipase

Bai Xiaoling, Zhang Li, Qiao Yanxiang, et al

Astragalus mongholicus with red or green stalks and *A. membranaceus* with or without down on its leaves were differentiated by comparing their pollen, vein on their leaf surface, scanning their stigma and ovary with electron microscope and analyzing their isoenzymes and lipases.

(Original article on page 479)

Preliminary Report on the Regeneration Test of Cassia Bark Tree (*Cinnamomum cassia*) After Peeling off Its Bark

Zhou Zhen, Ren Daquan, Pen Wenquan

The bark of *Cinnamomum cassia* Presl can be regenerated after peeling by painting with auxin (NAA) and 6-benzyl amido purine and dressed with plastic films. Mechanism regeneration and its economical potential need further research.

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C_s-H)。¹³CNMR (CDCl₃) δppm: 166.3 (C₁), 148.1 (C₅', 4'), 142.7 (C₈), 140.9 (C₆), 132.5 (C₁''), 129.2 (C₄或C₁₂), 128.2 (C₁₃), 121.8 (C₂), 120.1 (C₉), 108.1 (C₅'), 105.3 (C₁''), 100.8 (C₇'), 46.99 (α-C), 32.9 (C₈或C₁₁), 29.4 (C₈或C₁₀), 29.1 (C₇或C₉), 28.8 (β-C), 20.3 (2×r-C), MSm/z (%): 383 (M⁺, 83), 248 (91.9), 161 (41.8), 152 (54.5), 131 (100), 135 (92.4), 103 (58.9)。以上数据

与文献报道的N-异丁基-十三-13(3, 4-次甲二氧苯基)-2E, 4E, 12E-三烯酰胺一致[5]。

IV: 白色油脂状物(石油醚60~90°C), mp 45~47°C。MSm/z: 340 (M⁺), 质谱和红外光谱均显示长链脂肪酸特征, 故鉴定为廿二碳烷酸。

V: 白色固体物(石油醚60~90°C), mp 41~43°C。MSm/z: 396 (M⁺), 质谱和红外光谱亦显示长链脂肪酸类的特征, 因此鉴定为廿六碳烷酸。

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