

## ALKALOIDS FROM *CASSIA GRANDIS*

E. VALENCIA, A. MADINAVEITIA, J. BERMEJO\*, A.G. GONZALEZ  
*Centro de Productos Naturales "Antonio González", IPNAC - CSIC, La Laguna, Tenerife, Canary Islands, Spain.*

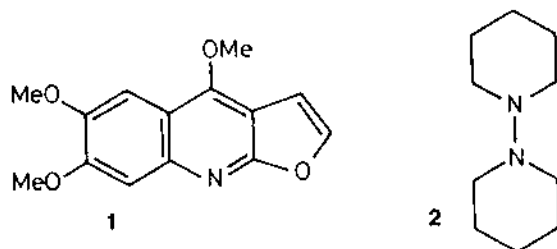
M.P. GUPTA  
*Centro de Investigaciones Farmacognósticas de la Flora Panameña, Facultad de Farmacia, CIFLORPAN, Universidad de Panama, Panama.*

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**Summary.** A furoquinoline alkaloid, kokusaginine (1) and a new piperidine alkaloid, fabioline (2), have been isolated from the aerial part of *C. grandis*.

**Key words:** *Cassia grandis*; furoquinoline alkaloids; piperidine alkaloids.

*Cassia grandis* L. (Leguminosae) is a species with limited distribution within Panama where it is known as "caña fistula". It is used in popular medicine, particularly in Central America, for its curative properties: in Costa Rica, for instance, the pulp cooked in milk is used to treat anaemia; in Guatemala the sweetened pulp is used as an astringent or expectorant and the chopped leaves are mixed with grease to make an ointment for skin diseases, especially in dogs. In Cuba a decoction of the flowers is taken to counter hysteria and as a nerve sedative.<sup>1</sup>



This paper describes the isolation from the aerial part of this plant of two compounds, kokusaginine (6,7-dimethoxyfuroquinoline) (1)<sup>2,3</sup> and the new alkaloid 1,1'-bipiperidine (2) which has been assigned the trivial name fabioline. Furoquinoline-type alkaloids have not previously been found in any *Cassia* spp, which normally contain piperidine,<sup>4,6</sup> isoquinolone,<sup>7,8</sup> or chromone alkaloids.<sup>9</sup>

### EXPERIMENTAL

**Plant material.** Aerial parts of *C. grandis* were collected in November 1991 on the Carretera al Valle de Antón, Capecito, Panama, and identified by Prof. Mireya Correa (Director of the Herbarium of the University of Panama). A voucher specimen (No. 920) is on file in the Florpan Herbarium.

**Isolation of the alkaloids.** The dried aerial part (780 g) was powdered and extracted with hot EtOH (90%). The solvent was evaporated and the residue (70 g) was suspended in 5% HCl and extracted with CHCl<sub>3</sub> (Fraction A). The aqueous layer was treated with NH<sub>4</sub>OH until pH 10 was attained and was then exhaustively extracted with CHCl<sub>3</sub> (Fraction B). Fraction A was subjected to a combination of Sephadex LH-20 and Si-gel CC to afford a yellow oil (7 mg) corresponding to the new alkaloid fabioline (2). Fraction B was chromatographed on a Si-gel column, yielding 1 (15 mg).

*Fabioline* (2)  
<sup>1</sup>H-NMR (200  
CDCl<sub>3</sub>): 47.3 (C-4'); MS (EI  
69 (8), 56 (33)

Acknowledgement  
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F. CRESPIN, F  
Laboratoire de Ph  
13385 MARSEI

R. FAURE  
Université d'Aix-  
13397 MARSEI

Received June 2

**Key words:** *He*

Plant. *Hedera*  
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Pharmacy in  
Previously d  
cauloside F.<sup>1</sup>

New isolated  
m/z: [M-H]  
hederagenin  
105.7 (C<sub>1</sub>), 1

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*Fabioline* (2). Yellow oil; IR bands (CHCl<sub>3</sub>) 2938, 1803, 1445, 1315, 1295, 1111, 881; <sup>1</sup>H-NMR (200 MHz, CDCl<sub>3</sub>): δ 2.63 (4H, br s), 1.37 (5H, br s); <sup>13</sup>C-NMR (50.2 MHz, CDCl<sub>3</sub>): 47.3 (C-2, C-6 and C-2', C-6'), 27.0 (C-3, C-5 and C-3', C-5'), 25.0 (C-4 and C-4'); MS (EI, 70 eV): *m/z* 168 (M) (C<sub>10</sub>H<sub>20</sub>N<sub>2</sub>)<sup>+</sup> (2), 167 (M<sup>+</sup>-1) (4), 84 (M<sup>+</sup>/2) (100), 69 (8), 56 (33), 41 (25).

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### IDENTIFICATION OF 3-O-β-D-GLUCOPYRANOSYL-HEDERAGENIN FROM THE LEAVES OF *HEDERA HELIX*

F. CRESPIN, R. ELIAS, C. MORICE, E. OLLIVIER, G. BALANSARD\*  
*Laboratoire de Pharmacognosie, Faculté de Pharmacie, 27, Bd Jean Moulin, 13385 MARSEILLE Cédex 05, France.*

R. FAURE  
*Université d'Aix-Marseille III, Faculté des Sciences de St-Jérôme, Avenue Escadrille Normandie-Niemen, 13397 MARSEILLE Cédex 13, France.*

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**Key words:** *Hedera helix*; triterpenoid saponin.

Plant. *Hedera helix* L., (Araliaceae), leaves collected in Mimet (Marseille), during 1988. A voucher sample is on deposit in the herbarium of the Faculty of Pharmacy in Marseille, France.

Previously described saponins. Hederasaponins B, C, D, E, F, G, H, I and cauloside F.<sup>1-5</sup>

New isolated saponin. 3-O-β-D-glucopyranosyl-hederagenin;<sup>6</sup> C<sub>36</sub>H<sub>58</sub>O<sub>9</sub>, FAB-MS *m/z*: [M-H]-633, [M-H-162]-471; <sup>13</sup>C-NMR (400 MHz, CD<sub>3</sub>OD) ppm: hederagenin 83.4 (C<sub>3</sub>), 123.6 (C<sub>12</sub>), 145.3 (C<sub>13</sub>), 65.8 (C<sub>23</sub>), 181.9 (C<sub>2</sub>); glucose 105.7 (C<sub>1</sub>), 75.6 (C<sub>2</sub>), 77.7 (C<sub>3</sub>), 71.5 (C<sub>4</sub>), 78.3 (C<sub>5</sub>), 62.7 (C<sub>6</sub>).

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