



Short report

## A new steroidal saponin from *Solanum sisymbriifolium* roots

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### Abstract

Isonuatigenin-3-*O*- $\beta$ -solatriose (**1**) was isolated from the roots of *Solanum sisymbriifolium*. Its structure was determined by spectroscopic methods.

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*Keywords:* *Solanum sisymbriifolium*; Isonuatigenin-3-*O*- $\beta$ -solatriose

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### 1. Plant

*Solanum sisymbriifolium*, roots collected in the Eastern Region of Paraguay in February 1991, was identified by N. Soria, Facultad de Ciencias Químicas, Universidad Nacional de Asunción, Paraguay (FCQ). A voucher specimen was deposited in the Herbarium of FCQ (No. Soria 5248).

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## 2. Uses in traditional medicine

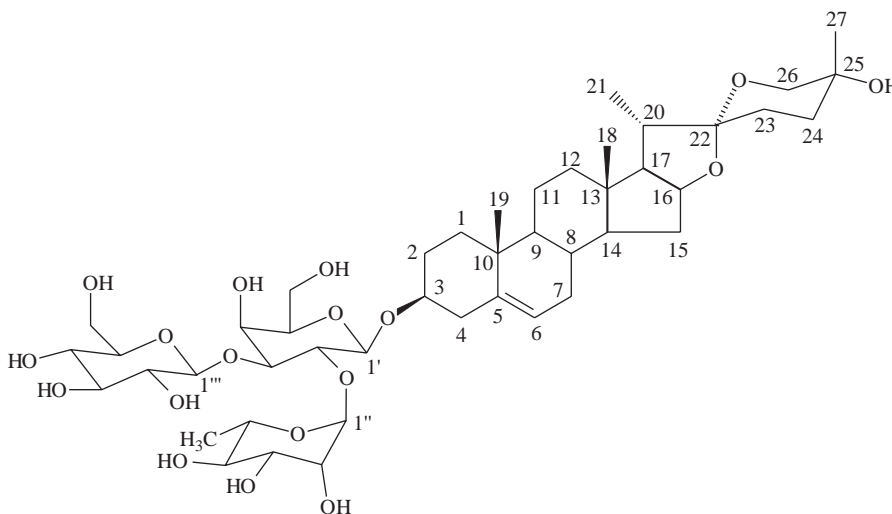
Roots are used in the treatment of hypertensive diseases in Paraguay [1], and as diuretic, analgesic, contraceptive, antisymphilitic and hepatoprotective in Argentina [2]. Aerial parts are used in Argentina to treat diarrhea, infections of respiratory and urinary tracts [3]. Flowers are used in India as analgesic [4], leaves as febrifuge in Peru [5] and as diuretic in Brazil [6]. The plant is also used as emenagogue and for fertility regulation [7,8]. The hypotensive effect of the root extract and components in both normo- and hypotensive rats [9,10] was demonstrated.

## 3. Previously isolated classes of constituents

Alkaloids [11–13] from roots, lignans [14], steroids [11,14] from fruits and the alkaloid solasodine [15] from leaves.

## 4. New-isolated constituent

Isonuatigenin-3-*O*- $\beta$ -soltatriose (**1**) (0.01% from powdered air-dried roots).



Isonuatigenin-3-*O*- $\beta$ -soltatriose (**1**), C<sub>45</sub>H<sub>72</sub>O<sub>18</sub>, mp 261–262 °C;  $\alpha_D^{20}$  – 128.8° (c 0.08, EtOH); IR bands (nujol): 3300, 2850, 1625, 1380, 1050, 970, 900, 830 cm<sup>-1</sup>; <sup>13</sup>C-NMR (125 MHz, pyridine-d<sub>5</sub>):  $\delta$  141.0 (C-5), 121.9 (C-6), 109.8 (C-22), 105.9 (C-1'''), 102.3 (C-1''), 100.6 (C-1'), 85.1 (C-3'), 81.5 (C-16), 78.6 (C-5'''), 78.5 (C-3), 77.7 (C-3'''), 76.5 (C-2'), 75.1 (C-5')<sup>d</sup>, 75.1 (C-2''')<sup>d</sup>, 74.3 (C-4''), 72.9 (C-3''), 72.6 (C-2''), 71.7 (C-4'''), 70.3 (C-4'), 69.9 (C-26), 69.5 (C-5''), 66.2 (C-25), 63.1 (C-17), 62.7 (C-6'), 62.5 (C-6'''), 56.8 (C-14), 50.4 (C-9), 42.1 (C-20), 40.6 (C-13), 39.9 (C-4), 38.9 (C-12), 37.7 (C-1), 37.3

(C-10), 33.9 (C-24), 32.5 (C-7), 32.4 (C-15), 31.8 (C-8), 30.3 (C-2), 27.9 (C-23), 27.1 (C-27), 21.2 (C-11), 19.5 (C-19), 18.7 (C-6''), 16.5 (C-18), 15.3 (C-21); FABMS  $m/z$ : 923  $[M+Na]^+$ .

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