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A new isoflavone from *Genista saharae* (Fabaceae)

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1. Subject and source

Genista saharae Coss. & Dur. section *Spartidium* Spach. (Fabaceae), a saharian endemic species flowering from April to July (Quezel and Santa, 1963) was identified by Prof. M. Kaabeche (Biology Department, University of Setif, Algeria). A voucher specimen (LGS01/05/98) has been deposited in the Herbarium, Biology Department of Mentouri University, Constantine.

2. Previous work

A previous phytochemical study (Abdel-Halim et al., 2000) has led to the isolation of isoflavones (4′-*O*-methyl-8-*C*-β-D-glucopyranosylgenistein and 8-*C*-β-D-glucopyranosylgenistein) and dipiperidine alkaloids (ammodendrine and *N*-acetylhystrine).

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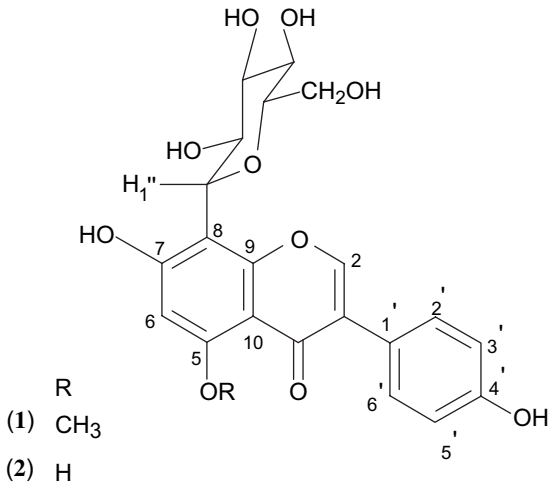
3. Present study

In a continuation of our study of Algerian medicinal plants (Benayache et al., 2001; Dendougui et al., 2000), we report herein the isolation and characterization of a novel compound, namely, 5-*O*-methyl-8-*C*-β-glucopyranosylgenistein **1** besides the known isoflavone 8-*C*-β-glucopyranosylgenistein **2** from the *n*-butanolic soluble part of the EtOH:H_2O (7:3 v/v) extract of the aerial parts of *G. saharae* Coss. & Dur. section *Spartidium* Spach. (Fabaceae).



The dried aerial parts of *G. saharae* Coss. & Dur. (680 g) were macerated with EtOH:H_2O (70:30 v/v) for 72 × 3 h. The crude extract was concentrated and diluted with 260 ml H_2O. After precipitation of chlorophyll with $Pb(OAc)_4$ and filtration, the EtOH was evaporated at room temp. and the remaining aq. soln. extracted successively with $CHCl_3$ and EtOAc giving after removal of solvents under red. pressure, residues R_C (5 g), R_E (1 g), respectively. The aq. layer was re-extracted with *n*-BuOH and the organic layer dried with Na_2SO_4. During the concentration under red. pressure, the *n*-butanolic extract gave a white precipitate (2 g). This precipitate was filtered and washed with CH_2Cl_2–MeOH to obtain **1** as white powder. The solution CH_2Cl_2–MeOH was concentrated and afforded R_{B-1} (1.1 g) which was chromatographed on silica gel by gradient elution with hexane:EtOAc:MeOH (1.5:8:0.5) to MeOH to obtain eight fractions (A–H). Fraction B (32 mg) was pure and afforded 8-*C*-β-glucopyranosylgenistein **2** (Van Heerden et al., 1980; Van Resen et al., 1995) while fraction D gave **1** (224 mg).

Absorption bands at 257, 278sh and 314sh nm in the UV spectrum of **1** in methanol and the singlet at δ 7.98 in the ^{1}H NMR spectrum suggested that it was an isoflavone. Upon addition of NaOAc, the UV spectrum of **1** showed a bathochromic shift (12 nm) of band II suggesting a free hydroxyl group at C-7 and absence of oxygenation at C-6. Upon addition of $AlCl_3$ the spectrum was unaffected (relative to