

CONIFERYL ALCOHOL GLUCOSIDE FROM

Astragalus bungeanus

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We previously reported the isolation and structure elucidation of flavonoids and a triterpene glycoside from *Astragalus bungeanus* Boriss. (Leguminosae L.) [1, 2].

Chromatography of the aqueous alcohol extract of *A. bungeanus* over a column of silica gel produced the total aforementioned compounds, which were separated by chromatography over silica gel with elution by water-saturated butanol to afford **1**, 112 mg.

Compound **1** formed white needlelike crystals, mp 183-186°C, C₁₆H₂₂O₈, MW 342.3411, *R_f* 0.66 (EA:MeOH:H₂O, 100:16.5:13.5).

The structure of this compound, which was isolated from the *Astragalus* L. genus for the first time, was established by chemical and spectral methods. Heating to 100°C for 40 min in H₂SO₄ (5%) hydrolyzed it to form D-glucose and the genin.

UV and IR spectra of the compound itself indicated that it was aromatic. UV spectrum (EtOH, λ_{max}, nm): 275; IR spectrum (KBr, ν_{max}, cm⁻¹): 3400-3500 (OH), 1000-1200 (ether bonds). The structure was elucidated using PMR (400 MHz) and ¹³C NMR (100 MHz) in C₅D₅N (δ, ppm, J/Hz) (Table 1).

TABLE 1. ¹³C and ¹H NMR Spectra of **1**

C atom	δ _C	DEPT	δ _H	Mult.H	³ J _{HH}
1	132.3	C			
2	110.8	CH	7.21	d	2.0
3	150.3	C			
4	147.5	C			
5	116.4	CH	7.56	o*	
6	119.9	CH	7.06	dd	8.4; 1.9
7	129.3	CH	6.88	br.d	15.9
8	130.0	CH	6.59	td	5.2; 15.9
9	63.0	CH ₂	4.58	o	
1'	102.2	CH	5.71	d	6.8
2'	74.9		4.36	o	
3'	78.6		4.37	o	
4'	71.9		4.36	o	
5'	78.9		4.12	m	
6'	62.4	CH ₂	4.54; 4.41	m	
OCH ₃	55.9	CH ₃	3.75	s	

* o - Overlapped.

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The PMR spectrum contained 17 resonances. Of these, 7 at 5.71 (D-glucose anomeric proton) and 4.36-4.41 ppm belonged to sugar protons. A singlet at 3.75 ppm belonged to a methoxy. Protons of an aromatic ring were observed at 7.56 and 7.06 ppm. Protons of an unsaturated aliphatic moiety were seen at 6.59 (1H, 7-H) and 4.58 (1H, 8-H). A CH₂ group appeared at 4.58 ppm as an overlapping multiplet. The nature of the splitting and the SSCC of the sugar resonances indicated that the anomeric center had the β -configuration and the pyranose form of the D-glucose ring.

The chemical shifts of the C resonances were consistent with a trisubstituted benzene ring (Table 1) [3, 4]. Thus, it was established that **1** was coniferyl alcohol 4-*O*- β -D-glucopyranoside.

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