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FLAVONOIDS FROM *Chrysanthemum myconis* AND THEIR ANTIBACTERIAL ACTIVITY

Nadjet Mezache,[1] Salah Akkal,[1*] Hocine Laouar,[2] and Elisabeth Seguin[3]

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Chrysanthemum genus, Asteraceae family has been the subject of many phytochemical studies [1–5]. This paper deals with the isolation and identification of two products from C*hrysanthemum myconis*, 6-methoxy-7-methylenedioxy coumarine (**1**) and quercetagetin-7-*O*-glycoside (**2**), and the antibacterial activity of this flavonoid glycoside.

Chrysanthemum myconis (Asteraceae) was collected from Constantine (Algeria); 465 g of leaves and 650 g of dried flowers were extracted with methanol (75%) for three times. The combined extracts were evaporated in vacuo, suspended in water, and partitioned with EtOAc and *n*-butanol. Bidimensional thin-layer chromatography (TLC) permitted us to mix the *n*-BuOH extracts but not the EtOAc extracts because of the chlorophylls. The EtOAc extract (3.20 g) of the leave were subjected to silica gel column chromatography (CH_2Cl_2–EtOAc) and (EtOAc–MeOH) to afford compound **1** (2 mg). The *n*-BuOH extract (16 g) was subjected to polyamide SC6 column chromatography (toluene–MeOH) to give compound **2**, a yellow sediment that is the constituent of the majority of the *n*-BuOH extract fractions.

The structures of the isolated compounds were determined by ^{1}H NMR and mass and UV spectroscopic analysis.

Compound **1** showed MS: *m/z* 220 (M^+), $C_{11}H_8O_5$. ^{1}H NMR ($CDCl_3$, δ, ppm, J/Hz): 7.51 (1H, d, J = 9.6, H-3), 6.21 (1H, d, J = 9.6, H-4), 6.52 (1H, s, H-5), 6.12 (2H, s, -O-CH_2-O-), 3.85 (3H, s, OCH_3) [6].

Compound **2**, $C_{20}H_{20}O_{13}$. UV (λ_{max}, MeOH, nm): 258.5, 365.5; NaOH: 258.5, 454; $AlCl_3$: 230.5, 322.5, 442; $AlCl_3$/HCl: 273.5, 389.5. ^{1}H NMR (CD_3OD, δ, ppm, J/Hz): 4.95 (1H, d, J = 7.53, H-1″glucose), 3.5–4.5 (6H of glucose), 6.85 (1H, s, H-8), 6.78 (1H, d, J = 8.52, H-5′), 7.57 (1H, dd, J = 2.19, 8.52, H-6′), 7.67 (1H, J = 2.19, H-2′) [7, 8].

Acid hydrolysis of **2** produced quercetagetin and D-glucose.

This is the first time that these compounds have been isolated from *C. myconis.*

Compound **2** was tested for antibacterial activity by the agar disc diffusion method against three strains of bacteria, including *Staphylococcus aureus* ATCC 25923, *Escherichia coli* ATCC 25922, and *Pseudomonas aeruginosa* ATCC 27853. Briefly, filter discs (6 mm in diameter) were impregnated with 60 mL of diluted quercetagetin-7-*O*-glycoside in DMSO and then deposited on solid media plates on which was spread 0.1 mL of 10^8 cells per mL of a microorganism suspension. These plates, after remaining at 4°C for 30 min, were incubated at 37°C for 24 h. The diameters of inhibition zones were measured in millimeters. All tests were performed in duplicate. The compound was particularly found to possess strong antibactericidal activity against the first bacteria (21 mm) and moderate activity against *E. coli* ATCC 25922 (11 mm). No activity was observed against *P. aeruginosa* ATCC 27853.

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1) Department of Chemistry, University Mentouri, 25000 Constantine, Algeria, fax: 213 31 81 88 85, e-mail: salah4dz@yahoo.fr; 2) Department of Biology, University Ferhat Abbas, Setif, Algeria; 3) Laboratoire de Pharmacognosie, Universite de Rouen-Haute Normandie, UMR 6014-CNRS, Faculte de Pharmacie, 22 Boulevard Gambetta, F-76183 Rouen Cedex 1, France. Published in Khimiya Prirodnykh Soedinenii, No. 5, p. 599, September–October, 2009. Original article submitted January 1, 2008.

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