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Short report

Fungitoxic metabolites from *Erigeron apiculatus*

Giovanni Vidari ^{a,*}, Susana Abdo ^b, Gianluca Gilardoni ^a, Alessandro Ciapessoni ^c,
Marilena Gusmeroli ^c, Giuseppe Zanoni ^a

^a Dipartimento di Chimica Organica, Università degli Studi di Pavia, Via Taramelli 10, 27100 Pavia, Italy

^b Facultad de Ciencias, Escuela Politécnica de Chimborazo (ESPOCH), Panamericana Sur Km 1, Riobamba, Ecuador

^c Isagro Ricerca, Via Fauser 4, 28100 Novara, Italy

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Abstract

Four enyne derivatives (1–4) and quercitrin were isolated during a bioassay-guided chromatographic separation of a methanolic extract of *Erigeron apiculatus*. Matricarialactone (1) and lachnophyllumlactone (2) showed a high fungitoxic activity against *Pyricularia oryzae*. Matricaria acid methyl ester (3) and lachnophyllum acid methyl ester (4) were, instead, less active.

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Keywords: *Erigeron apiculatus*; Antifungal activity; Enynes; Flavonoids; Quercitrin

1. Plant

Erigeron apiculatus Benth. (Asteraceae), whole plant, was collected during 1998, in the Chimborazo Province, at an altitude of 2500 m, by Susana Abdo. It was identified by Jaime Jaramillo, Universidad Católica de Quito (Ecuador). A voucher specimen (ESP057) has been deposited in the Herbarium of ESPOCH.

2. Uses in traditional medicine

No medicinal use has been reported for *E. apiculatus*.

3. Previously isolated classes of constituents

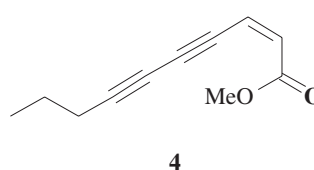
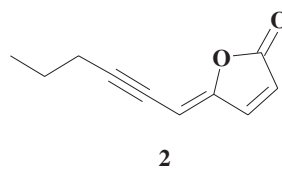
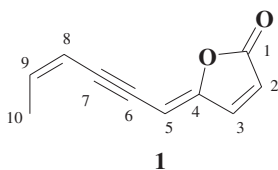
No phytochemical study has been reported.

* Corresponding author. Tel.: +39 0382 987322; fax: +39 0382 987323.

E-mail address: vidari@unipv.it (G. Vidari).

4. New-isolated constituents

(4*Z*,8*Z*)-Matricarialactone (**1**, 15 mg) [1,2], (4*Z*)-lachnophyllumlactone (**2**, 3 mg) [1–3], (2*Z*,8*Z*)-matricaria acid methyl ester (**3**, 7 mg) [2–6], (2*Z*)-lachnophyllum acid methyl ester (**4**, 2 mg) [3,6,7] and quercitrin (5 mg) [8,9] were isolated from 1.8 g of crude methanolic extract.



5. Tested material

Compounds **1–4**.

6. Studied activity and results

The crude methanolic extract as well as chromatographic fractions were spotted on F₂₅₄ Merck silica gel plastic sheets which were developed with a mixture of hexane/EtOAc, 4:1, at r.t. in the dark. The presence of fungitoxic compounds was detected by spraying the chromatograms with a conical suspension of *Cladosporium cucumerinum* spores in a glucose mineral medium (Czapek broth). The TLC plates were then incubated at 25 °C in the dark for 5 days under a moist atmosphere. Inhibition zones were found in correspondence of the spots of compounds **1–4**. Their antifungal activity, expressed as the minimal inhibitory concentration (MIC), was determined against a strain of the phytopathogen fungus *Pyricularia oryzae* by broth dilution assay [10]. Values (means of three replications) were compound **1**: 400 (μg/ml); compound **2**: 400 (μg/ml); compound **3**: 100 (μg/ml); compound **4**: 95 (μg/ml). In comparison, the reference compound pseudomycin A had a MIC 15 (μg/ml) in the same test.

7. Conclusions

Compounds **1–4** are responsible for the fungitoxic activity of the *E. apiculatus* methanolic extract.

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