

## CONSTITUENTS OF PLANTS GROWING IN QATAR XXV FLAVONOIDS OF *PICRIS RADICATA* (Forssk.) Less.

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مكونات نباتات قطر (الجزء ٢٥)

فلافونيدات نبات بيكريس راديكاتا

هاله سلطان العيس ، علاء كامل ، حسيني عبد المحسن حسيني

تم فصل والتعرف على أربعة فلافونيدات من النبات : الأبيجينين ، كريسين  
- ٧ - جليكوزيد ، ليتيولين ، ليتيولين - ٧ - جليكوزيد .

**Key Words:** *Picris radicata*, Compositae, Lactuceae, Flavonoids, Apigenin, Chrysin 7-glucoside, Luteolin, Luteolin 7-glucoside.

### ABSTRACT

Four flavonoids were isolated from the plant and were identified as apigenin, chrysin 7-glucoside, leuteoline and luteolin 7-glucoside.

### INTRODUCTION

Sesquiterpene lactones have been isolated from several *Picris* species viz *P. aculeata*, *P. altissima*, *P. cyanocarpa*, *P. echiolides*, *P. hieracioides*, *P. hieracioides* var. *japonica*, *P. hieraciode* subsp. *hieracioides* *P. hieracioides* subsp. *japonica* and *P. spinifera* [1-12], triterpenes were isolated from two species (*P. felterrae* Liour and *P. hieracioides*) [13,14] and sterols were identified from *P. hieracioides* [15]. The present work deals with the study of the flavanoid constituents of *Picris radicata* growing in Qatar.

### EXPERIMENTAL

#### Plant material:

*Picris radicata* (Forssk.) Less. (Compositae, tribe Lactuceae) was collected from Dukhan (south of Qatar) in April. The whole plant was air dried and grinded to fine powder.

#### Apparatus and techniques:

The UV and MS data were recorded on a Pye Unicam spectrophotometer model SP8-100 and Schimatzu Mass spectrometer respectively. Column chromatography was carried out using Sephadex LH-20 and applying 96% ethanol as an eluent. Thin layer chromatography was carried out using polyamide developed with butanol-acetic acid-water (6:2:1).

#### Extraction and fractionation:

The whole plant was extracted with MeOH in a Soxhlet for 24 hours, then the extract was dried under vacuum. The resulted extract was partitioned between water-chloroform (1:1). The aqueous layer was then extracted exhaustively with ethyl acetate yielding crude flavonoid extract (0.4664g). This was subjected to column chromatography (Sephadex LH-20) using 96% EtOH as eluent. Fractions were further separated into single components using preparative TLC technique. Comparative studies on the purified fractions with authentic samples were made on TLC and identification was confirmed by comparing their UV and MS spectral data with that reported in literature [16-18].

#### Apigenin:

Fractions 11-17 (Sephadex column) were purified on a preparative polyamide TLC and crystallized from methanol (mp. 344-346 °C, Table 1). Identification was confirmed by UV comparison with authentic sample (Table 2) and MS (*m/e*: 270, C<sub>15</sub>H<sub>10</sub>O<sub>5</sub>, fragment ions at 242, 153, 124, 121 and 118).

#### Chrysin 7-O-glucoside:

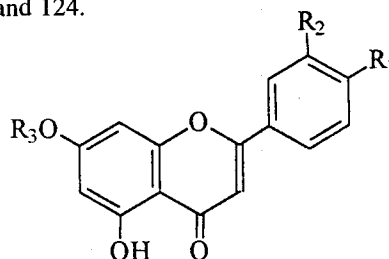
Fractions 11-18 (Sephadex column) gave after purification on a preparative polyamide TLC (Table 1) a single component which was identified as chrysin 7-O-glucoside (TLC, UV).

**Luteolin:**

Fractions (12-16 Sephadex column) were purified on a preparative polyamide TLC and crystallized from methanol yielding yellow crystals m.p. 327-329 °C (Table 1). Its identification as luteolin was confirmed by comparison with authentic sample material UV (Table 2), MS (*m/e*: 286, C<sub>15</sub>H<sub>10</sub>O<sub>6</sub> and fragment ions at 258, 153, 134 and 124.

**Luteolin 7-O-glucoside:**

Fractions 11-20 (Sephadex column) gave after purification on a preparative polyamide TLC (Table 1) a single component which was identified as luteolin 7-O-glucoside (TLC, UV).



	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>
(1) Apigenin	OH	H	H
(2) Chrysin 7-glycoside	H	H	Gly
(3) Luteolin	OH	OH	H
(4) Luteolin 7-glucoside	OH	OH	Glu

**Table 1**  
TLC data of the isolated compounds

Flavonoid	R <sub>f</sub> *	UV (Colour)	UV/NH <sub>3</sub> (Colour)	Na** (Colour)
Apigenin	0.53	Deep purple	Yellow-green	Brown
Chrysin 7-O-glucoside	0.38	Deep purple	Yellow	Yellow
Luteolin	0.13	Deep purple	Yellow	Yellow
Luteolin 7-O-glucoside	0.26	Deep purple	Yellow	Pink

\* Polyamide, butanol-acetic acid-water (6:2:1).

\*\* Na: Natural Product Reagent

**Table 2**  
Ultraviolet spectral data of the isolated flavonoids

Flavonoid	MeOH	NaOMe	AlCl <sub>3</sub>	AlCl <sub>3</sub> + HCl	NaOAc	NaOAc + H <sub>3</sub> BO <sub>3</sub>
Apigenin	265, 295 sh, 337	275, 325, 391	275, 300, 349, 385	275, 300, 340, 380	275, 300, 375	275, 301 sh, 337
Chrysin 7-O-glucoside	235, 268, 280 sh, 343	237, 263 sh, 267, 390	235, 275, 295 sh, 340, 414	231, 275, 295 sh, 347, 385	236, 270, 385	236, 267, 282 sh, 360
Luteolin	240, 250, 265, 287, 345	265, 328 sh, 400	274, 300 sh, 327, 352	264 sh, 273, 293 sh, 353, 381	269, 325 sh, 385	260, 300 sh, 368, 430
Luteolin 7-O-glucoside	255, 265 sh, 346	260, 300 sh, 395	275, 300 sh, 430	271 sh, 295 sh, 360, 389	260, 265 sh, 405	260, 371

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