

Diploicin, a chlorinated depsidone related to orcinol, previously not reported to be present in Panariaceae, was found in *Psoroma dimorphum* and leprolomin, a diaryl ether previously described (4), was isolated from *P. dimorphum* and *Psoroma pallidum*.

All these compounds were characterized from  $^1\text{H}$ -nmr, ms, and ir spectral data and by comparison with authentic samples.

#### EXPERIMENTAL

GENERAL EXPERIMENTAL PROCEDURES.—Melting points were determined on a Kofler hot plate. Spectra were recorded with the following instruments: ir, Perkin-Elmer model 683;  $^1\text{H}$  nmr, Varian T-60; ms, Varian MAT CH-7.

PLANT MATERIAL.—*Psoroma* species were collected in the southern zone of Chile (Villarrica), from bark of *Notbofagus* spp. Voucher specimens are deposited at the Herbarium of the School of Chemistry and Pharmacy, University Valparaíso, Chile.

EXTRACTION AND ISOLATION OF THE DEPSIDONES.—The air-dried lichen thalli were extracted two times at room temperature with petroleum ether (bp 40-60°),  $\text{CHCl}_3$ ,  $\text{Et}_2\text{O}$ , and finally  $\text{Me}_2\text{CO}$ . The extracts were chromatographed over Si gel columns, and column fractions further purified by preparative tlc. The isolated depsidones were purified by crystallization.

Full details of the isolation and identification of the compounds are available on request to the senior author.

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#### ALKALOIDS OF PAPAVERACEAE, XII. <sup>1</sup> ALKALOIDS OF *GLAUCIUM CORNICULATUM* SUBSPECIES *REFRACTUM*, POPULATION POL-DOKHTAR

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In continuation of chemotaxonomic studies of Iranian wild plants of the Papaveraceae (1-11), alkaloid content of *Glaucium corniculatum* (L.) Rudolph. subspecies *refractum*<sup>3</sup> (NAB) Cullen, population Pol-Dokhtar was studied. This species is a perennial wild plant growing in an area near Pol-Dokhtar Tunnel on the highway from Mianeh to Zinjan at an altitude of 1600 meters. The height of the plant is about 49-95 cm. It blooms from April to August, has large (up to 5 cm) yellowish-orange flowers, and long (10-25 cm) seed pods.

Some of the alkaloids isolated from this plant population are common with those reported in our previous work on this species (10). Chemotaxonomic correlation of this species is under investigation.

<sup>1</sup>For paper XI, see Shafiee, *et al.* (11).

<sup>2</sup>This work was a part of S. Akhlaghi's dissertation for the degree of Pharmacy Doctorate.

<sup>3</sup>The plant was identified by G. Amin, College of Pharmacy, University of Tebran; an herbarium sample was deposited in the Herbarium of The College of Pharmacy, University of Tebran.

## EXPERIMENTAL

GENERAL EXPERIMENTAL PROCEDURES.—Melting points were taken on a Kofler hot stage microscope and are uncorrected. The ir spectra were taken on Perkin-Elmer model 267 spectrograph. Nmr spectra were determined using a Varian T-60A spectrometer and chemical shifts ( $\delta$ ) are in ppm relative to internal TMS. Mass spectra were run on a Varian MAT 311 spectrometer at 70 ev. Un spectra were taken using a Varian model 635 spectrometer.

PLANT MATERIAL.—The aerial part of *G. corniculatum* subspecies *refractum* was collected in May 1981. It was first dried in shade, then in an oven at 60° to a constant weight, and then milled so that all the material could be passed through a mesh not larger than 0.5 mm.

EXTRACTION AND ISOLATION OF ALKALOIDS.—Powdered plant material was extracted and alkaloids were isolated as previously reported (9-11). The following alkaloids were identified: bulbocapnine (1.2%), dicentrine (0.7%), protopine (0.42%), as major alkaloids; corydine, isocorydine, glaucine,  $\alpha$ -allocryptopine, and *O*-methylflavinantine as minor alkaloids (less than 0.1%). The results of isolation (by cc and tlc) and identification are summarized in Table 1. Corydine, isocorydine, and *O*-methylflavinantine were found for the first time in this species.

TABLE 1. Results of Isolation and Identification

| Alkaloids                              | Solvent for column elution <sup>a</sup> (%) | Tlc (Rf) <sup>b</sup> | Identified by              | References |
|--|---|-----------------------|----------------------------|------------|
| Dehydrodicentrine . . . . .            | 10  | 0.78                  | mp, uv, ir, nmr, ms        | 10, 12     |
| Dicentrine . . . . .                   | 20  | 0.62                  | mp, uv, ir, nmr, ms        | 13         |
| Protopine . . . . .                    | 20  | 0.58                  | mp, uv, ir, nmr, ms        | 13         |
| Glaucine . . . . .                     | 20  | 0.52                  | mp, uv, ir, nmr, ms        | 14         |
| $\alpha$ -Allocryptopine . . . . .     | 30  | 0.47                  | mp, ir, nmr, ms            | 5-7, 9-11  |
| Bulbocapnine . . . . .                 | 50  | 0.38                  | mp, nmr, ms                | 10         |
| Isocorydine . . . . .                  | 50  | 0.35                  | mp, uv, nmr, ms            | 9          |
| Corydine . . . . .                     | 50  | 0.33                  | mp, mmp, uv, nmr, ms       | 9          |
| <i>N</i> -Methylauronetanine . . . . . | 50  | 0.30                  | mp, mmp (HBr Salt) nmr, ms | 10         |
| <i>O</i> -Methylflavinantine . . . . . | 100   | 0.21                  | mp, uv, ir, nmr, ms        | 7          |

<sup>a</sup>CHCl<sub>3</sub> in petroleum ether.

<sup>b</sup>Solvent for tlc: Et<sub>2</sub>O-Me<sub>2</sub>CO-diethylamine (95:5:5).

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