EXPERIMENTAL

Authentic leaves of *R lancea* L (supplied by the Forest Research Institute, Dehra Dun) were shade dried and extracted with hot 95% EtOH and the residue fractionated into C_6H_6, Et_2O and EtOAc soluble components The Et_2O concentrate was chromatographed over Si gel and eluted with C_6H_6–EtOAc followed by EtOAc to yield kaempferol, myricetin 7,4'-dimethyl ether, quercetin and myricetin The EtOAc concentrate on chromatography over Si yielded the new galactoside

Myricetin 7,4'-dimethyl ether tetra-acetate mp 198–199° (EtOAc–petrol) ^{1}H NMR (60 MHz, $CDCl_3$, TMS int standard) δ 7 4 (2H, *s*), 6 8 (1H, *d*, J = 2 Hz), 6 6 (1H, *d*, J = 2 Hz) 3 85 (6H, *s*, 2 OMe), 2 4 (3H, *s*, OCOMe) and 2 3 (9H, *s*, 3 OCOMe)

The tetramethyl ether (myricetin hexamethyl ether) had mp 155–156° On demethylation with Ac_2O–HI, it gave myricetin R_fs (×100) of myricetin 7,4'-dimethyl ether 5 (30% HOAc), 52 (50% HOAc), 95 (BAW), 85 (PhOH), 78 (Forestal) and 90 (*t*-BAW)

The acetate of the 3-galactoside had mp 157–158° ^{1}H NMR 7 73 (2H, *s*), 6 8 (1H, *d*, J = 2 Hz), 6 6 (1H, *d*, J = 2 Hz), 5 55 (1H, *d*, J = 8 Hz,), 5 4–4 7 (6H, unresolved), 3 88 (6H, *s*, 20 Me), 2 4 (3H, *s*, OCOMe), 2 35 (6H, *s*, 2 OCOMe), 2 12 (6H, *s*, 2 OCOMe), 1 98 and 1 90 (3H each, *s* each, 2 OCOMe)

Periodate oxidation of 3-galactoside To 20 mg in 1 ml EtOH was added $NaIO_4$ (0 1 M, 25 ml) and allowed to stand in the dark for 48 hr Periodate consumed and HCOOH liberated were estimated to be 2 01 and 1 01 mol, respectively per mol of glycoside Methylation and hydrolysis of the 3-galactoside gave 3-hydroxy-5,7,3',4',5'-pentamethoxyflavone, mp 226–227°, UV λ_{max} nm 260, 310, 353 co-TLC with an authentic sample [10] R_f (×100) of the 3-galactoside 28 (15% HOAc), 50 (30% HOAc), 78 (50% HOAc), 80 (BAW), 86 (PhOH), 87 (Forestal) and 77 (*t*-BAW)

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OXYHYDRASTININE, AN ISOQUINOLONE ALKALOID FROM THE PAPAVERACEAE

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Key Word Index—*Argemone mexicana*, *Papaver dubium* var *glabrum*, Papaveraceae, isoquinolone alkaloid, oxyhydrastinine

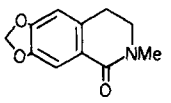
Abstract—The new isoquinolone, oxyhydrastinine, has been obtained from *Argemone mexicana* and from *Papaver dubium* var *glabrum* (Papaveraceae)

INTRODUCTION

Although over a dozen isoquinolone alkaloids are known [1] the simple bicyclic structure oxyhydrastinine has not previously been reported as a natural product

RESULTS AND DISCUSSION

In continuation of our studies on the alkaloids of the Papaveraceae, we have obtained the new alkaloid oxyhydrastinine (**1**) from two different sources, namely from



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Argemone mexicana, collected in Egypt near Helwan, south of Cairo, and from *Papaver dubium* var *glabrum*, gathered in the vicinity of Peshawar, Pakistan, UV λ_{max}^{MeOH} nm 207, 217, 222, 262 and 303 (log ε 4 39, 4 47, 4 46, 3 84 and 3 90), mass spectrum *m/z* 205 $[M]^+$ ($C_{11}H_{11}O_3N$), 190, 162, 150, 134

The NMR spectrum of oxyhydrastinine offers conclusive evidence concerning the structure of the alkaloid It shows H-5 and H-8 as singlets at δ6 61 and 7 54, respectively The methylenedioxy singlet is at δ5 99 and the *N*-methyl singlet is appropriately downfield at δ3 13 The C-3 and C-4 protons appear as triplets at δ3 51 ($J_A = 6\,5$ *Hz*) and 2 90 ($J_B = 7\,0$ Hz), respectively

EXPERIMENTAL

The NMR spectrum was recorded at 200 MHz in $CDCl_3$ and the UV spectrum was determined in MeOH TLC was on Merck Si gel plates F-254

Papaver dubium The dried EtOH extract from 9 5 kg *P dubium* L var *glabrum* (whole plant) was taken up in 5% HCl and filtered Extraction of the aq acidic filtrate with $CHCl_3$ furnished extract A (9 6 g) The mother-liquor was made alkaline with NH_4OH (pH 8) and extracted again with $CHCl_3$ to provide extract B (10 5 g)

Extract B was chromatographed on a column of Si gel in $CHCl_3$ The first few non-alkaloidal fractions were discarded The subsequent fraction which gave an alkaloidal spot at R_f 0 54 in C_6H_6–$CHCl_3$–Et_2NH (5 4 1) was purified by prep TLC in the same solvent system to yield 1 4 mg oxyhydrastinine

Argemone mexicana 3 kg powdered *A mexicana* L was defatted with petrol and then extracted with EtOH The dried EtOH extract was shaken with 0 01 N HCl, filtered and the filtrate extracted with $CHCl_3$ Removal of the $CHCl_3$ furnished 7 g of material which was chromatographed on a column of Si gel in $CHCl_3$ Fractions eluted with 10% MeOH in $CHCl_3$ were combined and purified by prep TLC to yield 0 5 mg oxyhydrastinine

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NOTE ADDED IN PROOF

Following submission of this manuscript, an obscure literature reference was found relating to the presence of oxyhydrastinine in *Fumaria schleicheri* Soy -Will , see Markosyan, S S (1976) *Tezisy Dokl Molodezhnaya konf Org Sint Bio-org Khim*, **59**, (1978) *Chem Abstr* **88**, 133268g