B071 New pyrrolizidine alkaloids from *Lithospermum canescens* Lehm

H. Wiedenfeld [a], *A. Pietrosiuk* [b], *M. Furmanowa* [b] *and E. Roeder* [a]
[a] Pharmazeutisches Institut der Universität, An dre Immenburg 4, D-53121 Bonn, Germany [b] Department of Biology and Pharmaceutical Botany, Medical University of Warsaw, Banacha 1, 02-097 Warsaw, Poland.

Lithospermum canescens (Indian paint or hoary puccoon) is a common prairie plant (1). It belongs to the Boraginaceae family so the presence of pyrrolizidine alkaloids (PA) should be presumed. Based on structural aspects, double-bond in position 1,2 and estrification at both necic OH-functions, PA can show toxic side effects. Therefore aerial parts of plant *L. canescens* were investigated using methods described earlier (2).

Seven PA were isolated and their structures determined by GC-mass spectroscopy and homo- as well as heteronuclear 2D-NMR correlated spectroscopy.

Four of them have not been described previously. The known alkaloids belong to the retronecine-type and are O^9-(-)-viridifloryl-retronecine (lycopsamine), its O^7-acetylderivative (acetyllycopsamine) and O^7-acetyl-O^9-(+)-trachelanthoyl-retronecine (acetylintermedine).

The new PA show the structures of O^7-(3-hydroxy-3-methyl-butanoyl)-O^9-(+)-trachelanthoyl-heliotridine (O^7-3-hydroxy-3-methyl-butanoyl)-rinderine), O^7-(3-hydroxy-3-methyl-butanoyl)-O^9-(-)-viridifloryl-heliotridine (O^7-3-hydroxy-3-methyl-butanoyl)-echinatine), O^{13}-acetyl-O^7-(3-hydroxy-3-methyl-butanoyl)-O^9-(+)-trachelanthoyl-heliotridine, O^{13}-acetyl-O^7-(3-hydroxy-3-methyl-butanoyl)- O^9-(-)-viridifloryl-heliotridine.

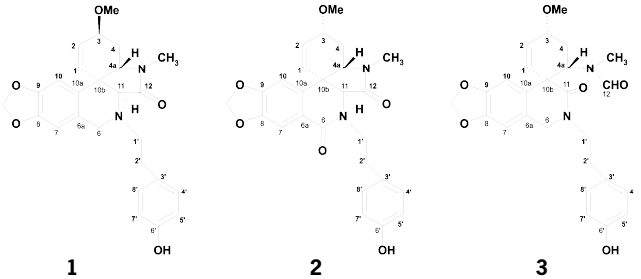
Acknowledgements: Saskatchewan Herb Research Centre, Department of Horticulture Science, University of Saskatchewan, Canada, Dr. Branka Barl.

References: 1. Wiedenfeld, H. et al. (1998) Abstracts of Plenary Lectures Short Lectures and Posters 46th Annual Congress Society for Medicinal Plant Research, Vienna, Austria. **2.** Roeder, E., Wiedenfeld, H. (1977) Phytochemistry 16, 1462-1463.

B072 A new dinitrogenous alkaloid from *Cyrtanthus obliquus*

N. Brine [a], *W. Campbell* [a], *J. Bastida* [b], *M. Herrera* [b], *C. Codina* [b], *F. Viladomat* [b] *and P. Smith* [a]
[a] Pharmacology Division, Dept. of Medicine, University of Cape Town, Observatory 7925, South Africa. [b] Department de Productes Naturals, Facultat de Farmàcia, Universitat de Barcelona, Barcelona, Spain.

As part of our ongoing phytochemical and cytotoxicity studies on the isoquinoline alkaloids from South African Amaryllidaceae used in traditional medicine, we investigated *Cyrtanthus obliquus* (L.f) Ait, a species indigenous to the Western Cape, Eastern Cape and KwaZulu Natal Provinces of South Africa. We describe the isolation and characterization of the novel dinitrogenous alkaloid (–)-obliquine (**1**), together with the known structures, 11α-hydroxygalanthamine, 3-epimacronine, narcissidine, tazettine and trisphaeridine. Obliquine represents the third member of a new subgroup of the Amaryllidaceae alkaloids, where a nitrogen atom replaces the oxygen atom in position 5 of a tazettine type molecule, and that nitrogen atom is substituted by a 6-hydroxyphenethyl moiety, and follows the isolation of (+)-plicamine (**2**) and (–)-secoplicamine (**3**) (**1**). The structure and stereochemistry of **1** were determined by detailed 1D and 2D NMR techniques and HREIMS. In contrast to **2** and **3** and based on the magnitude of the coupling constants between H-3α and H-4a and H-4α and H-4a, a β-orientation was assigned to the 3-OMe group in obliquine. All the alkaloids were screened for cytotoxicity using the MTT assay against two mammalian cell lines, namely CHO and HepG2 cells, and were not cytotoxic at concentrations up to 100 µg/ml.



1 **2** **3**

Reference: 1. Ünver, N. et al. (1999). *Phytochemistry* 50: 1255-1261.