

New Spiranoid Withanolides From *Jaborosa Odonelliana*

A.M. Cirigliano¹, A.S. Veleiro¹, J.C. Oberti² and G. Burton¹

¹Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Pabellón II, Ciudad Universitaria, 1428 Buenos Aires, Argentina

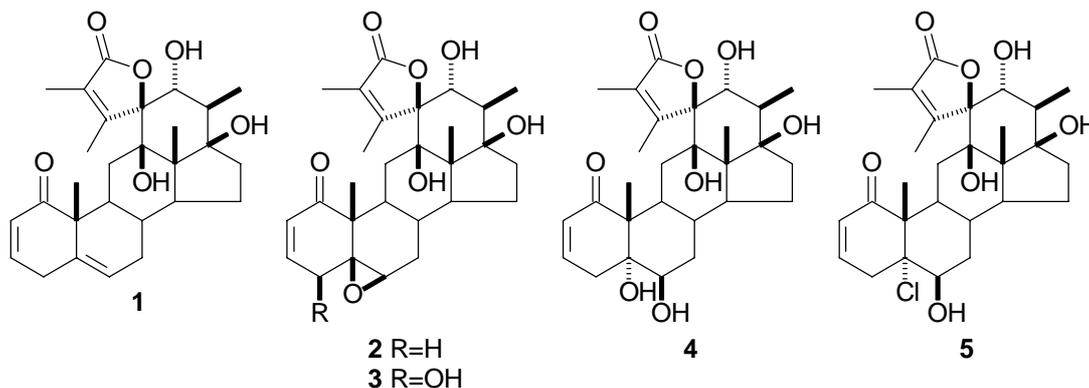
²Departamento de Química Orgánica and IMBIV, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, 5016 Córdoba, Argentina

E-mail: burton@qo.fcen.uba.ar

Abstract: From whole *Jaborosa odonelliana* plants four new withanolides containing a spiranic lactone in the side chain, were isolated and their structures elucidated by spectroscopic methods.

Introduction

As part of our studies of the withanolides of argentine species of the genus *Jaborosa* we have reinvestigated *Jaborosa odonelliana* from which we had isolated several years ago the unusual withanolide jaborosalactone P (**1**) [1]. *J. odonelliana* grows in the northwest of Argentina, mainly in arid and sandy soils. From plants collected in the province of Salta we have now isolated, besides jaborosalactone P, four new spiranoid withanolides (**2-5**), which differ from **1** in the substitution pattern of rings A and B.



Experimental

Plant material and isolation procedure: Whole plants of *J. odonelliana* A. T. Hunziker were collected in El Jardín, Depto la Candelaria, Salta. Dried and pulverized plants, were extracted successively with ether and ethanol at room temperature and both extracts evaporated. The combined residues were

fractionated by flash chromatography, RP-HPLC and prep. TLC rendering **1** and four more polar withanolides.

Results and Discussion

The ^1H and ^{13}C NMR spectra of compounds **2-5** showed resonances for rings C, D and the side chain, almost identical to those of jaborosalactone P (**1**); thus, the main difference among the five withanolides was established to be in the functionalization of rings A and B. Compound **3**, differed from the other four in the multiplicity pattern of the olefinic protons H-2 and H-3 which corresponded to a 4-substituted withanolide. The presence of additional resonances assigned to an oxygenated CH in the ^1H and ^{13}C NMR spectra (δ 3.76 and 69.3 respectively) confirmed the 4β -hydroxy substitution. The epoxide, diol and clorohydrin substituents of **2**, **4** and **5** were identified by comparison of the NMR spectra with similarly substituted withanolides and by MS. To this date, spiranoid withanolides containing a C-C bond between (C-12) and the side chain (C-23) have only been found in *J. odonelliana*, *J. araucana* and *J. runcinata* [1,2]. The spiranoid withanolide, jaborosalactone **1** [2], isolated from the latter species, showed antitumor activity in *in vitro* tests for induction of quinone reductase on mouse hepatoma cells (hepalcl7) [3].

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References and Notes

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3. A. D. Kinghorn, personal communication.