

## Antifeedant Activity Evaluation of Withanolides from *Jaborosa integrifolia*

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**Abstract:** Antifeedant activity of the 4-deoxy-27-hydroxi-withanolides (**1**, **2** y **3**) isolated from *Jaborosa integrifolia* (Solanaceae) was investigated in caterpillar *Spodoptera littoralis* on Leaf Disk Choice Bioassay. Results indicate that the best feed inhibition effect is due to *Jaborosalactone A*.

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### Introduction

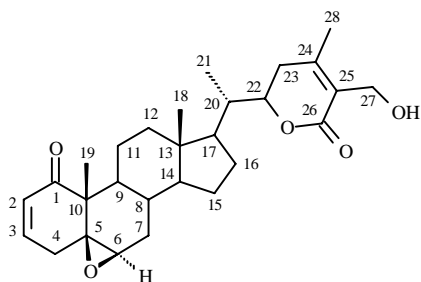
*Jaborosa integrifolia* (Solanaceae) is native from Argentina. Our phytochemical studies on this species confirm the occurrence of withanolides in roots. The compounds named Jaborosalactones A (**1**), B (**2**) and D (**3**) were isolated in previous studies of this species and from *Vassobia breviflora* (SENDTN.) HUNZ. (Sub. nom.: *Acnistus brevilorus* GRISEB.) [1-4].

In an interdisciplinary project for bioactive compounds research from natural sources we determined biological properties of the tree withanolides (**1**, **2** and **3**) isolated from *J. integrifolia*. These compounds were evaluated as antifeedant on leaf choice disk test with fresh leaf of *Zea mais* and *Cucurbita pepo*.

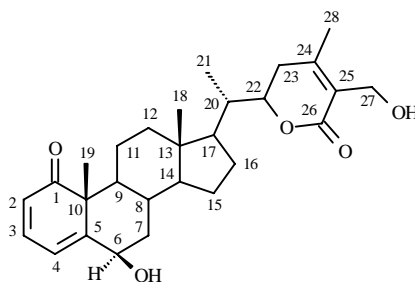
From the consumed area dates is calculated the antifeedant index as  $(1 - T/C) \times 100$ , where **T** and **C** are, the consumed area of treated and control disks respectively [5].

### Experimental

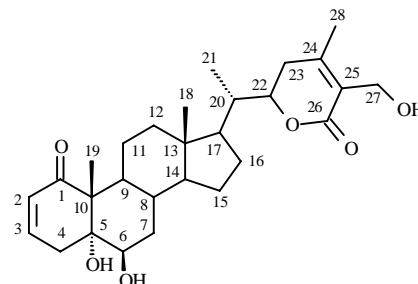
The dried and powered roots of *J. integrifolia* were extracted with ethanol at room temperature and concentrated at reduced pressure. The residue was taken with hexane-methanol-water and so deffated. The methanolic layer was concentrates *in vacuo*, the methanol was eliminated and the water was extracted with chloroform. The chloroformic layer was concentrated *in vacuo* and the extract was processed by chromatography yielding three withanolides Jaborosalactone A (**1**), Jaborosalactone B (**2**) and Jaborosalactone D (**3**). Bioassays with *S. littoralis* were made according standard procedure.



(1) Jaborosalactone A



(2) Jaborosalactone B



(3) Jaborosalactone D

## Results and discussion

Results indicate that the compound **1** show a potent feeding inhibitory effect for the caterpillars. We observe a 74% of feeding inhibition ( $p = 0,05$ ) in the disk treated with  $20 \mu\text{g}\cdot\text{cm}^2$ . The dates for compounds **2** and **3** indicate that these compounds has not significant effect (+ 19% and - 19%,  $p = 0.05$ , respectively) on the alimentation of the caterpillars. We conclude that exist correlation between the marked difference on the antifeedant effect and the differential structural arrangement in A and B rings of the withanolides tested.

## References and Notes

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4. Tchesche, R.; Baumgarth, M.; Welzel, P. *Tetrahedron* **1968**, *24*, 5169-5179.
5. Hassanali, A.; Lwande, W. *Antipest Secondary Metabolites from African Plants*, pag. 78-94 en *INSECTICIDES OF PLANTS ORIGIN. ACS symp.Ser. 387*, 1989.