



**PRIMERA REUNION INTERNACIONAL DE CIENCIAS
FARMACEUTICAS
Córdoba, Argentina
24 Y 25 DE JUNIO DE 2010**

**Los siguientes resúmenes han sido presentados durante el
evento y serán publicados oportunamente con formato
proceeding por la revista AAPS Pharm Sci Tech**

ACUTE ORAL TOXICITY STUDY OF CLADODES AND FRUIT FLOUR OF *Opuntia salagria* IN RATS

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Introduction

The cactus *Opuntia* appears to be one of the most promising sources of plant-derived diabetes mellitus active suppressants (1). We have demonstrated *O. salagria* hypolipidemic and hypoglycemic effects on normal and streptozotocine-induced diabetic rats (2, 3). *Opuntia* toxicity has not been scientifically studied to date. The aim of this work is therefore to analyze the acute toxicological effects of stem (cladodes) and fruit powders of *Opuntia salagria* on rats.

Materials and Methods

Plant materials include stems and fruits of *Opuntia salagria* collected in the area of Bahía Blanca, Argentina. A specimen of reference of this species (Villamil 8829) is deposited in the herbarium of the *Universidad Nacional del Sur*. After removing the spines, the stems and fruits were sliced, dried and milled. The flours thus obtained were stored at 4°C until required.

The experimental animals include female Wistar rats (13 weeks old) fed on a standard laboratory diet and kept under controlled laboratory conditions until the beginning of experiments.

The experience was performed according to the OECD Guidelines (4). Animals were divided into different groups according to a randomized block design (N = 24). Briefly, cladodes, seeds and fruit pulp flours were orally administered (2000 mg/kg body weight) to the rats at the onset of the experiment. General clinical observations were made daily. After 14 days, animals were subjected to euthanasia using CO₂ and blood for hematology, coagulation and clinical chemistry studies was collected by cardiac puncture. The organs were weighed, measured, and preserved for future histopathological studies.

Data represent mean values ± S.E.M. and they were subjected to analysis of variance in blocks. Mean values were compared using Bonferroni *t* statistics. Letters (a-b) indicate significant differences ($p < 0.05$) among groups.

Results

Plant oral administration produced neither mortality nor changes in behavior and physiological activities. Necropsy study revealed no abnormal signs, and body and organs weights were not significantly affected by the assayed treatments. Hematological analysis (erythrocytes, hemoglobin, platelets, leucocytes, and coagulation time) were similar both in control and treated rats. Serum levels of glucose, urea, creatinine, total proteins, albumin, triglycerides and hepatic enzymes evidenced no changes after *Opuntia* administration. On the other hand, pulp fruit consumption induced a mild increase in serum total cholesterol but LDL-c and HDL-c levels and the atherogenic risk remained constant.

Conclusions

Data indicate that cladodes and fruit seed and pulp powder of *Opuntia salagria* have no toxicological effects on the clinical chemistry and haematological parameters analyzed in rats, thus supporting their potential medicinal use.

References

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