



**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**

EVALUATION OF SUBACUTE TOXICITY OF AQUEOUS EXTRACT FROM CAPITULA OF *Solidago chilensis* IN MICE

Bucciarelli A^{1*}, Bras C², Gandini NA³, Guardiola FM¹, Minetti A², Skliar MI¹

¹Laboratorio de Farmacognosia, ²Laboratorio de Toxicología, ³Laboratorio de Anátomo-Histología.
Departamento de Biología, Bioquímica y Farmacia, Universidad Nacional del Sur.
San Juan 670, (8000) Bahía Blanca, Argentina.

Introduction

Solidago species have been used in folk medicine for the treatment of several diseases. In South America, the most abundant species is *Solidago chilensis* Meyen (Asteraceae), widely used in traditional medicine of several countries, where is usually employed as a diuretic, analgesic, anti-inflammatory, and to treat gastrointestinal disorders (1). We have recently reported that aqueous extracts from inflorescences of *S. chilensis* protected gastric mucosa in mice subjected to an ethanol-induced gastric ulcer model (2). However, there are no toxicological studies available which would be necessary in order to confirm the safe usage of the plant. For this reason, the aim of the present work was to study the subacute oral toxicity of the aqueous extract from inflorescences of *S. chilensis* after a 28-day repeated exposure in mice by means of a Functional Observational Battery (FOB) and by assessing the motor activity in an open field.

Materials and Methods

The experiment was conducted according to the protocols described by OECD (3). A group of healthy CF1 mice (8 males and 8 females) were daily exposed to 1000 mg/kg of body weight of the extract mixed with the standard food for 28 days. A control group was fed only with the standard diet. All the animals were weekly observed for signs of toxicity. At the end of the exposure, behavioral and functional parameters were evaluated through a FOB, which included a thorough description of the animals' appearance, behavior and functional integrity. This was assessed through observations in the home cage, while animals were moving freely in an open field, and through manipulative tests. The motor activity was assessed in an open field whose floor was divided into squares. The number of squares entered by mice with all four paws, rearings, groomings and fecal boluses were scored for 15 min.

Results

The subacute exposure to *S. chilensis* did not produce alterations in all parameters evaluated in the FOB or during the manipulative tests. No significant differences were observed between control and experimental groups in the different parameters analyzed during home cage, hand-held and open field observations ($P>0.05$). Motor activity evaluations in the square open field indicated that the subacute exposure did not modify neither the number of squares crossed nor rearings after the exposure. No significant differences were observed between control and experimental groups in emotionality parameters as the number of groomings and fecal boluses ($P>0.05$).

Conclusions

This study demonstrates that the aqueous extract from *Solidago chilensis* does not produce neurotoxicity due to it does not affect the functionality of the nervous system at neuromuscular, sensory and autonomic level. Considering the results it was demonstrated that the oral administration of the aqueous extract of the plant does not produce toxicity by subacute exposure in mice. This effect has already been observed in previous studies after the acute exposure in mice (4). Despite the lack of toxicity indicates that the possible therapeutic use of the plant may be safe, future research like potential chronic toxicity associated with this extract will need to be evaluated through long-term bioassays in order to ensure its safety.

References

- (1) Goleniowski ME, Bongiovanni GA, Palacio L, Núñez CO, Cantero JJ. Medicinal plants from the "Sierra de Comechingones", Argentina. *J Ethnopharmacol.* 2006;107,324-341.
- (2) Bucciarelli A, Skliar MI. Medicinal plants from Argentina with gastroprotective activity. *Ars Pharm.* 2007;48,361-369.

-
- (3) OECD, 2008, *Test No. 407: Repeated Dose 28-day Oral Toxicity Study in Rodents*, OECD Guidelines for the Testing of Chemicals, Section 4: Health Effects, OECD Publishing.
 - (4) Bucciarelli A, Minetti A, Gandini N, Fermento ME, Skliar MI. Estudio fármaco-toxicológico de *Solidago chilensis*, especie medicinal del sudoeste bonaerense. In: Cazzaniga NJ, Arelovich HM, eds. *Ambientes y recursos naturales del sudoeste bonaerense: Producción, contaminación y conservación*. vol. 3. Bahía Blanca,BA: EdiUNS; 2009:155-159.