



## IDENTIFICATION OF QUINOLIZIDINE ALKALOIDS FROM LEAVES OF *Genista monspessulana* (FABACEAE)

**Willy Fernando Cely Veloza<sup>1,2</sup>, Luis Enrique Cuca Suarez<sup>1</sup>, Ericsson David Coy Barrera<sup>2</sup>**

<sup>1</sup>Universidad Nacional, Bogotá DC, Colombia; <sup>2</sup>Universidad Militar Nueva Granada, Cajicá, Colombia;  
[wfcelyv@unal.edu.co](mailto:wfcelyv@unal.edu.co)

**Abstract:** *Genista monspessulana* is an endemic plant of the European Mediterranean and introduced for decorative and medicinal purposes in some places of South America including Colombia. This plant is known in Colombia with the common names of “retamilla” or “retamo liso” and it is characterized by being rich in secondary metabolites such as phenolics compounds, flavonoids, tannins and quinolizidine alkaloids which are the largest group of identified compounds [5]. In Colombia, there are some invasive plants and according to the International Union for Conservation of Nature (IUCN), *Genista monspessulana* was categorized in the Level 5 of invasion [4]. A strategy to eradicate this plant was trying to maximize their biomass in the production of biodiesel; however it easily grows in any soil and displaces endemic species generating losses in biodiversity. As part of our research on chemoprospecting, a chemical research was developed focused on the identification of the main compounds occurred in the plant in order to perform bioactivity tests in the future against those pathogens that produce damage and losses in the Colombian economy such as *Fusarium oxysporum* [2]. The present work shows the extraction, identification and characterization of quinolizidine alkaloids from leaves of *Genista monspessulana*. The extraction of alkaloids was directly performed using the acid-base method from dried plant material (leaves); the separation and isolation of the compounds from the alkaloid-rich extract was then performed by column chromatography; and the respective analyses by thin layer chromatography (TLC) and gas chromatography coupled to mass spectrometry (GC-MS) were subsequently performed [1]. This study allowed the isolation and identification of five quinolizidine alkaloids such as cytosine, aphylline, sophocarpine, anagryne and caulophylline. These compounds had already been reported previously in species of the genus *Genista* [3], however this is the first time that *Genista monspessulana* is studied for contributing to the characterization and identification of chemical compounds of this genus in Colombia. *The present work is a product derived by the Project INV-CIAS-1788 financed by Vicerrectoría de Investigaciones at UMNG, validity 2015.*

### References:

- [1] Erdemoglu, N., Ozkan, S., Duran, A., & Tosun, F. (2009). GC-MS analysis and antimicrobial activity of alkaloid extract from *Genista vuralii*. *Pharmaceutical Biology*, 47(1), 81–85.
  - [2] Garces E., Orozco M., Bautista G.R., V. H. (2001). *Fusarium oxysporum* “El hongo que nos falta concocer.” *Acta Biológica Colombiana*, 6(1), 7–26.
  - [3] Greinwald, R., Rensen, I. V. A. N., Veit, T. M., Canto, P., & Wltheii, L. (1995). A chemical dichotomy in quinolizidine alkaloid accumulation within the section spartioides of the Genus *Genista* (Fabaceae: Genisteae). *Biochemical Systematics and Ecology*, 23(1), 89–97.
  - [4] UICN. (2005). The Precautionary Principle Project: Pautas para aplicar el principio de precaución a la conservación de la biodiversidad y la gestión de los recursos naturales
  - [5] Wink, M. (2013). Evolution of secondary metabolites in legumes (Fabaceae). *South African Journal of Botany*, 89(1), 164–175.
-