



Assessing the genotoxicities of sparteine and compounds isolated from *Lupinus mexicanus* and *L. montanus* seeds by using comet assay

M.R. Silva¹, C.M. Alvarez¹, P.M. García² and M.A. Ruiz²

¹Genetic Laboratory, Department of Cellular and Molecular Biology, University Center for Biological and Agricultural Sciences, Guadalajara University, Guadalajara, Jalisco, México

²Biotechnology Laboratory, Department of Botany and Zoology, University Center for Biological and Agricultural Sciences, Guadalajara University, Guadalajara, Jalisco, México

Corresponding author: C.M. Alvarez

E-mail: calvarez@cucba.udg.mx

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ABSTRACT. The genus *Lupinus* is widely distributed. Its seeds are used for animal and human food, and *Lupinus* possesses pharmacological potential because of its high content of quinolizidine alkaloids and flavonoids; however, there is little available information about its genotoxicity. We used the comet assay and staminal nuclei of *Tradescantia* (clone 4430) to evaluate the *in vitro* genotoxicity of 4 concentrations (0.01, 0.1, 0.5, and 1.0 mM) of alkaloid extracts of *Lupinus mexicanus* and *Lupinus montanus*, flavonoids of *L. mexicanus*, and commercial sparteine; nitrosodiethylamine was used as a positive control and untreated nuclei were used as a negative control. All concentrations of *L. mexicanus* and *L. montanus* showed significant genotoxic activity ($P \leq 0.05$). A similar behavior was observed for flavonoid extracts of *L. montanus* except the 1.0 mM concentration. Sparteine showed genotoxic activity only at 0.5 mM. The order of

genotoxicity of the compounds studied was as follows: *L. mexicanus* > *L. montanus* > flavonoids of *L. montanus* > sparteine. There is evident genotoxic activity in the compounds that were studied, particularly at lower concentrations (0.01 and 0.1 mM). Given the limited information about the genotoxicity of the compounds of *L. mexicanus* and *L. montanus*, further studies are necessary.

Key words: Alkaloids; *Lupinus*; DNA damage; Comet assay; Genotoxicity test; Genotoxic activity