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Quantitative genotoxicity assays for analysis of medicinal plants: A systematic review

Graziela Sponchiado^a, Mônica Lucia Adam^b, Caroline Dadalt Silva^c, Bruna da Silva Soley^c, Cristina de Mello-Sampayo^d, Daniela Almeida Cabrini^c, Cassyano Januário Correr^a, Michel F. Otuki^{c,e,#}

^a Departamento de Ciências Farmacêuticas, Universidade Federal do Paraná, Curitiba, PR, Brazil

^b Universidade Federal de Pernambuco- UFPE/CAV, Brazil

^c Departamento de Farmacologia, Universidade Federal do Paraná, Centro Politécnico, Curitiba, Brazil

^d Pharmacological Sci Department, Faculty of Pharmacy, Universidade de Lisboa, Lisbon, Portugal

^e Departamento de Ciências Farmacêuticas, Universidade Estadual de Ponta Grossa, Ponta Grossa, PR, Brazil

Corresponding author. E-mail address: michelotuki@yahoo.com.br

Tel.: +55(41)33611539

ABSTRACT

Ethnopharmacological relevance: Medicinal plants are known to contain numerous biologically active compounds, and although they have proven pharmacological properties, they can cause harm, including DNA damage.

Aim of the study: Review the literature to evaluate the genotoxicity risk of medicinal plants, explore the genotoxicity assays most used and compare these to the current legal requirements.

Material and methods: A quantitative systematic review of the literature, using the keywords “medicinal plants”, “genotoxicity” and “mutagenicity”, was undertaken to identify the types of assays most used to assess genotoxicity, and to evaluate the genotoxicity potential of medicinal plant extracts.

Results: The database searches retrieved 2289 records, 458 of which met the inclusion criteria. Evaluation of the selected articles showed a total of 24 different assays used for an assessment of medicinal plant extract genotoxicity. More than a quarter of those studies (28.4%) reported positive results for genotoxicity.

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