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Genotoxicity and cytotoxicity evaluation of the neolignan analogue 2-(4-nitrophenoxy)-1-phenylethanone and its protective effect against DNA damage

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Neolignans are secondary metabolites found in various groups of Angiosperms. They belong to a class of natural compounds with great diversity of chemical structures and pharmacological activities. These compounds are formed by linking two phenylpropanoid units. Several compounds that have ability to prevent genetic damage have been isolated from plants and can be used to prevent or delay the development of tumor cells. Genetic toxicology evaluation is widely used in risk assessment of new drugs in preclinical screening tests. In this study, we evaluated the genotoxicity and cytotoxicity of the neolignan analogue 2-(4-nitrophenoxy)-1-phenylethanone (4NF) and its protective effect against DNA damage using the mouse bone marrow micronucleus test and the comet assay in mouse peripheral blood. Our results showed that this neolignan analogue had no genotoxic activity and was able to reduce induced damage both in mouse bone marrow and peripheral blood. Although the neolignan analogue 4NF was cytotoxic, it reduced cyclophosphamide-induced cytotoxicity. In conclusion, it showed no genotoxic action but exhibited cytotoxic, antigenotoxic and anticytotoxic activities.

Biography

Alex Lucas Hanusch has completed his MSc from Universidade Federal de Goiás (UFG), Brazil. He is a Cytopathologist of Hospital das Clínicas, UFG, Brazil. He has published three papers and 45 abstracts to his credit.

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