

IN VITRO SAFETY ASSESSMENT OF RANDIA FEROX: HEMOLYSIS AND DNA DAMAGE ANALYSIS

Lauren Pappis¹; Tuyla Fontana¹; Liliane de Freitas Bauermann²; Alencar Kolinski Machado¹

¹Graduate Program in Nanosciences, Franciscan University, Santa Maria, RS, Brazil.

²Graduate Program In Pharmaceutical Science, UFSM, Santa Maria, RS, Brazil.

INTRODUCTION: Medicinal plants are widely used by the population to treat symptoms and illnesses, especially due to the belief that natural origin means low toxicity. However, most of the plants used as a treatment have a lack of study regarding the toxicity and the relationship between dose and effect. One example is the species *Randia ferox*, from the Rubiaceae family, a native angiosperm from the Atlantic Florets and popularly known as "limoeiro-do-mato", whose leaves are used in folk medicine for their anti-inflammatory and would healing properties. Nevertheless, there is a lack of studies evaluating its potential toxicity to cells and DNA. **OBJECTIVE:** Therefore, the aim of this study evaluating the hemolytic and genotoxic effect of *R. ferox* crude extract by exposing to human blood cells and DNA. **MATERIAL AND METHOD:** Erythrocytes and peripheral blood mononuclear cells (PBMC) were obtained from human peripheral blood - this study was approved by the Human Research Ethics Committee of Universidade Franciscana. Cells were exposure to a concentration-response curve (25-400 ug/mL). Erythrocytes were used to access the hemolytic effect, while the PBMC were exposure for 24 hours to perform comet assay for DNA damage analysis. Additionally, the potential of the extract to modifier double-stranded DNA (dsDNA) upon directly exposure was evaluate using PicoGreen dsDNA kit. **RESULTS:** In the hemolysis assay, the tested concentrations did not cause damage to the hemoglobin membrane. DNA damage was assed using two assays: the comet assay and direct exposure to dsDNA. In both cases no significant genotoxicity was observed. **CONCLUSION:** Under the conditions tested, the crude extract of *R. ferox* was not hemolytic and showed no genotoxic effects. However, further studies are needed, as in vitro experiments have limitations.

Keywords: Toxicity, Natural products, Crude extract.