



Genotoxicity, cytotoxicity and toxicological evaluation of whole plant extracts of the medicinal plant *Phyllanthus niruri* (Phyllanthaceae)

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Genet. Mol. Res. 11 (1): 100-111 (2012)

Received August 9, 2011

Accepted December 19, 2011

Published January 13, 2012

DOI <http://dx.doi.org/10.4238/2012.January.13.3>

ABSTRACT. *Phyllanthus niruri* is a medicinal plant (commonly known as stone breaker) found in the tropics and other parts of the world. It is known for its capacity to block the formation of calcium oxalate crystals and kidney stone formation in urolithiasis. This plant has been used to treat hyperglycemia, hypertension, pain, and mild cases of malaria. We examined the geno-, cyto- and overall toxicity of *P. niruri* whole plant ethanolic extract. The extract was administered as a single dose of 30 or 300 mg/kg to laboratory rats by gavage, accompanied by negative (0.9% saline) and positive (10 mg/mL *N*-ethyl-*N*-nitrosourea) controls that were injected intramuscularly 48 h after extract administration. The ratio of polychromatic (PCE)/normochromatic erythrocytes (NCE) from femur bone marrow was scored for genotoxicity. Cytotoxicity was determined using descending concentrations (0.2-0.0125 g/mL) of the extract incubated with peripheral blood mononuclear cells.

Lactate dehydrogenase release from damaged cells was determined and the CC_{50} calculated. Subchronic administration of the extract at 30 or 300 mg/kg was done for 90 days to determine general toxicity. PCE:NCE (%) for the extract and negative control was 63, compared to 168 (positive control). The CC_{50} was 26.3 $\mu\text{g/mL}$ and hepato-renal toxicity after subchronic extract administration was nil. We conclude that ethanol extract of *P. niruri* is not cytotoxic or genotoxic, and is generally non-toxic on subchronic administration.

Key words: *Phyllanthus niruri*; Micronuclei test; Genotoxicity; Cytotoxicity