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In vitro and *in vivo* studies of the genotoxic potential of *Crataegus oxyacantha* fruits extract

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Statement of the Problem: *Crataegus oxyacantha* L. berries, leaves and flowers and their extracts have been used as astringent, antispasmodic, cardiogenic, diuretic, hypotensive and antiatherosclerotic agents. Popularly known as hawthorn, is particularly used in the treatment of various heart problems. In traditional Chinese medicine, hawthorn fruits are used to treat stomach diseases, diarrhea, abdominal pain, as well as amenorrhea, hypertension, and hyperlipidemia. Its fruits are also consumed as foodstuff (canned fruit, jam, jelly, drink, and wine). Despite of the pharmacological potential of *C. oxyacantha*, our literature review showed absence of genetic toxicity studies specifically on its fruits. Therefore, the present study was carried out to evaluate the genotoxic potential of this fruits extract.

Methodology: *In vitro* analysis was performed using leukocytes and liver (HepG2) human cultured cells. In the *in vivo* protocol, mice were treated by oral gavage (50, 100, and 200 mg/Kg body weight doses) during seven consecutive days at 24 hours interval. SCGE (comet) and micronucleus assays were the cytogenetic tests used in the genotoxic assessment.

Results & Conclusion: The *in vitro* results showed that the fruits extract presented DNA and chromosome damage at concentrations of 5, 10, 50, and 100 µg/ml in both human cell types. The *in vivo* findings showed that extract did not induce significant DNA damage in leukocytes and bone marrow cells by the comet assay; however, was observed a significant increase in micro-nucleated polychromatic erythrocytes at the three tested doses. Our experimental conditions allowed us to conclude that *C. oxyacantha* fruits extract present genotoxic effects in cultured human cells, which were confirmed in the *in vivo* assay on mice bone marrow cells. These results suggest caution on its use by humans and indicate the necessity of complementary genotoxic studies in different formulations containing extracts of this plant.

Biography

Maistro E L has completed his PhD from Universidade Estadual Paulista (UNESP), São Paulo, Brazil and Post-doctoral studies from Universidade Estadual de Londrina (UEL), Brazil. He works as a Professor and Researcher in the Speech and Hearing Science department. He has published more than 75 papers in reputed journals. His studies focus on genotoxic and anti-genotoxic assessment of natural products, medicinal plants and its major constituents.

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