Genetics and Molecular Biology, 25, 3, 355 (2002)

www.sbg.org.br

Thesis abstracts

Antirecombinagenic activity of propolis against recombinagenic activity of doxorubicin in *Drosophila melanogaster*

Bruno Lassmar Bueno Valadares

Propolis is a natural resinous substance collected by honeybees (*Apis mellifera*) from parts of plants, buds and exudates. This material has been used in folk medicine for a number of treatments, mainly as an anti-inflammatory and scar healer. Some studies have suggested that propolis is a free radical scavenger. The aim of this study is to evaluate genotoxicity or anti-genotoxicity of propolis water extracts of propolis (PWE) on the mutagenicity of doxorubicin chloridrate (DXR), a known free radical generator, through the Somatic Mutation And Recombination Test (SMART) in the wings of *Drosophila melanogaster*. The SMART assay is based on the principle of induced loss of heterozygosity loss for two recessive wing cell markers, *mwh* (3-0.3) and *flr*^{3} (3-38.8), in the wing imaginal disc cells. The following crosses were used: [1] Standard cross (ST), where *flr3 / In(3LR) TM3, ri p*^{p}*sep l(3)89Aa bx*^{34e} e *Bd*^{S} females were mated with *mwh* males; [2] High Bioactivation cross (HB) where *ORR; flr3 / In(3LR) TM3, ri p*^{p}*sep l(3)89Aa bx*^{34e} *e Bd*^{S} females were mated with *mwh* males. The last cross is characterized by a constitutively enhanced level of cytochrome P450 that leads to increased metabolic activity which is able to detect the genotoxicity of promutagens and procarcinogens. Third-instar larvae from these two crosses were treated simultaneously for approximately 48 h with different concentrations (0.05; 0.025 and 0.0125 g/mL) of PWE and 0.01 mg/mL of DXR. The results obtained with the two different crosses were rather similar. PWE showed non-mutagenic effects. Combined treatment of DXR and PWE displayed, throughout all concentrations assayed, an inhibition of the recombinogenic effects of DXR by PWE. This anti-recombinogenic effect was proportional to the concentrations applied. The results obtained indicate that the wing spot test is suitable either for the detection of recombinagenic activity of genotoxic chemicals or for studies on antigenotoxicity.

** 2002. Instituto de Genética e Bioquímica, Universidade Federal de Uberlândia, Uberlândia, MG, Brasil. Master's Thesis. Orienting Professor: Dr. Mário Antônio Spanó.*