Citotoxicity and antiestrogenicity of nemorosone, a compound isolated by *Clusia rosea* resin

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**Palavras Chave:** nemorosone, breast cancer, estrogen receptors, selectivity

**Introducion:** Nemorosone is the major constituent of *Clusia rosea* floral resins and *brown* Cuban propolis. This compound belongs to the class of polycyclic polyisoprenylated benzophenones and showed cytotoxicity *in vitro* against a panel of tumor cell lines as breast, colon, ovary, liver and lung carcinoma including wild type and chemotherapy-refractory and absence of citotoxicity to non-tumoral cells. It is known the use of chemical substances that act as antiestrogenic agents on treatment against breast cancer. These compounds can bind on estrogen receptors and blocking cell proliferation.

**Methods:** The floral resin of *Clusia rosea* was collected in Havana, submitted to extraction, crystallized in an ethanol-water solution and purificated. The citotoxicity assay was realized by suphohrodamine B method. 2 x 10⁴ cells MCF10A (normal breast cells) and MCF-7 BUS (breast cancer cells) was treated with 10⁻⁹ to 10⁻⁵M of nemorosone for 24 hour. The cell growth was measure by optical density and percent growth inhibition in the presence of nemorosone was calculated. To evaluate the antiestrogenic activity by E-Screen assay, MCF-7 BUS cells were threated with 17β-estradiol in presence of 10⁻⁹ to 10⁻⁵M of nemorosone for 144 hours. The capacity of the benzophenone to reduce the cell proliferation induced by hormone was calculated.

**Results/Discussion:** In the major concentration nemorosone presented toxicty against breast cancer cells reducing in 27.6% the viability, but presents no toxicity against normal breast cells. In the same concentration the proliferation induced by 17 β-estradiol was reduced in 75%. These findings shows that nemorosone can binding to estrogen receptors and inhibit the cell proliferation. The selectivity can be explained by the absence of estrogen receptor in MCF10A.

**Conclusion:** These results shows that nemorosone presents toxicity against breast cancer cells but not against normal breast cell and has antiestrogenic activity.

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