Cytotoxic Effects of Creosote (Larrea Tridentata) Plant Extracts on Human Lymphoma Cells Lines

Emanuel Cordero
Departamento de Biología, Universidad de Puerto Rico en Arecibo, emanuel.cordero@upr.edu

Yahaira Santiago
Department of Biological Sciences, University of Texas at El Paso, ysantiagovazquez@miners.utep.edu

Carolina Lema
Department of Biological Sciences, University of Texas at El Paso, fclema@utep.edu

Armando Varela-Ramirez
Department of Biological Sciences, University of Texas at El Paso

Renato J Aguilera
Department of Biological Sciences, University of Texas at El Paso

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Cytotoxic Effects of Creosote (Larrea Tridentata) Plant Extracts on Human Lymphoma Cells Lines

Emanuel Cordero, Yahaira Santiago, Carolina Lema, Armando Varela-Ramirez, and Renato J Aguilera

*Larrea tridentata* also known as Creosote is a North American shrub, whose leaf extracts are proposed to contain anti-cancer properties. The main metabolite in this plant is the nordihydroguaiaretic acid (NDGA) has been shown to have anti-neoplastic, anti-viral and anti-inflammatory properties. NDGA is a strong anti-oxidant that can scavenge or inhibit reactive oxygen spices production, stimulate nitric oxide production, increase immune function, enhance central nervous system function, and prevent cardiovascular or other diseases. Although extracts from this plant are currently used in Mexico as an herbal medicine, the Food and Drug Administration and Health Canada have issued health hazard warming due to risk of damage to internal organs. The National Institutes of Health have recommended that future research on this plant should include detailed mechanisms of action, specificity, clinically relevant pharmacokinetic, therapeutic and toxicity studies, in both animal models and human trials. The main goal of our research was to study the mechanisms of cell death caused by creosote leave extracts on lymphoma cell lines and a non-transformed cell line using various assays. Our results suggest that creosote extracts induce cell death in various lymphoma cell lines *via* apoptosis. In addition, incubation with extracts appears to protect cells from oxidative stress. In the future, the mechanism(s) of action of the creosote extract on mammalian cells will be examined in more detail. Another future goal is to determine if NDGA can mediate the same cytotoxic and anti-oxidative stress effects that have been identified from *L. tridentata* extract.

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