

PRECLINICAL ASSESSMENT OF GARLIC IN THE MANAGEMENT OF ACUTE PROMYELOCYTIC LEUKEMIA

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Abstract: Garlic supplementation in diet has been shown to be beneficial to cancer patients. Recently, its pharmacological role in the prevention and treatment of cancer has received increasing attention. However, the mechanisms by which garlic extract induces cytotoxic effects in cancer cells remain largely unknown. The present study was designed to use HL-60 cells as a test model to determine whether garlic treatment induced toxicity to human leukemia cells is mediated through oxidative stress. Human leukemia (HL-60) cells were treated with different concentrations of garlic extract for 24 hr. Live and dead cells was determined by trypan blue exclusion test and microscopic imaging. The role of oxidative stress in garlic toxicity was assessed by lipid peroxidation, glutathione peroxidase (GPx) and catalase (Cat) assays, respectively. Oxidative stress biomarkers showed significant increase ($p < 0.05$) of malondialdehyde levels on one hand and gradual decrease of antioxidant enzyme activity (GPx & Cat) on the other hand with increasing garlic doses. Taken together, finding from the present study demonstrates that at therapeutic concentrations, garlic treatment induced cytotoxic effects through oxidative in HL-60 cells.

Keywords: Garlic, HL-60 cells, trypan blue Test, oxidative stress, microscopic imaging

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