



**Effects of Aqueous Extract of *Allium sativum*
on Adriamycin-induced Hepatotoxicity and
Nephrotoxicity in Ehrlich Ascites
Carcinoma-Bearing Mice**

By

Heba Mohamed Ribea Elesh

**B.Sc., in Zoology & Chemistry 2003
Fac. of Sci., Fayoum branch., Cairo
University.**

**M.Sc. 2010 (Zoology- Histology and
Genetics), Fac. of Sci., Fayoum
University.**

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ABSTRACT

Objective: The present research aimed to study the protective role of garlic aqueous extract against the side effects of adrymicin ADR (an anthracycline antibiotic, used in tumor therapy) on the hematological, biochemical functions and the histological structure of the liver and kidney in healthy and EAC bearing male mice.

Animal's studies and drug treatment: for this experiments 64 Swiss albino male mice, weighing 22.0 ± 2.0 g, 6-8 weeks old were taken. For these purpose eight groups each one consists of 8 male mice. **The 1st** control group was fed ad-libitum without any treatment so

called "Normal control". **The 2nd** group received garlic aqueous extract orally with daily dose

50 mg/Kg body weight for 30 days. **The 3rd** ADR group the animals were injected Intraperitoneal (IP) from the first day in six equal injections of ADR (each containing 3 mg/kg b.wt.) over a period of 2 weeks, (cumulative dosage of 18 mg/kg body weight). **The 4th** Garlic extract/ADR group, the animals administered the same dose aqueous garlic extract orally and injected IP with the same doses of ADR. **The 5th** EAC group the animals were injected on day zero subcutaneously with 2.0×10^6 Ehrlich ascites carcinoma cells (EAC). **The 6th** EAC/Garlic extract group), the animals injected S.C with EAC cells and orally with garlic extract. **The 7th** EAC/ADR group, the animals' injected s.c with 2.0×10^6 EAC cells and injected the same doses of ADR (IP). **The 8th** (EAC/ Garlic extract / ADR group), the animals injected SC with 2.0×10^6 EAC cells, the same doses of ADR and orally with garlic aqueous extract.

Results: many toxicity symptoms, significant decrease in the body weight, hematological parameters and increase the liver (ALT & AST) and kidney (creatinin & BNU) were recorded in ADR or / and EAC bearing mice comparing with control and all garlic groups. In contrast, the garlic decreases the loss of body weight, level of ALT, AST, creatinin & BNU and improves the values of haematological parameters. Many histopathological lesions as inflammation, vacuolation, apoptosis, necrosis, fibrosis of the hepatic and kidney tissues, were recorded in ADR or/and EAC groups. Garlic aqueous extract decrease the degree of most previous abnormal changes. The flowcytometrical findings showed that the increased percentages of apoptosis cells in ADR or/and EAC will reduced in all garlic treated groups. **Conclusions:**

This study revealed that garlic may ameliorate the cytotoxic effect of ADR in normal and EAC bearing mice as proved by hematological, biochemical and histological results.

Keywords: Adriamycin, garlic, liver and kidney cytotoxicity in mice.