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جامعة عين شمس

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(ARTS, SCIENCE AND EDUCATION)
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EVALUATION OF THE MUTAGENIC POTENTIAL OF IVERMECTIN

A Thesis
Submitted

By

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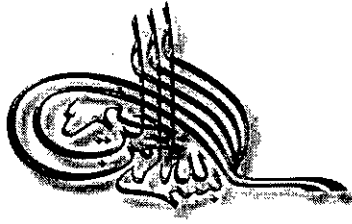
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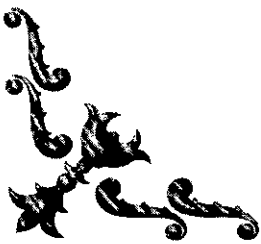
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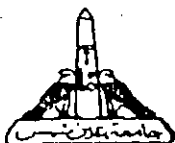
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AIN SHAMS UNIVERSITY
UNIVERSITY COLLEGE FOR WOMEN
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Evaluation of the mutagenic potential of Ivermectin

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ABSTRACT

Ivermectin (IVM) is a broad-spectrum anti-parasitic agent. It shows an excellent anthelmintic effect in veterinary and human medicine. The objective of this study was the evaluation of potential mutagenicity of IVM on *Mus musculus* in vivo. This was achieved through chromosomal aberration assay (CAA) and micronucleus test (MNT) in bone marrow cells. CAA was also studied in spermatocytes. Variation in constitution of serum proteins on the molecular level was also investigated.

For CAA & MNT, animals received single and/or double doses of 200µg/kg b.w. IVM. The sampling times were 1, 2, 3, 7 and 14 days after the last injection. While in CAA in spermatocytes, male mice treated with single injection of 200µg/kg b.w. IVM. Meiotic chromosomes were prepared after 6h, 2, 5, 10 and 12 days to cover the different phases of meiotic division.

In molecular study, animals treated in a similar manner. Blood samples were collected after 1, 7 and 14 days of the last injection. Total protein content was determined. The electrophoretic patterns of serum proteins were studied by using SDS-PAGE.

After single and double injection of IVM the damage cell percent (DC%) and the chromosome aberration percent (CA%) were significantly elevated through the first 3 days, and reduced after 7 and 14 days. The peaking time was different according to exclusion or inclusion of gaps. Single dose of IVM gave high score of MN than that obtained by double doses. In both groups MNPCs were decreased by increasing time. The percentage of abnormal metaphases in germ cells was 33.83 versus 5.83 for the control.

IVM elevated the total protein content. Single injection induced much variation in the percentage area of the separated proteins than that produced by double treatment. In conclusion, this study revealed high clastogenic and genotoxic potential of IVM on mice.

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