بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــســـم ﴾

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Biochemical Studies on Some Plant Extracts as Anticancer Agents on Subcellular Level

By

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B.Sc. Agric. Genetics and Genetic Engineering,
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Thesis

Submitted in partial fulfillments
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Approval Sheet

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ABSTRACT

Vincristine,viblastine,vinorelbine and etoposide (plant products) are potent anticancer agents. The effects of these agents by three concentrations(low,medium and high) on four rat liver lysosomal enzymes (acid phosphatase, ß-galactosidase, ß-N-actyl glucosaminidase and ß-glucuronidase) were studied for three incubation periods(30,60 and 120 minutes) *in vitro*. The results showed a significant enhancement in the release rate of the four lysosomal enzymes for the four anticancer compounds. Etoposide and vinorelbine exerted the highest toxic effect on the lysosomal membrane ,while vincristine and vinblastine caused the lowest toxic effect on the lysosomal membrane.

CONTENTS

ABBREVIATIONS

VBL : Vinblastine.
VCR : Vincristine.
VRE : Vinorelbine.
ET : Etoposide.
L : Low dose.
M : Medium dose.
H : High dose .
nm : nanometer.
g /ml : gram per milliliter.
mg /kg :milligram per kilogram.
mg /dl :milligram per deciliter.
ml /min : milliliter per minute.
C.A. : Chromosome aberration.
S.C.E. : Sister Chromated Exchange.
S.C.G.E.: Single Cell Gel Electrophoresis.
b.w. : body weight.
A.V.s : macroautophagic vacuoles.
S phase : Synthesis phase.
M phase : Mitosis phase.
G2 : Gap 2
G.F. :Golgi intermediate Fraction

I NTRODUCTION

INTRODUCTION

The present study was designed to achieve full explanation of the potential hepatotoxicity of four chemotherapeutic agents (antineoplastic drugs) vinblastine, vincristine, vinorelbine which extracted from *Catharanthus roseus* and etoposide derivative of podophyllotoxin. These drugs are used in treatment of a wide variety of malignant neoplasms such as small-cell lung, neuroblastoma and breast cancer.

It was possible by the use of subcellular particles specially "lysosomes" to study the direct effects of the test compounds on the lysosomal membrane and to determine their relative stabilizing or labilizing effects within the limits of drug concentration levels and exposure periods.

This procedure would allow comparative evaluation of the drug actions on the molecular level by gaining ready access to the subcellular particles without interference with the nervous or humeral factors present in the intact organism.

The investigation entailed *in vitro* incubation of rat liver lysosomal suspension with rodent equivalent therapeutic doses of each of the test drugs.

The noxious effects of these drugs on lysosomal fraction were in terms of enhanced lysosomal release rates of their marker acid hydrolases namely acid phosphatase, ß-galactosidase, N-acetyl-ß-glucosaminidase and ß-glucuronidase.