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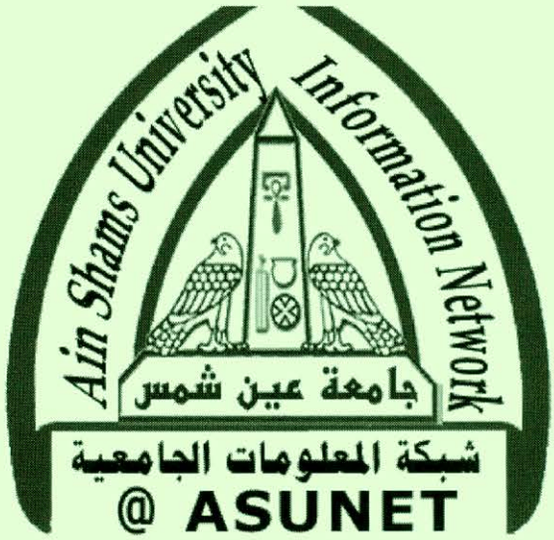

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التوثيق الالكتروني والميكروفيلم

بعض الوثائق الاصلية تالفة

بالرسالة صفحات
لم ترد بالاصل

In vitro studies on antitumor bioactive substances of *Ecballium elaterium*

A Thesis Submitted for the Degree of Master of Biochemistry

By

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APPROVAL SHEET FOR SUBMISSION

Title of (M.Sc.) Thesis:

In vitro Studies on Antitumor Bioactive Substances of *Ecballium elaterium*

Name of the candidate: Mai Mohammed Farid Kotb

This thesis has been approved for submission by the supervisors:

1. Prof. Dr. Abdelgawad Ali Fahmi

Signature:

2. Dr. Ahmed Ibrahim Amin

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3. PROF. DR. Mahmoud Mohammed Sakr

Signature:

Prof. Dr. Mohammed Mohammed Shokry

Chairman of Chemistry Department
Faculty of Science, Cairo University

DEDICATION

I dedicate this work to my heart felt thanks;

To

My parents and my sister for their patience and help, as well as to my grandmother for all the support and love she lovely offered along the period of my post graduation.

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First, I thank **God** for helping me to accomplish this work.

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Abstract

Name: Mai Mohammed Farid Kotb

Title of thesis: *In vitro* Studies on Antitumor Bioactive Substances of *Ecballium elaterium*

Degree: M.Sc. in Biochemistry, Faculty of Science, Cairo University

Squirting cucumber *(Ecballium elaterium)* is an important wild cucurbit member of cucurbitaceae family in the Mediterranean region. Its importance is due to its content from elaterium, an extract rich in cucurbitacins which is known for its medicinal properties. In this study, establishment of tissue cultures from different parts of squirting cucumber, endemic in Egypt was achieved. Different factors affecting *in vitro* production of cucurbitacins were investigated. Suspension culture was also established and subjected to different elicitors such as salicylic and acetic acids. Inclusions of salicylic and citric acids increase the content of cucurbitacins and stimulate the release of cucurbitacins in the medium. In the second phase of study, 2 L stirred reactor equipped with marine impeller running at 150 rpm was used. The cultures were aerated with 0.3 vvm air and grown at 27°C under non-controlled pH conditions; another factor was studied by increasing the aeration to 0.6 vvm. The obtained data indicated that, the growth was increased and the concentration of cucurbitacins (E, I) was increased and excreted in the medium. The highest recorded level of cucurbitacins under the aforementioned condition was 0.3 and 0.1 g/l for cucurbitacin E and cucurbitacin I, respectively. Crude cucurbitacins extract show antitumor activity against some cancer cell lines and antimicrobial activity in different degrees.

Keywords: *Ecballium elaterium*, Cucurbitacins, Antitumor activity, Tissue culture

Supervisors:

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