سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

سامية محمد مصطفى

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

سامية محمد مصطفى

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

سامية محمد مصطفى

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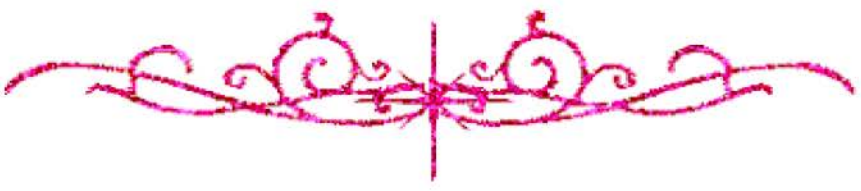
بعض الوثائق الأصلية تالفة



سامية محمد مصطفى

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

BIOLOGICAL STUDIES ON THE RED SWAMP CRAWFISH *PROCAMBARUS CLARKII* (GIRARD, 1852) (DECAPODA: CAMBARIDAE) IN THE RIVER NILE, EGYPT

A thesis Submitted in fulfillment of the requirements for the

Ph.D. Degree

In

Zoology

By

Salwa Abdel-Hamid Hamdi

Department of Zoology

Faculty of Science

Cairo University

2001

APPROVAL SHEET FOR SUBMISSION

Title: Biological Studies on the Red Swamp Crawfish *Procambarus clarkii* (Girard, 1852) (Decapoda: Cambaridae) in the River Nile, Egypt

Degree : Ph.D. in Zoology

Name of the Candidate : Salwa Abdel Hamid Hamdi Abdel-Salam

This thesis has been approved for submission by the supervisors:

1 – Prof. Dr. Gamil N. Soliman **Signature:**

2 – Prof. Dr. Sayed K. Abo-Hegab **Signature:**

3- Dr. Kohar Garo **Signature:**

4- Dr. Magdy A. Salah El-Deen **Signature:**

Head of Zoology Department

Prof. Dr. Kamal S. Al-Badry

Name: Salwa Abdel Hamid Hamdi

Title of thesis:

Biological studies of the responses of the red swamp crawfish *procambarus clarkii* (Girard, 1852) (Decapoda : Cambaridae), from the river Nile, to the pesticide Malathion in Egypt

Degree : Ph.D. in Zoology, Faculty of Science, Cairo University, 2001

ABSTRACT

The present study deals with the physiological changes in the haemolymph, hepatopancreas and muscles of the red swamp crawfish *Procambarus clarkii* exposed to the organophosphorous pesticide malathion in acute and chronic doses during different time intervals.

This study showed that malathion is toxic to *P. clarkii*, the 96 hrs LC_{50} being 3.706 mg/l (ppm). The results revealed that there was a highly significant elevation in haemolymph glucose, ASAT, ALAT enzymes, creatinine, uric acid and potassium concentrations after acute and chronic exposure to malathion. However, a gradual decrease was recorded in the haemolymph total lipid and sodium concentrations but a sudden increase was encountered after 6 weeks of chronic exposure.

Hepatopancreatic analysis of *P. clarkii* showed a decrease in the water content, total protein, glycogen, hepatosomatic index (HSI) and cholesterol after exposure to acute and chronic doses of malathion. However, an increase was recorded in the total lipid concentrations. Hepatic and muscle ASAT and ALAT showed a significant decrease throughout the entire experimental period of acute and chronic exposure to malathion.

It was found that there was an increase in muscle total lipid, and a decrease in muscle water content and total protein after acute exposure to malathion. However, on chronic exposure, there were insignificant differences in the muscle total lipid, total protein and water content throughout the experimental period compared to the control values.

Regarding the histopathological examination, after acute exposure (3hrs to 96 hrs) slight signs of degeneration in the hepatopancreas in the form of vacuolation as well as some changes occurred in the gland and secretory cells of the tubules. On the other hand, after chronic exposure, from 2 weeks onwards to 2 months, vacuolation was observed in a vast number of tubules. However, some signs of recovery occurred from 45 days onwards.

Key words: *Procambarus clarkii*, malathion, toxicity, haemolymph, hepatopancreas, muscle, total protein, total lipid, ALAT, ASAT, creatinine, uric acid, Na^+, K^+, triglycerides, cholesterol, water content

Supervisors:

1- Prof. Dr. Gamil N. Soliman

2- Prof. Dr. Said K. Abo-Hegab

3- Dr. Kohar Garo

4- Dr. Magdy A. Salah El-Deen

Prof. Kamal El-Sayed Al-Badry

Chairman of Zoology Department,
Faculty of Science, Cairo University

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