



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



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بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات

لم ترد بالأصل

**THE ENVIRONMENTAL INJURIES ARISING
FROM ZINC DEFICIENCY IN THE EGYPTIAN
ENVIRONMENT AND METHODS OF THEIR
CIRCUMVENTION**

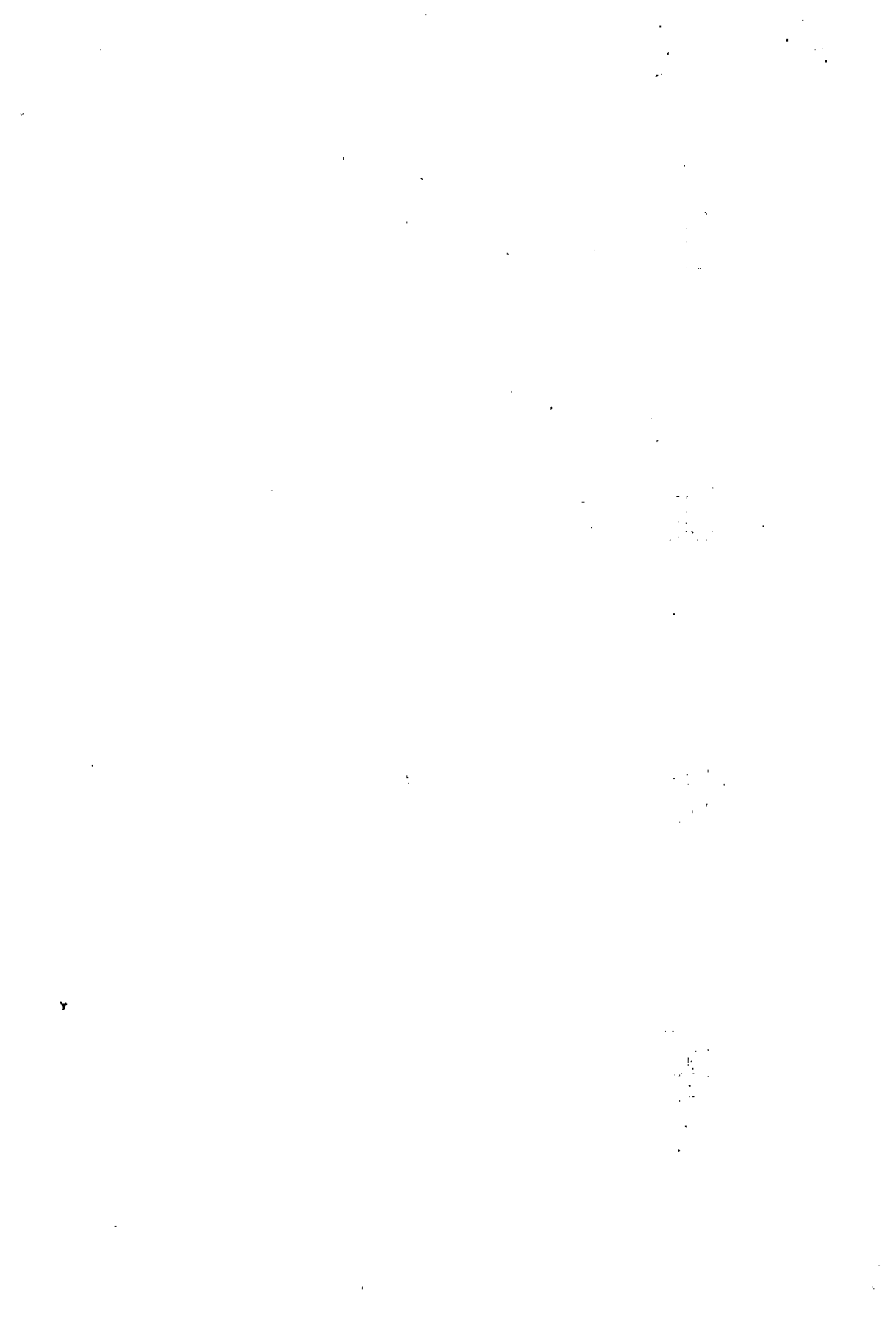
**By
Sherif El-Sayed Aly Badr
B.Sc. Ain Shams University, 1986**

**A Thesis Submitted in Partial Fulfillment
Of
The Requirement the Master Degree
In
Environmental Sciences**

**Department of Biology and Natural Sciences
Institute of Environmental Studies and Research
Ain Shams University**

2005

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APPROVAL SHEET

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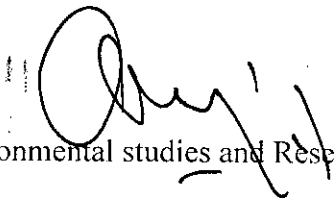
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2005



ABSTRACT

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The environmental injuries arising from zinc deficiency in the Egyptian environment and methods of their circumvention; Sherif El-sayed Aly Badr; M.D. thesis, Institute of Environmental Studies and Research; Biology and Natural Sciences.

5-weeks-old Swiss Webster out bred male mice animals were caged individually in two different experimental designs, the first design was in stainless steel cages of *adlibitum* feeding. The analysis of the previously prepared 5- different diets were done after complete homogenization of their ingredients. Mice group (A) were fed zinc deficiency diet *adlibitum* of "9.6 mg Zn / kg diet, mice group (B) were fed zinc controlled *adlibitum* diet "31.3 mg Zn / kg diet", mice group (C) were fed zinc supplemented *adlibitum* diet "60mg Zn /kg diet", zinc source of last groups is $ZnSO_4 \cdot 7H_2O$. On the other hand, mice groups (D) and (E) were fed zinc supplemented *adlibitum* diet included phytic acid in concentration of 1497.0 and 1505.4 mg / kg diet respectively, as well as, their zinc sources are $ZnSO_4 \cdot 7H_2O$ in concentration of 58 mg / kg diet in diet of mice group (D) and $ZnNa_2EDTA$ in concentration of "58.4 mg / kg diet" in diet of mice group (E). Experiments were initially designed to examine the simultaneous interaction between both zinc and other nutrient metals as calcium, iron and copper and the effect of dietary fiber of phytic acid on zinc absorption and study the impact of zinc absorption enhancement by using a chelating source of zinc as EDTA on the

into 3- subjected mice groups, mice group (C) fed zinc supplemented diet as $ZnSO_4 \cdot 7H_2O$, mice group (D) fed zinc supplemented diet as $ZnNa_2EDTA$ and mice group (E) fed zinc supplemented diet as (pumpkin seeds + $ZnSO_4 \cdot 7H_2O$). The other 2- subjected mice groups were: mice group (A) fed zinc deficient diet (09.6mgZn/kg diet) and mice group (B) fed zinc controlled diet (31.3 mg Zn / kg diet) where, zinc source of the last two groups is $ZnSO_4 \cdot 7H_2O$. All mice groups maintained at 22-24°C and 45-55% relative humidity (RH), diets and de-ionized water were provided fresh daily. The duration of these experiments were 8- weeks divided into 3- intervals; zero time period, depletion period (the 1st- 4weeks) and repletion period (the 2nd- 4weeks). By the end of each period, the bio- assay of zinc deficiency and it's injuries effect on the different metabolites were carried out by withdrawing blood samples and harvesting from mice of each group and isolated to determine calcium, iron, zinc and copper in the serum as well as, estimating of alkaline phosphatase activity, HDL-, LDL-Cholesterol levels and kidney functions. Also body weights and food consumption of subjected mice groups were accurately weighted weekly to follow up the mice growth at the end of each period. The previous three zinc sources ($ZnSO_4 \cdot 7H_2O$, $ZnNa_2EDTA$ and pumpkin seeds) are good supplementation zinc sources, which also not influence calcium and iron absorptions. In addition, copper absorption enhanced with $ZnNa_2EDTA$, while inhibited with $ZnSO_4 \cdot 7H_2O$. Generally; pumpkin seeds also were a good source of zinc supplementation without any definite effects on the other minerals absorption in blood, as well as, it rich in fat, protein and other minerals. Therefore; biscuit was fortified with zinc will be a strategy method and/or circumvention method to increase the zinc intake, that are known to be deficient in the Egyptian food and thus fortification with zinc contributes