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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

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بالرسالة صفحات نم ترد بالاصل

٢٠١٠



Cairo University
Faculty of Science
Department of Chemistry

*Effects of Antioxidant Vitamins on the Oxidative
Stress and Antioxidant Status in Homozygous
 β -thalassemic Patients*

Thesis

Submitted for the degree of PhD in Biochemistry

By

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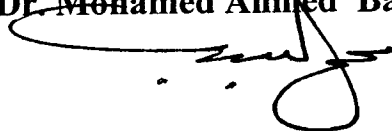
2010



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Approval sheet for submission

Title of (PhD) thesis: Effects of Antioxidant Vitamins on the Oxidative Stress and Antioxidant Status in Homozygous β -thalassemic Patients

Name of candidate: Fatma Abd El-Hamid Abd El-Samee Ibrahim

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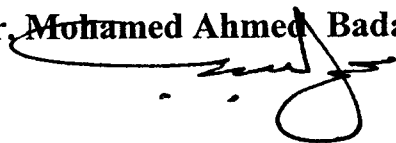
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ABSTRACT

Name: Fatma Abd El-Hamid Abd El-Samee Ibrahim

Title of thesis: Effects of Antioxidant Vitamins on the Oxidative Stress and

Antioxidant Status in Homozygous β -thalassemic Patients


Degree (PhD) thesis, Faculty of Science, Cairo University, 2010

The present work is concerned with the study of the effects of antioxidant vitamins treatment on the oxidative stress and antioxidant status in homozygous β -thalassemic patients. After a period of twelve months of vitamins treatment, there were improvements in all non-enzymatic antioxidants levels as compared with untreated β -thalassemia patients. The vitamins A, C and E increased with highly significant change ($P < 0.0001$, $P < 0.002$, $P < 0.001$) respectively. Also, MDA significantly decreased ($P < 0.0025$), and also, ALT, AST, and SOD significantly decreased ($P < 0.003$, $P < 0.001$, and $P < 0.001$) respectively. This study showed the correlation analysis between various enzymatic and non-enzymatic parameters of β -thalassemic patients along twelve months in comparison with healthy controls. First, glutathione peroxidase (GPx) activities were positively correlated with both superoxide dismutase activities (SOD) ($r = 0.367$; $P = 0.046$) and malondialdehyde levels (MDA) levels ($r = 0.482$; $P = 0.007$). Second vitamin A levels correlated with vitamin E levels and ALT enzyme activities ($r = 0.447$; $P = 0.013$) and ($r = -0.389$; $P = 0.029$), respectively after vitamins supplementation for twelve months. The present study evaluated the biophysical parameters of β -thalassemic patients before and after vitamins treatments. First, the mean value of hemolysis of β -thalassemic children after treatment is significantly lower ($P < 0.05$) than that of β -thalassemic children before treatment. Second, significant decreases in MetHb % ($P < 0.01$), significant increases in HbO₂ % ($P < 0.05$) and HbO₂ concentration ($P < 0.05$) were observed in β -thalassemic blood and also the concentration of hemoglobin before and after twelve months treatment were significantly increase after vitamins supplementation.

Key words: *β -Thalassemia, Oxidative stress, Antioxidants, Vitamins*

Supervisors:

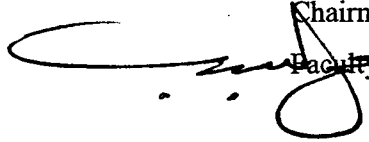
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