دراسات جينومية مقارنة لبعض أسماك المياه العذبة

رسالة مقدمة من

نوح عيد أحمد
بكالوريوس علوم زراعية (وراثة)، جامعة عين شمس، 2000
ماجستير علوم زراعية (وراثة)، جامعة عين شمس، 2005

للحصول على
درجة دكتور فلسفه في العلوم الزراعية
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صفحة الموافقة على الرسالة

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وقد تمت مناقشة الرسالة والموافقة عليها:

اللجنة:

د. عبد الوهاب محمد حسن .....

أستاذ الوراثة المتفرغ، كلية الزراعة، جامعة بنها

د. فتحي محمد عبد التواب .....

أستاذ الوراثة الغير متفرغ، كلية الزراعة، جامعة عين شمس

د. أيمن حنفي عبد العظيم عطا .....

أستاذ الوراثة، كلية الزراعة، جامعة عين شمس

د. محمد عبد السلام راشد .....

أستاذ الوراثة، كلية الزراعة، جامعة عين شمس

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لجنة الإشراف

د. محمد عبد السلام راشد
أستاذ الوراثة، قسم الوراثة، كلية الزراعة، جامعة عين شمس (المشرف الرئيسي)

د. أيمن حنفي عبد العظيم عطا
أستاذ الوراثة، قسم الوراثة، كلية الزراعة، جامعة عين شمس

د. ياسر محمد سعد
باحث أول الوراثة، المعهد القومي لعلوم البحار والمصايد

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COMPARATIVE GENOMIC STUDIES OF SOME FRESH-WATER FISH

BY

NOUH EYD AHMED

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NOUH EYD AHMED

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M.Sc. Agric. Sc. (Genetics), Ain Shams University, 2005

This thesis for Ph.D. degree has been approved by:

Dr. Abdel-Wahab Mohamed Hassan ……..……

Prof. Emeritus of Genetics, Faculty of Agriculture, Benha University

Dr. Fatthy Mohamed Abdel-Tawab ……..……

Prof. Emeritus of Genetics, Faculty of Agriculture, Ain Shams University

Dr. Ayman Hanafy Abdel-Azeem Atta ……..……

Prof. of Genetics, Faculty of Agriculture, Ain Shams University

Dr. Mohamed Abdel-Salam Rashed ……..……

Prof. of Genetics, Faculty of Agriculture, Ain Shams University

Date of examination: 19/12/2010

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NOUH EYD AHMED

B.Sc. Agric. Sc. (Genetics), Ain Shams University, 2000

M.Sc. Agric. Sc. (Genetics), Ain Shams University, 2005

Under the supervision of:

Dr. Mohamed Abdel-Salam Rashed

Prof. of Genetics, Department of Genetics, Faculty of Agriculture, Ain Shams University (Principal Supervisor).

Dr. Ayman Hanafy Abdel-Azeem Atta

Prof. of Genetics, Department of Genetics, Faculty of Agriculture, Ain Shams University

Dr. Yasser Mohamed Saad

Senior Researcher of Genetics, National Institute of Oceanography and Fisheries.

ABSTRACT

Nouh Eyd Ahmed: Comparative Genomic Studies of Some Fresh-Water Fish. Unpublished Ph.D. Thesis, Department of Genetics, Faculty of Agriculture, Ain Shams University, 2010.

Eleven RAPD, 12 ISSR and ten microsatellite primers (SSR) were used to characterize four tilapia species: *Oreochromis niloticus*, *Oreochromis aureus*, *Sarotherodon galilaeus* and *Tilapia zillii*. The number of loci through RAPD primers ranged from 11 to four loci. Using RAPD primers, 26 of 180 generated loci were detected as molecular markers for the tilapia species. The number of loci through the ISSR primers ranged from ten to three loci. Using ISSR primers, 31 of 139 generated loci were detected as molecular markers for the tilapia species. There are no differences between the similarity values revealed by *NTSYSpc2.01b* and *SPSS10* software, but *SPSS10* software draws the phylogenetic tree on the whole scale of the program whether the relationships between the individuals covering the scale or not. Number of alleles through SSR (microsatellite) loci ranged from seven to zero alleles. All SSR loci were polymorphic in the four tilapia species except one locus in *S. galilaeus* and three loci in *T. Zillii*. The four tilapia species showed high ratio of heterozygosity. Most of SSR loci showed that the observed heterozygosity was higher than their expected heterozygosity. Due to the high polymorphic nature of the microsatellite loci the values of similarity between and within the four studied tilapia species were small.

Key words:

O. niloticus, *O. aureus*, *S. galilaeus*, *T. zillii*, RAPD, ISSR, SSR, molecular markers and phylogenetic relationships.

Dedication

To my wife and my daughter

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Thanks for Allah, the great and almighty for his uncountable and infinite graces, thanks for Allah, the great creator for all creatures, who created me, guided me to the Islam and learned me things that I didn't know.

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