

**EFFECT OF NITROGEN AND ZINC
LEVELS ON YIELD AND TECHNOLOGICAL
CHARACTERS OF SOME PROMISING FLAX
GENOTYPES**

By

RIHAM HAMED HASSAN AHMED

B.Sc. Agric. Sci. (Agronomy), Fac. Agric., Cairo Univ., 2004

M.Sc. Agric. Sci. (Agronomy), Fac. Agric., Cairo Univ., 2010

THESIS

**Submitted in Partial Fulfillment of the
Requirements for the Degree of**

DOCTOR OF PHILOSOPHY

In

**Agricultural Sciences
(Agronomy)**

**Department of Agronomy
Faculty of Agriculture
Cairo University
EGYPT**

2018

APPROVAL SHEET

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APPROVAL COMMITTEE

Dr. MOHAMED ALI MOHAMED RIZK

Professor of Agronomy, Fac. Agric., AL- Azhar University

Dr. MAGDY MOHAMED SHAFIK.....

Professor of Agronomy, Fac. Agric., Cairo University

Dr. AMANY MOHAMED ABDALLAH MATBULLY.....

Professor of Agronomy, Fac. Agric., Cairo University

Dr. SOHAIR ELAYAN DESSOKY ELAYAN.....

Professor of Agronomy, Fac. Agric., Cairo University

Date: 29 / 11 / 2018

SUPERVISION SHEET

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SUPERVISION COMMITTEE

Dr. SOHAIR ELAYAN DESSOKY ELAYAN

Professor of Agronomy, Fac. Agric., Cairo University

Dr. AMANY MOHAMED ABDALLAH MATBULLY

Professor of Agronomy, Fac. Agric., Cairo University

Dr. SABER HUSSIEN AHMED MOSTAFA

**Head Research, Fiber Crops Res., Field Crops Inst., Agric. Res.
Center, Giza.**

Name of Candidate: Riham Hamed Hassan Ahmed **Degree:** Ph.D. **Title of Thesis:** Effect of Nitrogen and Zinc Levels on Yield and Technological Characters of Some Promising Flax Genotypes.
Supervisors: Dr. Sohair Elayan Dessoky Elayan
Dr. Amany Mohamed Abdallah Matbully
Dr. Saber Hussien Ahmed Mostafa
Department: Agronomy **Approval:** 29 / 11 /2018

ABSTRACT

This study was carried out at Giza Agric. Res. Station. Field Crops Res. Instit., A.R.C. during two successive seasons (2014/2015 and 2015/2016) seasons to evaluate three flax genotypes (S.541-D/10, S.541-C/3, and S.651) released by Fiber crops Res. where grown under three zinc concentrations (Control, 150 and 300 ppm) and three nitrogen levels (30, 45 and 60 kg N/fed.) to study influence of nitrogen and zinc levels on yield and technological characters of some promising flax genotypes and determine the best treatment for higher yield and quality. Results showed significant differences among the three flax genotypes. Whereas, strain 541-D/10 surpassed the other genotypes in technical stem length, straw yield/plant as well as per feddan, fiber yield/feddan and fiber length in both seasons. While, strain 541-C/3 ranked first in seed yield/plant, seed index, seed yield/feddan, oil yield/feddan and oil percentage. And strain 651 surpassed other genotypes in number of seeds/capsule and total fiber percentage. While there weren't differences between Strain 541-D/10 and Strain 541-C/3 in plant height, and stem diameter in both seasons. The data indicated that, fertilizer with nitrogen and zinc significantly affected all characters under study. Use of (300 ppm) zinc concentration resulted a significant increase in plant height, technical stem length, stem diameter, straw yield/plant as well as per feddan, seed yield/plant as well as per feddan, fiber yield/feddan and oil yield/fed in both seasons. Data showed that highest level of nitrogen gave the highest averages of all characters under study except number of capsules / plant in both seasons. The flax strain 651 ranked first in fiber percentage per the total cross section followed by S. 541- D/10 and S. 541- C/3 when applying zinc 300 ppm and 60 kg N/fed. It is clear also that, added highest zinc and nitrogen quantities promote maximum estimates of fiber and xylem percentages in comparison with the lowest amounts of both elements studied. While, pith percentage decreased with added highest zinc and nitrogen.

Key words: Flax, *Linum usitatissimum* L., Nitrogen, Zinc, Straw, Fibers, Seed, Oil, Flax Anatomy

ACKNOWLEDGEMENT

*I wish to express my sincere thanks, deepest gratitude and appreciation to **Dr. Sohair Elayan Dessoky Elayan** Professor of Agronomy, Faculty of Agriculture, Cairo University, **Dr. Amany Mohamed Abdallah** Professor of Agronomy, Faculty of Agriculture, Cairo University and **Dr. Saber Hussien Ahmed** Head Research, Fiber crops Research Section, Field Crops Research Institute, Agricultural Research Center Giza Egypt for suggesting the problem, supervision, continuous assistance and their guidance through the course of study and revision the manuscript of this thesis.*

*Special Thanks to **Dr. Gamal El Shimy** Head Research, Fiber crops Research Section, Field Crops Research Institute, Agricultural Research Center Giza and my family for valuable advice and continuous help during all phases of my life.*

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