PHYSIOLOGICAL RESPONSE OF TOMATO TO LOW TEMPERATURE

By

SANAA MOHAMED ABDEL HALIM

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B. Sc. (Agr.) Plant Production, Ain Shams Univ., 1973.

M. Sc. (Agr.) Horticulture, Ain Shams Univ., 1984.

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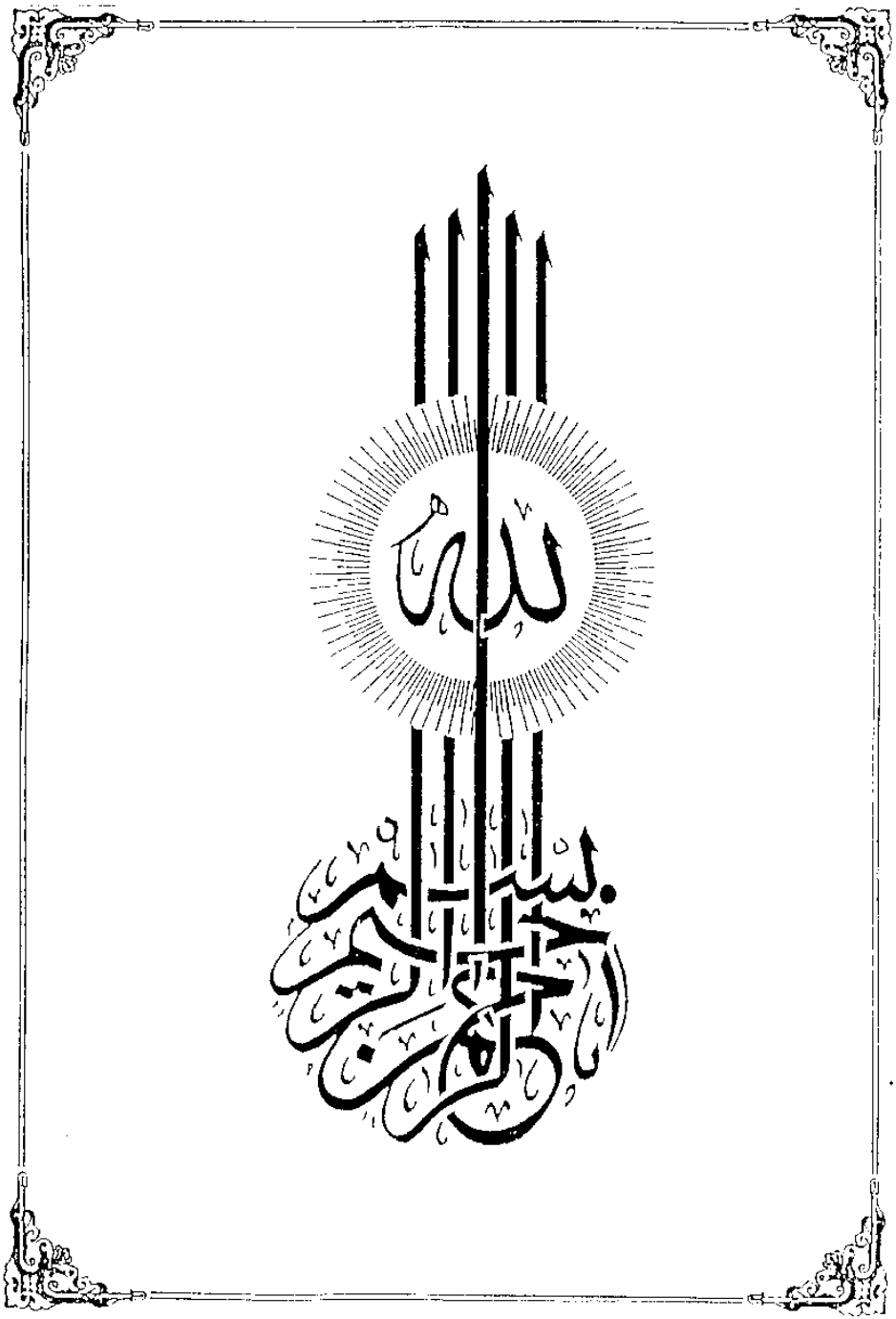

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ABSTRACT

Preliminary experiments were carried out to study the effect of treating dry or soaked tomato seeds with different low temperatures for different intervals on the ability of tomato plants to tolerate low temperature injury and its reflection on growth, flowering and yield. The results of these experiments showed that 6 hrs. soaking period, -1°C and 5°C temperature treatments for one or seven days were the convenient treatments among all the treatments tested.

Pot and field experiments were carried out to study the effect of treating dry or soaked tomato seeds with -1°C and 5°C temperatures for one or seven days on tomato plants and its yield.

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These treatments showed distinct effects on both vegetative and reproductive growth of the plants.

Hormonal analysis of the treated and untreated tomato seeds showed significant increase in the amount of growth promotors (namely IAA, GA-like substances and cytokinins) and marked decrease in the amount of growth inhibitors (namely ABA). 5°C chilling temperature for seven days resulted in the appearance of three newly fatty acids, two of which are saturated and the third is unsaturated.

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DEDICATION

I would like to dedicate this work to my husband Medhat El-Gazzar. I must apologise to my husband and my sons Mohamed, Ahmed and Mahmoud, to whom I present this Thesis, for missing me some times during the course of my study and hope they will forgive me.

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