بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــســـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية 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 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

USING DIFFERENT FORMS OF AGRICULTURAL MANAGEMENT TO PRODUCE HENNA (*LAWSONIA INERMIS*) WITH MINIMIZED POLLUTION UNDER NORTH SINAI CONDITIONS

BY

Elham Mohamed Attia

B.Sc. Agric. (Horticulture.), Ain Shams Univ. 1971

M.Sc. Agric. (Horticulture), Cairo Univ. 1978

A Thesis Submitted
for Doctor of Philosophy
In
Environmental Science

Department of Agricultural Science
Institute of Environmental Studies & Research Ain Shams University

2000

APPROVAL SHEET

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ABSTRACT

Two field experiments were carried out in two locations (Al-Arish and Al-Shiekh Zowaid), at North Sinai, during the two seasons of 1996 and 1997.

In an attempt, in the first experiment to study the effect of different plant spacing treatments 30,40 and 50 cm on the vegetative growth, yield and active constituents of henna (*Lawsonia inermis* L.) plants. While the second one was to study the effect of different fertilization treatments (Bio. fert.) , (Organic) (½Bio. fert. + ½ Organic), (Organic + NPK) to minimize heavy metals contamination on the vegetative growth, yield and active constituents of henna (*Lawsonia inermis*).

It could be concluded that, in order to produce the maximum growth, yield from henna leaves and branches with highest content of active constituents as (Lawsone pigment, chlorophyll a, b and carotene, tannins, NPK and carbohydrates) and with allowable range of the following heavy metals as (Ni, Mo, Pb, Al, Se, Cr, Co and Cd) heavy metals, the best treatments were planting plants at on 30cm. distance between plants and using (NPK plus Organic) suitable quantities of fertilizers in different locations.

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