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**BOTANICAL STUDIES ON TWO WILD
MEDICINAL PLANTS (DAMSISA AND
WILD MINT) IN FAYOUM**

BY

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THESIS

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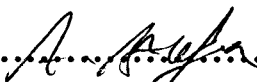
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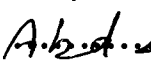
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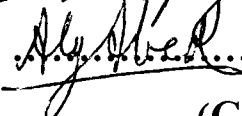
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Abstract

This study was carried out in the Experimental Station, Faculty of Agriculture at Fayoum, Cairo University, during the two successive seasons 1996/1997 and 1997/1998. The aim of this work is to study the effect of N (urea) and K (K_2SO_4) fertilizers, both at 100 and 200 kg/ feddan in different combinations on two medicinal plants i.e. damsisa, *Ambrosia artemisiifolia* L. and wild mint, *Mentha longifolia* (L.) Huds. var. *longifolia* grown in clay or calcareous soil. The results can be summarized as follows:

In general, either in clay or calcareous soil, NK application significantly increased plant height, number of leaves, number of branches, leaf area index, number of inflorescences, average peduncle length and fresh weight as well as dry weight/ plant in both damsisa and wild mint plants during the two successive seasons. Moreover, primary root length of damsisa also was significantly increased.

In both damsisa and wild mint, NK application increased stem section diameter, number and diameter of xylem vessels. In damsisa, leaf petiole diameter, length and width of the vascular bundle also were increased. In addition, either in clay or calcareous soil, NK application increased midvein and leaf blade thickness of both damsisa and wild mint plants. Addition of N and K fertilizers either in clay or calcareous soil increased section diameter, number and diameter of xylem vessels as well as diameter of vascular cylinder in wild mint root.

Chemical constituents represented in N, P, K, chlorophyll, carotenoids and total carbohydrate concentrations were increased by NK fertilization either in clay or calcareous soils. Active ingredients % and its yield/ plant as sesquiterpene lactones in damsisa and volatile oil for wild mint were considerably increased by NK fertilization.

The best results of this study for both damsisa and wild mint were attained at the highest levels of both N and K fertilizers, in clay more than calcareous soil.

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My deep gratitude and thanks to all the staff members and the technical staff at the Agricultural Botany Department , Faculty of Agriculture, Fayoum, Cairo University.

DEDICATION

I dedicate this thesis to:

My husband, my sons Mohamed and Khaled
and to all my family persons.

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1. INTRODUCTION

Medicinal and essential oil plants have their own importance as they are remedies of different maladies even from the dawn of human civilization. Many of them are wild plants still in frequent use though the synthetic drugs have occupied a sound position among various therapy systems. But the demand of these useful plants is more than their products.

Damsisa (also Damsees, Demsees, Dimsees, Damaseisa), *Ambrosia artemisiifolia* L. and wild mint or horse mint or (Habaq in Arabic, Fayoum) *Mentha longifolia* (L.) Huds. var. *longifolia* are medicinal plants wild grown on river Nile and canal banks in Egypt.

Damsisa is an annual herb, richly branched, monoecious plant belongs to the family Asteraceae. It is attaining 20- 80 cm in height, possessing a well- developed root system and a dark green solid, erect, slender monopodialy branching stem often woody below. Leaves are bearing alternate on the stem, petiolate, finally dissected bipinnatipartite, lobes dentate.

It is used in folklore medicine as antispasmodic, in renal colic and to expel renal stones (Mahran, 1967), it was shown that when damsisa grown near the bank of canal, the snails of bilharziasis escape far from these plants and even it can kill some of these snails. Also, it showed a