

CONTENTS

	<u>Page</u>
INTRODUCTION	1
REVIEW OF LITERATURE	3
MATERIALS AND METHODS	34
RESULTS AND DISCUSSION	40
The First Experiment :	
I. Effect of some irrigation treatments on vegetative growth and flowering	40
I.1. Mean height of plant	40
I.2. Mean number of branches/plant	44
I.3. Mean number of flower/plant	47
I.4. Mean weight of petals/flower	50
I.5. Mean weight of petals/plant	53
I.6. Mean weight of seeds/flower	58
I.7. Mean weight of seeds/plant	61
II. Effect of irrigation treatments on chemical composition :	65
II.1. Oil percentage	65
II.2. Oil yield/plant	69
II.3. Protein percentage in seeds	71
II.4. Effect of irrigation treatments on nitrogen, phosphorus and potassium on safflower dry leaves	74
4.a- nitrogen percentage	74
4.b- phosphorus percentage	76
4.c- potassium percentage.....	77
II.5. Total carbohydrates in dry leaves	78
II.6. Chlorophyll (a and b) and carotenoids in leaves	83
II.7. B-carotene percentage in petals.....	85
II.8. Carthamin content in petals	91
II.9. Gas chromatographic analysis of oil	99

	<u>Page</u>
II.9.a- The Swiss source	99
9.b- The Portugese source	104
9.c- Giza I var.	106
 The Second Experiment :	
I. Effect of nitrogen fertilization levels on vegetative growth and flowering	109
I.1. Mean height of plant	109
I.2. Mean number of branches/plant	111
I.3. Mean number of flower/plant	111
I.4. Mean weight of petals/plant	112
I.5. Mean weight of seeds/plant	114
II. Chemical Composition	114
II.1. Oil percentage	114
II.2. Oil yield/plant	116
II.3. Protein percentage.....	117
II.4. Effect of nitrogen fertilization on nitrogen, phosphorus and potassium in safflower dry leaves	118
II.4.a- Nitrogen percentage	118
4.b- Phosphorus percentage	120
4.c- Potassium percentage.....	121
II.5. Total carbohydratespercentage in dry leaves...	121
II.6. Chlorophyll and carotenoids percentage in leaves.	122
II.6.a- Chlorophyll(a)	123
6.b- Chlorophyll (b)	123
6.c- Carotene	123
II.7. B-carotene percentage in petals	125
II.8. Carthamin percentage in petals	127
II.9. Gas chromatographic analysis of oil Giza I var.	130
SUMMARY	133
LITERATURE CITED	141
ARABIC SUMMARY.	