

CONTENTS

Subject	Page
INTRODUCTION	1
LITERATURE REVIEW	5
MATERIALS AND METHODS	40
A-Materials	40
B-Methods	40
I-Morphological measurements	41
-The tree	41
-The leaf	41
-The shoot	42
- The fruit	42
II-Physiological measurement	43
1-Extraction and estimation of growth regulating substances	44
2-Extraction and estimation of certain metabolites	45
2-1-Estimation of photosynthetic pigments	45
2-2-Estimation of carbohydrates	46
-Estimation of soluble carbohydrates	46
-Estimation of direct reducing value	47
-Estimation of total reducing value	47
-Estimation of polysaccharides	48
-Estimation of total carbohydrates	48
2-3-Estimation of nitrogenous constituents	49
-Estimation of total soluble nitrogen	49
-Estimation of total nitrogen	51

-Estimation of amino- nitrogen	52
-Electrophoresis determination of leaf total protein	53
2-4-Estimation of mineral content	59
III- Soil analysis	60
1-Soil physical properties	60
-Soil texture (granuleometric analysis)	60
2-Soil chemical properties	60
-pH-values and electrical conductivity (E.C.)	61
-Anions determination	61
-Carbonates and bicarbonates	61
-Sulphates	61
-Chlorides	61
-Cations determination	61
RESULTS	62
-Experiment (1)	62
Morphological, hormonal and metabolic changes accompanying the growth and development of <i>Ficus carica</i> <i>L.</i> tree	62
-Plant height and branching	62
-Leaf morpholpogy	62
-Shoot length	65
-Shoot diameter	65
-Shoot dry matter and moisture content	65
-Vegetative buds, leaves and fruits numbers per shoot	70
-Leaf area	70
-Leaf dry matter and moisture content	73
-Changes in growth regulating substances in buds	73
-Changes in auxins	73

-Changes in gibberellins	77
-Change in abscisic acid	77
-Changes in foliar pigments	78
-Changes in total chlorophylls.	78
-Changes in carotenoids	78
-Changes in total pigments	78
-Changes in carbohydrates content	81
1-In shoot	81
- Changes in reducing sugars	81
-Changes in sucrose	81
-Changes in polysaccharides	84
-Changes in total carbohydrates	84
2-In leaf	85
-Changes in reducing sugars	85
-Changes in sucrose	85
-Changes in polysaccharides	88
-Changes in total carbohydrates	88
-Changes in nitrogen content	88
1-In shoot	88
-Changes in amino nitrogen	91
-Changes in total soluble nitrogen	91
-Changes in protein nitrogen	92
-Changes in total nitrogen	92
2-In leaf	92
-Changes in amino nitrogen	92
-Changes in total soluble nitrogen	95
-Changes in protein nitrogen	95

-Electrophoretic patterns of total extractable proteins of fig leaves	95
-Changes in total nitrogen	97
-Changes in mineral contents	97
1-In shoot	97
-Changes in calcium content	101
-Changes in potassium content	101
-Changes in sodium content	101
-Changes in magnesium content	102
-Changes in phosphorus content	102
-Changes in iron content	103
-Changes in manganese content	103
-Changes in zinc content	103
-Changes in copper content	104
2-In leaf	104
-Changes in calcium content	104
-Changes in potassium content	108
-Changes in sodium content	108
-Changes in magnesium content	109
-Changes in phosphorus content	109
-Changes in iron content	109
-Changes in manganese content	110
-Changes in zinc content	110
-Changes in copper content	110
-Soil physical properties	111
-Soil chemical properties	111
-Hydrogen ion concentration and electrical conductivity..	111