شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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CONTENTS

	Page
LIST OF TABLES	vi
LIST OF FIGURES	vii
ACKNOWLEDGEMENT	viii
1. Chapter One : INTRODUCTION	1
2. Chapter Two : REVIEW OF LITERATURE	4
2.1. Identifications of fiber fineness and maturity	5
2.2. Determining methods of the fiber fineness and maturity	7
2.3. Factors affecting the fiber maturity	13
2.4. Significance of the fiber fineness and maturity	17
3. Chapter Three : MATERIALS AND METHODS	30
3.1. Materials	31
3.2. Investigated characters	31
3.2.1. Fiber maturity parameters	31
3.2.2. Fiber bundle strength and elongation	34
3.2.3. Yarn properties	34
3.3. Statistical procedure	35
4. Chapter Four : RESULTS AND DISCUSSION	36
4.1. Cotton fiber cross-sectional characteristics	38
4.1.1. Varietal effect on the cotton fiber cross-sectional characteristics	38
4.1.2. Grade effect on the cotton fiber cross-sectional characteristics	49
4.1.3. Variety and grade interaction effect on the cotton fiber cross-sectional characteristics	50
4.2. Cotton fiber maturity parameters	56
4.2.1. Varietal effect on the fiber maturity parameters	56
4.2.2. Grade effect on the fiber maturity parameters	59
4.2.3. Variety and grade interaction effect on the fiber maturity parameters	59
4.3. Fiber bundle strength and elongation	62
4.3.1. Varietal effect on the bundle strength and elongation	62
4.3.2. Grade effect on the bundle strength and elongation	62
4.3.3. Variety and grade interaction effect on the bundle strength and elongation	64
4.4. Association of the fiber maturity parameters with the bundle strength and elongation	67
4.5. Yarn characteristics	68
4.5.1. Varietal effect on the yarn characteristics	68

Page

4.5.2. Grade effect on the yarn characteristics..... 71
4.5.3. Variety and grade interaction effect on the yarn characteristics..... 72
4.6. Association of the fiber maturity parameters with the yarn characteristics..... 77
5. Chapter Five : SUMMARY **81**
5.1. Fiber cross-sectional characteristics..... 82
5.2. Fiber maturity parameters..... 82
5.3. Fiber bundle strength and elongation..... 83
5.4. Yarn characteristics..... 83
5.5. Cotton fiber cross-sectional characteristics..... 84
5.6. Cotton fiber maturity parameters..... 85
5.7. Fiber bundle strength and elongation..... 86
5.8. Association of the fiber maturity parameters with bundle strength and elongation..... 87
5.9. Yarn characteristics..... 88
5.10. Association of the fiber maturity parameters and characters..... 90
6. Chapter Six : LITERATURE CITED..... 91
7. Chapter Seven : ARABIC SUMMARY ..... -

LIST OF TABLES

			Page
Table (1)	:	Analysis of variance of the studied fiber cross-sectional characteristics	39
Table (2)	:	Mean values of cotton fiber cross-sectional characteristics as affected by cotton variety, grade and their interaction (in microns)	40
Table (3)	:	Mean values of cotton fiber cross-sectional: long axis, short axis and gross area as affected by cotton variety and grade interaction (in microns)	52
Table (4)	:	Mean values of cotton fiber perimeter, diameter, wall thicknessand wall area as affected by cotton variety and grade interaction (in microns)	54
Table (5)	:	Mean values of cotton fiber lumen cross-sectional long axis, short axis and area as affected by cotton variety and grade interaction (in microns)	55
Table (6)	:	Analysis of variance of the studied fiber maturity parameters, bundle strength and elongation percentage	57
Table (7)	:	Mean values of the studied fiber maturity parameters as influenced by the cotton variety, grade and their interaction	58
Table (8)	:	Mean values of the studied fiber maturity parameters: degree of wall thickening (θ), proportion of maturity by canstic soda (P.M.) and proportion of maturity (F.M.T.) as influenced by the cotton variety and grade interaction	60
Table (9)	:	Mean values of the studied fiber bundle strength and elongation percentage as influenced by the cotton variety, grade and their interaction	61
Table (10)	:	Mean values of the studied fiber maturity parameters: maturity index (M.I.), micronaire reading and hair weight as influenced by the cotton variety and grade interaction	63
Table (11)	:	Mean values of the fiber bundle strength and elongation percentage as influenced by the cotton variety and grade interaction	65
Table (12)	:	Simple correlation matrix between the studied fiber maturity parameters and bundle strength and elongation	66
Table (13)	:	Analysis of variance of the studied yarn characters	69
Table (14)	:	Mean values of the studied yarn characters as influenced by the cotton variety, grades and their interaction	70
Table (15)	:	Mean values of the studied: yarn strength and elongation percentage as influenced by the cotton variety and grade interaction	73
Table (16)	:	Mean values of the studied yarn imperfections: thin places, thick places and neps as influenced by the cotton variety and grade interaction	75
Table (17)	:	Mean values of the studied yarn characters: yarn evenness (C.V.%) and yarn hairiness as influenced by the cotton variety and grade interaction	76
Table (18)	:	Simple correlation matrix between the studied maturity parameters and yarn properties	78

LIST OF FIGURES

			Page
Figure (1)	:	Photomicrographs of the fiber cross-section of Giza 45 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	41
Figure (2)	:	Photomicrographs of the fiber cross-section of Giza 70 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	42
Figure (3)	:	Photomicrographs of the fiber cross-section of Giza 76 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	43
Figure (4)	:	Photomicrographs of the fiber cross-section of Giza 77 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	44
Figure (5)	:	Photomicrographs of the fiber cross-section of Giza 75 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	45
Figure (6)	:	Photomicrographs of the fiber cross-section of Giza 80 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	46
Figure (7)	:	Photomicrographs of the fiber cross-section of Giza 83 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	47
Figure (8)	:	Photomicrographs of the fiber cross-section of Giza 85 cotton variety, for the two grades (a) [G/FG] and (b) [FGF] (X = 400).....	48

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Chapter One

INTRODUCTION

1. INTRODUCTION

Yarn strength and evenness are the main objective of the spinner and weaver. Yarn strength not only affected by the fiber tenacity or maturity, but also by the average number of fibers in the yarn cross section, which subsequently depends on the genetic fiber fineness.

Cotton fiber fineness determines yarn count, turns per inch, strength, regularity and appearance. Fiber fineness is a relative measure of size, diameter, linear density or mass per unit length. The cotton fiber perimeter is considered as the only parameter of the intrinsic fiber fineness. Cotton fiber maturity is an estimate of the degree of secondary wall thickening, which markedly affects the appearance and value of raw cotton. It also influences spinning performance, dye affinity and the quality of the finished textile product.

Fiber length was the first criterion determining spinability and price value of the raw cotton followed by fineness and maturity. But recently after using a high technology in the spinning machinery, fiber fineness and maturity ranked first for determining their utility for textile proposes.

Conventional and advanced methods give an estimate of fineness/ maturity together. It is so difficult to have one of them accurately independent. The only way to have definite data for each one separately is the direct cross sectional measurements.

For the routine fiber quality assessment, maturity could be determined by several methods and instruments e g., proportion of fiber maturity by caustic souda (PM), hair weight (H.W.), Micronaire (Mic.), causticaire (MI), Fibrograph maturity (FM), fineness maturity tester

(FMT), Micromate and the advanced fiber information system (AFIS). The micronaire measurements alone are not good predictor for the fiber maturity. Percentage of fiber strength transmitted into yarn strength usually be higher for the lower micronaire reading samples than the higher micronaire reading ones of the same cotton variety.

In this connection, the recent investigations clarify that once having a well establishes average fiber perimeter, as an intrinsic fiber fineness from direct cross-sectional measurements for the commercial cotton varieties, quick independent estimates of the fiber maturity parameters could be obtained from the Micronaire or the Fibrograph test.

The main objective of the present work was to study the effect of the cotton variety and grade on the fiber maturity parameters. Besides, the association of both fiber bundle tenacity and yarn strength with the different maturity parameters.

Chapter Two

REVIEW OF LITERATURE