



كلية العلوم-قسم الكيمياء

**Coloration with Natural dye of some Fabrics and  
using  $\text{TiO}_2$  to impart Self-Cleaning property  
using Microwave Irradiation**

**A Thesis submitted as a partial fulfillment of  
requirements for the degree of master of science**

**(B. Sc. 2013)**

***Presented by***

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***Under supervision***

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Prof. Dr. Naglaa Sayed Abd El-Hamid El-Shemy





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*Ain Shams University*

*Cairo, Egypt*

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***Matina Atef Rasheed***





## **List of Abbreviations**

<b>ASTM</b>	:	American Standard Test Method
<b>CI</b>	:	Color Index.
<b>CIE</b>	:	Commission Internationale de l'Eclairage.
<b>EDX</b>	:	Energy Dispersive X-Ray Analysis.
<b>IMS</b>	:	Industrial Microwave Systems
<b>MW</b>	:	Microwave Irradiation.
<b>NPs</b>	:	Nano Particles.
<b>RF</b>	:	Radio Frequency.
<b>SEM</b>	:	Scanning Electron Microscopy.
<b>SMA</b>	:	Sodium Mercaptoacetic Acid.
<b>TEM</b>	:	Transmission Electron Microscopy.
<b>UHF</b>	:	Ultra High Frequency.
<b>UV</b>	:	Ultraviolet radiation.
<b>VHF</b>	:	Very High Frequency.
<b>WB</b>	:	Waterbath.
<b>WOF</b>	:	Weight of Fabric.



# **Contents**

	<b>Page</b>
<b>(Acknowledgment)</b>	
<b>English Summary</b> .....	<b>I</b>
<b>Introduction</b> .....	<b>1</b>
• Microwave as a Green Technology .....	1
• Microwave interaction .....	6
• Microwave Fundamentals .....	9
• Microwave generators .....	11
• Microwave Irradiation vis-a-vis to Conventional Thermal Heating .....	12
• Microwave Advantages .....	13
• Microwave Disadvantages .....	14
• Textile Dyeing .....	15
• Dyes .....	15
• Dyes classification .....	25
• Natural Dyes .....	39
• Mordants .....	42
• Titanium dioxide (TiO <sub>2</sub> ) .....	48
<b>Experimental</b> .....	<b>49</b>
• Materials .....	49
• Experimental Methods .....	50
• Dyeing Methods .....	50
• Synthesis of TiO <sub>2</sub> Nano particles (TiO <sub>2</sub> NPs) via MW Irradiation .....	55

• Measurements.....	57
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## **Results and discussion**

<b>Part 1.....</b>	<b>70</b>
--------------------	-----------

<b>Part 2.....</b>	<b>87</b>
--------------------	-----------

<b>Part 3.....</b>	<b>111</b>
--------------------	------------

<b>References.....</b>	<b>131</b>
------------------------	------------

<b>Arabic Summary.....</b>	<b>١</b>
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## List of Tables

Table	Page
Table 1. Main interactions of electromagnetic radiation with matter.....	10
Table 2: Colors that can be seen when absorbing significant wavelengths of white light when falling on the textiles surface.....	17
Table 3: Main differences between Dyes and pigments.....	18
Table 4: Some of chromophoric groups in organic dyes.....	20
Table 5: The characteristics of some popular unconjugated chromophores.....	21
Table 6: Chemical classes of dyes known in the CI.....	26
Table 7: Effect of simultaneous extracted dye amount on color strength (K/S) of different colorant fabrics.....	71
Table 8: Effect of pre extracted dye amount on color strength (K/S) of different colorant fabrics.....	72
Table 9: Lightness ( $L^*$ ), Redness-Greenness Value ( $a^*$ ), Yellowness-Blueness Value ( $b^*$ ), and ( $\Delta E$ ) of wool, silk, and wool/polyester blend fabrics coloured with safflower yellow colorant simultaneously at different concentrations and different temperatures using MW irradiation.....	74
Table10:Lightness ( $L^*$ ), Redness-Greenness Value ( $a^*$ ), Yellowness-Blueness Value ( $b^*$ ), and ( $\Delta E$ ) of wool, silk, and wool/polyester blend fabrics coloured with safflower yellow colorant simultaneously at different concentrations and different temperatures using conventional thermal heating....	75
Table 11: CIE Lab coordinates at different extracted dye path pH.....	79
Table 12: Effect of mordant ( $\text{CuSO}_4$ ) on different fabrics by using different mordanting techniques and different heating methods.....	85

Table13: Effect of mordant ( $\text{FeSO}_4$ ) on different fabrics by using different mordanting technique and different heating methods.....	86
Table14: Effect of mordant (Alum) on different fabrics by using different mordanting technique and different heating methods.....	86
Table 15: The values of the constants obtained for pseudo 1 <sup>st</sup> and 2 <sup>nd</sup> order.....	94
Table 16: Langmuir and Freundlich isotherm.....	96
Table 17: Half dyeing time( $t_{1/2}$ ), partition coefficient ( $k_p$ ).....	98
Table 18: Thermodynamics parameters of dyeing process using microwave irradiation.....	99
Table 19: Thermodynamics parameters of dyeing process using conventional thermal heating.....	99
Table 20: Effect of microwave irradiation and conventional thermal heating on shrinkage % of wool, silk, and wool/polyester blend fabric.....	101
Table 21: Effect of microwave irradiation and conventional thermal heating on weight loss of wool, silk and wool/polyester blend fabric.....	102
Table 22: Effect of microwave and conventional thermal heating on tensile strength and elongation% of wool, silk, and wool/polyester blend fabric.....	103
Table 23: CIE Lab coordinates at different pre- and post-treated temperature and time of wool fabrics dyed with extracted safflower yellow dye.....	124
Table 24: Fastness properties of the untreated and $\text{TiO}_2$ NPs-treated dyed wool fabrics.....	125
Table 25. Antibacterial activity of $\text{TiO}_2$ NPs-treated wool fabrics.....	127
Table 26: Self-cleaning % of wool fabrics treated with different prepared $\text{TiO}_2$ NPs.....	130

## List of Figures

<b>Figure</b>	<b>Page</b>
Fig. 1: Different heating mechanisms for conventional thermal (a) and microwave (b).....	9
Fig. 2: Electromagnetic spectrum and frequencies used in microwave processing.....	10
Fig. 3: The visible region of the electromagnetic spectrum according to wavelength as well as corresponding energies.....	17
Fig. 4: preparation of TiO <sub>2</sub> nano-particles.....	56
Fig. 5: Calibration curves of dye extracted from safflower petals.....	63
Fig. 6: Effect of dye bath pH on the stability of safflower yellow colorant dye solution of different fibers.....	78
Fig. 7: Effect of extracted dye bath temperature on color strength of dyed fabrics.....	80
Fig. 8: Effect of extracted dyeing time on color strength of dyed fabrics.....	81
Fig. 9: Effect of liquor ratio on color strength of dyed fabrics.....	82
Fig. 10: different mordanting methods.....	84
Fig. 11: Relative plots of kinetic process for the dyeing of wool, silk, and wool/polyester with safflower dye.....	90
Fig.12: Isotherm curves:(a,c) Langmuir; and (b,d) Freundlich. For the dyeing of wool, silk, and wool/polyester with safflower dye....	91
Fig. 13: Wool Blank.....	106
Fig. 14: Wool fiber conventional thermal heating.....	106
Fig. 15: Wool fiber MW irradiation.....	107
Fig. 16: Blank silk fiber.....	107
Fig. 17: Silk fiber conventional thermal heating.....	108
Fig. 18: Silk fiber MW irradiation.....	108
Fig. 19: Wool/Polyester fiber blank.....	109
Fig. 20: Wool/Polyester fiber conventional thermal heating.....	109