

CONTENTS

	Page
1. INTRODUCTION	1
2. REVIEW OF LITERATURE	3
2.1. Sources of contamination of water	3
2.2. Wastewater treatment.....	9
2.2.1. Mechanical and physicochemical methods of wastewater treatment.....	9
2.2.2. Raw materials for activated carbon.....	13
2.2.3. Equilibrium adsorption models	23
2.2.3.1. Langmuir adsorption isotherm.....	23
2.2.3.2. Freundlich isotherm.....	25
2.2.3.3. BET isotherm.....	26
2.2.4. Contacting system and modes of operation	27
3. MATERIAL AND METHODS	29
3.1. Sources of industrial wastewater and raw materials ..	29
3.2. Preparation of activated carbons.....	30
3.3. Experimental work	31
3.3.1. Preliminary experiment	31
3.3.2. The main experimental work	31
3.4. Characterization of the prepared activated carbons	34
3.5. Mathematical treatment of the adsorption experimental	34
3.6. Mathematical treatment the adsorption isotherms	35

4. RESULTS AND DISCUSSION	38
4.1. Physicochemical properties of the activated carbons prepared from different agro-residues.....	38
4.2. Initial concentrations of some heavy metals (before treatment of wastewater).....	40
4.3. Preliminary treatment of wastewater from different two sources.....	42
4.4. The main experimental work	46
4.4.1. Treatment of the wastewater taken from Kaha Factory of the Chemical Industries	46
4.4.1.1. Factors affecting efficiency of the activated carbon prepared from date pits (DPS71-Fe).....	46
A- Adsorbent weight	46
B- The pH.....	49
C- The time of contact	52
4.5. Adsorption isotherms.....	56
4.6. Treatment of the wastewater taken from the Egyptian Company of Dying and Textile	61
4.6.1. Factors affecting efficiency of the activated carbon prepared from cotton stalk (CSSA-71).....	61
A- Adsorbent weight.....	61
B- The pH.....	64
C- The time of contact.....	67
4.7. Adsorption isotherms	70
5. SUMMARY	75
6. REFERENCES	80
7. ARABIC SUMMARY	-