

CONTENTS

Subject	Page
1- INTRODUCTION	1
2- REVIEW OF LITERATURE	3
2.1. Chemical composition of jojoba seeds and meal.....	3
2.1.1. Physical and chemical properties of jojoba oil.....	5
2.1.2. Fatty acid composition of jojoba oil.....	9
2.1.3. Sterols and hydrocarbons content of jojoba oil.....	11
2.2. Antinutritional factors of jojoba seeds.....	13
2.2.1. Simmondsin content.....	13
2.2.2. Polyphenol compounds.....	15
2.2.3. Phytic acid and trypsin inhibitors	16
2.3. Removal of antinutritional compounds	17
2.4. Amino acid content of jojoba seeds	21
2.5. Extraction and fractionation of jojoba protein	23
2.6. Nutritional evaluation of jojoba protein	25
3. MATERIALS AND METHODS	33
3.1. Materials	33
3.1.1. Jojoba seeds	33
3.1.2. Experimental animal	33
3.1.3. Diagnostic kits	33
3.1.4. Authentic fatty acids and sterols	33
3.2. Analytical methods	34
3.2.1. Determination of moisture, total lipids, crude protein, ash and crude fiber	34

Subject	Page
3.2.11.1. Blood samples	45
3.2.11.2. Tissue samples	46
3.2.12. Biochemical analysis	46
3.2.12.1. Serum total cholesterol	46
3.2.12.2. Serum HDL-cholesterol	46
3.2.12.3. Serum triglycerides	46
3.2.13. Hepato-renal function	46
3.2.13.1. Serum transaminases	46
3.2.13.2. Serum total protein	46
3.2.13.3. Serum albumin	47
3.2.13.4. Serum globulin	47
3.2.13.5. Serum uric acid	47
3.2.13.6. Blood urea	47
3.2.13.7. Serum creatinine	47
3.2.14. Haemoglobin	47
3.2.15. Histopathological examination	47
3.2.16. Statistical analysis of the data	48
4. RESULTS AND DISCUSSION	49
4.1. Chemical composition of jojoba seeds and by-products ..	49
4.1.1. Physical and chemical properties of jojoba oil	52
4.1.2. Fatty acid composition of jojoba oil	55
4.1.3. Hydrocarbon and sterols composition of unsaponifiable matter of jojoba oil	57

Subject	Page
4.2. Elimination of toxic compounds of jojoba meal	59
4.3. Amino acid composition of jojoba seeds	61
4.4. Effect of pH on protein isolation from jojoba meal	63
4.5. Determination of jojoba protein subunits molecular weight by using SDS-PAGE	65
4.6. Biological evaluation of experimental diets	69
4.6.1. Effect of different types of dietary on body weight gain, food intake and feed conversion ratio.....	69
4.6.2. Effect of different experimental diets on organs weights of rats	75
4.6.3. Effect of different experimental diets on serum lipid profile	78
4.6.4. Effect of different experimental diets on serum total protein, albumin, globulin and hemoglobin of rats.....	82
4.6.5. Effect of different experimental diets on liver and kidney functions of rats	85
4.7. Histopathological findings	89
4.7.1. Kidneys	89
4.7.2. Livers	92
5- SUMMARY AND CONCLUSION	97
6- REFERENCES	103
7- ARABIC SUMMARY	-

LIST OF TABLES

Table No	Tables	Page
(1)	Composition of the basal and treated diet used for in vivo evaluation of detoxification jojoba meal	45
(2)	Chemical composition of jojoba seeds, defatted meal and by-products (g/100 g dry weight)	50
(3)	Physicochemical properties of jojoba seed oils	53
(4)	Fatty acid composition of jojoba seed oils	56
(5)	Hydrocarbons and sterols of the unsaponifiable matter of jojoba seed oils	58
(6)	Effect of different treatments on the removal of anti-nutritional factors from jojoba seeds	60
(7)	Amino acid composition of jojoba seeds (g/100 g protein)	62
(8)	Molecular weights of standard proteins and their relative mobilities	66
(9)	Molecular weights of jojoba meal protein	67
(10)	Body weight gain, food intake, feed consumption and feed conversion ratio of rats fed different experimental diets for eight weeks	71
(11)	F-ratio of least-square analysis of factors affecting final body weight, body weight gain, food intake and food consumption	71
(12)	Effect of different experimental diets on organ weights of rats (g/100 g body weight)	76

Table No	Tables	Page
(13)	F-ratio of least-square analysis of factors affecting weight of organs in rats	76
(14)	Effect of different experimental diets on serum triglycerids and cholesterol type of rats	79
(15)	F-ratio of least-square analysis of factors affecting serum triglycerids and cholesterol type in rats	79
(16)	Effect of different experimental diets on serum total protein, albumin, globulin and hemoglobin of rats	83
(17)	F-ratio of least-square analysis of factors affecting serum total protein, albumin, globulin and hemoglobin in rats	83
(18)	Effect of different experimental diets on liver and kidney functions in rats	89
(19)	F-ratio of least-square analysis of factors effect on liver and kidney functions in rats	89

LIST OF FIGURES

Figure No	Figure	Page
(1)	Structural formula of simmondsin and simmondsin 2-ferulate in jojoba meal	14
(2)	Effect of pH on protein isolation from jojoba meal	64
(3)	Calibration curve for M.W. determination of subunits jojoba protein by SDS-PAGE	66
(4)	SDS-PAGE pattern of jojoba meal protein extracted after different treatments	68
(5)	Body weight gain, food intake and feed consumption of rats fed different experimental diets for eight weeks	72
(6)	Weight evaluations of meal rats fed different experimental diets for eight weeks.	73
(7)	Effect of treatments on the morphological feature on rats.	74
(8)	Effect of different experimental diets on organ weights of rats (g/100 g body weight).	77
(9)	Effect of different experimental diets on serum triglycerids and cholesterol type of rats.	80
(10)	Effect of different experimental diets on serum total protein, albumin, globulin and hemoglobin of rats.	84
(11)	Effect of different experimental diets on liver and kidney functions in rats	88
(12)	Photomicrographs showing histopathological effects of different dietary on kidney of rats.	90
(13)	Photomicrographs showing histopathological effects of different dietary on liver of rats.	94