

Contents

Item	Page
1. INTRODUCTION	1
• AIM OF STUDY	3
2. REVIEW OF LITERATURE	4
2.1. Chemical composition	4
2.1.1. Fenugreek seeds	4
2.1.2. Lupine seeds	6
2.1.3. Chemical and physical properties of oils	8
2.1.3.1. Cottonseed oil	8
2.1.3.2. Corn oil	9
2.1.3.3. Olive oil	10
2.1.3.4. Sunflower oil	12
2.1.4. Propolis	13
2.2. Biological evaluation	15
2.2.1. Effect of dietary proteins on cardiovascular disease and atherosclerosis	15
2.2.2. Effect of dietary oils on cardiovascular disease and atherosclerosis	26
2.2.3. Medical effects of propolis	35
2.2.3.1. Propolis as natural anti-oxidant	35
2.2.3.2. Propolis as drug for liver disease	37
2.2.3.3. Antitumoral property of propolis	38
2.2.3.4. Anti-microbial effect of propolis	39
3. MATERIALS AND METHODS	41
3.1. Materials	41
3.1.1. Preparation of defatted lupine and fenugreek flours	41
3.1.2. Preparation of lupine and fenugreek isolates	42
3.1.3. Preparation of propolis ethanol extract	42
3.1.4. Biological evaluation	43
3.1.4.1. Animal group	43
3.2. Methods	47
3.2.1. Chemical analysis	47
3.2.1.1. Determination of total lipids, protein, ash and crude fiber.	47
3.2.1.2. Determination of total carbohydrates	47
3.2.1.3. Sodium dodecyl sulfate-polyacrylamide Gel-Electrophoresis (SDS-PAGE)	47
3.2.2. Chemical and physical properties of oils	51

3.2.2.1. Determination of refractive index	51
3.2.2.2. Peroxide value (PV)	52
3.2.2.3. Acid value (AV)	52
3.2.2.4. Thiobarbituric acid value (TBA)	53
3.2.2.5. Separation, methylation and identification of fatty acids	54
3.2.2.5.1. Separation of fatty acids	54
3.2.2.5.2. Methylation of fatty acids	54
3.2.2.5.3. Identification and determination of fatty acid methyl esters by Gas Liquid Chromatography (GLC)	54
3.2.3. Biochemical parameters of blood	55
3.2.3.1. Determination of serum total lipid	55
3.2.3.2. Total cholesterol	56
3.2.3.3. Triglycerides	58
3.2.3.4. High density lipoprotein cholesterol	59
3.2.3.5. Low Density Lipoprotein cholesterol (LDL-c)	60
3.2.3.6. Blood glucose	61
3.2.3.7. Serum transaminases activity	62
3.2.3.8. Serum creatinine	64
3.2.3.9. Serum uric acid	65
3.2.4. Dissection of the animal	66
3.2.4.1. Fixation	66
3.2.5. Biscuits preparation	66
3.2.6. Quality Characteristics of biscuits	68
3.2.7. Statistical analysis	68
4. RESULTS AND DISCUSSION	69
4.1. Chemical composition of sweet lupine and fenugreek seeds, defatted flours and their protein isolates	69
4.1.1. Electrophoretic pattern of sweet lupine and fenugreek protein isolates using (SDS- PAGE)	71
4.2. Physical and chemical properties of oils	74
4.1.2. Fatty acid composition of dietary oils	76
4.3. Biological evaluation	78
4.3.1. Body weight gain	78
4.3.2. Organs weight/body weight ratio	80
4.3.3. Biochemical parameters	83
4.3.3.1. Serum total lipids	83
4.3.3.2. Triglycerides (TG)	86
4.3.3.3. Total cholesterol	90

4.3.3.4. High density lipoprotein cholesterol (HDL)	93
4.3.3.5. Low Density Lipoprotein cholesterol (LDL)	96
4.3.3.6. Very low density lipoprotein cholesterol (VLDLC)	100
4.3.3.7. Lipoprotein cholesterol and atherosclerosis	103
4.3.3.8. Glucose	106
4.3.3.9. Aspartate amino transferase (AST)	110
4.3.3.10. Alanine amino transferase (ALT)	113
4.3.3.11. Creatinine	116
4.3.3.12. Uric acid	116
4.3.4. Histopatholgical results	121
4.4. Organoleptic evaluation of biscuits	151
5. SUMMARY	153
6. REFERENCES	162
7. ARABIC SUMMARY	