

CONTENTS

	Page
1. INTRODUCTION	1
2. REVIEW OF LITERATURE	3
2.1. Tomato and tomato products	3
2.1.1. Chemical composition of tomato fruits	3
2.1.2. Tomato products and tomato sauce	5
2.1.3. Chemical composition and storage of tomato sauces	11
2.2. Fig and fig products	17
2.2.1. Chemical composition of figs	17
2.2.2. Fig products and fig jam	21
2.2.3. Chemical composition and storage of fig jam	26
2.3. Olive and olive oil	28
2.3.1. Chemical composition of olive fruits	28
2.3.2. Olive oil processing	32
2.3.3. Chemical composition and storage of olive oil	38
2.4. Packing materials	49
2.4.1. Tin pack	51
2.4.2. Glass pack	56
2.4.3. Tetra pack	58
2.4.4. Plastic pack	59
2.4.5. Carton pack	60
3. MATERIALS AND METHODS	61
3.1. Materials	61
3.2. Processing	61
3.2.1. Tomato sauces	61
3.2.2. Fig jam	62
3.2.3. Olive oil	62

	Page
3.3. Methods of analysis	62
3.3.1. Fig jam and tomato sauce	62
3.3.1.1. Determination of total solids	62
3.3.1.2. Determination of total soluble solids	62
3.3.1.3. Determination of total acidity and pH value	62
3.3.1.4. Determination of sugars	63
3.3.1.5. Determination of ash	63
3.3.1.6. Determination of minerals	63
3.3.1.7. Determination of serum color	63
3.3.1.8. Determination of browning index	64
3.3.1.9. Sensory evaluation	64
3.3.1.10. Statistical analysis	64
3.3.1.11. Determination of total bacteria count ...	65
3.3.1.12. Determination of mold and yeast	65
3.3.2. Olive oil	65
3.3.2.1. Determination of acid value (A.V.)	65
3.3.2.2. Determination of iodine value and peroxide value	65
3.3.2.3. Determination of saponification value ...	66
3.3.2.4. Determination of unsaponifiable matter ...	66
4. RESULTS AND DISCUSSION	67
4.1. Tomato and tomato products	67
4.1.1. Chemical constituents of fresh tomato and tomato sauces	67
4.1.2. Chemical constituents of tomato sauces during storage in different packaging materials	73
4.1.2.1. Total solids	73
4.1.2.2. Total soluble solids	74
4.1.2.3. Reducing and total sugars	74

	Page
4.1.2.4. Total acidity and pH value	79
4.1.2.5. Serum color	84
4.1.2.6. Browning index	79
4.1.2.7. Minerals	94
4.1.3. Organolyptic evaluation	99
4.1.4. Microbial count	100
4.2. Fig and fig products	108
4.2.1. Chemical constituents of fresh fig	108
4.2.2. Chemical constituents of fig jam during storage	112
4.2.2.1. Moisture content	112
4.2.2.2. Total soluble solids	115
4.2.2.3. Reducing and total sugars	115
4.2.2.4. Total acidity and pH value	120
4.2.2.5. Serum color	120
4.2.2.6. Browning index	126
4.2.2.7. Mineral contents	126
4.2.3. Organolyptic evaluation	130
4.2.4. Microbial count	134
4.3. Olive oil	136
4.3.1. Chemical properties of olive oil	136
4.3.2. Chemical properties of olive oil during storage in different packaging materials	138
4.3.2.1. Free fatty acids	138
4.3.2.2. Peroxide value	141
4.3.2.3. Iodine value	144
4.3.2.4. Saponification value	144
4.3.2.5. Unsaponifiable matter	144
5. SUMMARY	152
6. REFERENCES	158
ARABIC SUMMARY	

LIST OF TABLES

Table No.		Page
1	Chemical constituents of tomato juice and tomato sauces	68
2	Total solids percentage in tomato sauces products stored for 12 months in different packaging materials	75
3	Total soluble solids percentage in tomato sauces products stored for 12 months in different packaging materials	77
4	Reducing sugars percentage in tomato sauces products stored for 12 months in different packaging materials	80
5	Total sugars percentage in tomato sauces products stored for 12 months in different packaging materials	82
6	Total acidity percentage in tomato sauces products stored for 12 months in different packaging materials	85
7	pH value in tomato sauces products stored for 12 months in different packaging materials	87
8	Trans and decrement percentage of tomato sauces products stored for 12 months in different packaging materials	90
9	Browning index increment percentage in tomato sauces products stored for 12 months in different packaging materials	92
10	Mineral content (ppb) in tomato sauces products stored for 12 months in different packaging materials	95

Table No.		Page
11	Main of color scores for tomato sauce products stored for 12 months in different packaging materials	101
12	Main of odor scores for tomato sauce products stored for 12 months in different packaging materials	102
13	Main of taste scores for tomato sauce products stored for 12 months in different packaging materials	103
14	Main of over all acceptability scores for tomato sauce products stored for 12 months in different packaging materials	104
15	Analysis of variance for degrees of freedom organlyptic evaluation data	105
16	Total bacterial count, mold and yeast in tomato and tomato sauces	106
17	Total bacterial count, mold and yeast in tomato sauces products stored for 12 months in different packaging materials	107
18	Chemical constituents of fresh fig and fig jam	109
19	Moisture content percentage present in fig jam stored for 12 months in different packaging materials	113
20	Total soluble solids percentage in fig jam stored for 12 months in different packaging materials	113
21	Reducing sugars percentage in fig jam stored for 12 months in different packaging materials	117

Table No.		Page
22	Total sugars percentage in fig jam stored for 12 months in different packaging materials	117
23	Total acidity percentage in fig jam stored for 12 months in different packaging materials	121
24	pH value present in fig jam stored for 12 months in different packaging materials	121
25	Serum color and decreasing percentage in fig jam stored for 12 months in different packaging materials	124
26	Browning index and increment percentage in fig jam stored for 12 months in different packaging materials	127
27	Heavy metals (ppb) in fig jam stored for 12 months in different packaging materials	129
28	Mean of color and odor scores for fig jam stored for 12 months in different packaging materials	131
29	Mean of taste and over all acceptability scores for fig jam stored for 12 months in different packaging materials	132
30	Analysis of variance table for organolyptic evaluation data	133
31	Microbial count present in fig jam stored for 12 months in different packaging materials	135
32	Chemical properties of olive oil	137
33	Free fatty acids in olive oil stored for 12 months in different packaging materials	139

Table No.		Page
34	Peroxide value in olive oil stored for 12 months in different packaging materials	139
35	Iodine value in olive oil stored for 12 months in different packaging materials	145
36	Saponification value in olive oil stored for 12 months in different packaging materials	147
37	Unsaponifiable matter in olive oil stored for 12 months in different packaging materials	149