

## List of content

	<b>Chapter 1: Introduction</b>	
	➤ General introduction	1
	➤ Objectives	2
	<b>Chapter 2 :Literature review</b>	
2-1	Nutritive value	4
2-2	Chemical composition	5
2-2-1	Lipid	5
2-2-2	Protein	8
2-2-3	N-contracting extractive	11
2-2-4	Vitamins and minerals	11
2-3	Sausage	12
2-4	Type of fish sausages	13
2-5	Organoleptic properties	13
2-5-1	Flavor	13
2-5-2	Color	14
2-5-3	Texture	14
2-5-4	Tenderness	15
2-5-5	Juiciness	15
	<b>Chapter 3 :Materials and methods</b>	
3-1	Sausage formulation	18
3-1-1	Fish meat preparation	18
3-1-2	Sausages preparation	18
3-2	Approximate analysis	19
3-2-1	Crude protein content	20
3-2-2	Moisture determination	20
3-2-3	Fat determination	21
3-2-4	Ash determination	21
3-3	Physical analysis	21
3-3-1	PH measurement	21
3-3-2	Cooking loss measurement	22
3-4	Sensory evaluation of sausage	22
3-5	Statistical analysis	22

	<b>Chapter 4 :Results</b>	
4-1	Chemical analysis	23
4-1-1	Protein	23
4-1-2	Moisture	25
4-1-3	Fat	26
4-1-4	Ash	27
4-2	Physical tests	28
4-2-1	PH measurement	28
4-2-2	Cooking loss measurement	30
4-3	Sensory evaluation	31
4-3-1	Color	31
4-3-2	Flavor	31
4-3-3	Juiciness	31
4-3-4	Texture	31
	<b>Chapter 5 :Discussion</b>	
	Discussion	33
	<b>Chapter 6 : Conclusion and recommendations</b>	
	➤ Conclusion	36
	➤ Recommendations	36
	<b>References</b>	
	<b>Appendix</b>	

### List of tables

Table1	Principal constituents (percentage) of fish and beef muscle	18
Table2	Essential amino-acids (percentage) in various proteins	34
Table3	The chemical analysis of protein ,moisture, fat, ash for the (A) and (B) species	39
Table4	The physical analysis of pH ,and cooking loss for the (A) and (B) species	42
Table5	The sensory evaluation for the sample (A) and (B)	