

# Dedication

To the soul of my beloved Father  
To the soul of my brother ( Adil )

To my mother with great love

To my brother and sisters  
for their divine wisdom, discipline and counsel

my wife, for her support, loyalty, and devotion.

I dedicate this thesis.

# Acknowledgments

I would like to express my deepest gratitude to my supervisor professor Sid Ahmed |El Shafei for his guidance, encouragements, kindness and help throughout the implementation and writing up of this study.

I would like to pay tribute to Dr. Mohammed El Fatih Hamed who has provided invaluable guidance and assistance throughout.

I am gratefully indebted to Dr. Awad Mohammed Ahmed For providing facilities during performance.

Special gratitude to Dr. Mohammed Tajuldeen for the appreciated statistical data analysis.

I would like to thank Mr. Errasheed Mohammed Elkhair For typing the manuscript professionally and efficiently.

I wish to thank the Staff members of Sharjah Abattoir , U.A.E. For their valuable help and cooperation which is very much appreciated.

Very special efforts were also put in by Mr. Abdul Raheem Al Baseer, I owe him a huge dept of thanks.

Above all I thank God for his guidance and inspiration

## **Preface**

This work was carried out at Faculty of Veterinary Medicine Animal Production, Sudan University Of Science and Technology under supervision of professor Sid Ahmed El Shafei

# Contents

Subject .....	Page
Dedication .....	I
Acknowledgements.....	II
Preface .....	III
Contents .....	IV
List of tables .....	V
List of Figures .....	VI
Abstract .....	VII
Arabic Abstract .....	IX
<b>CHAPTER ONE</b>	1
Introduction .....	1
1.1 Geographical distribution of sheep.....	1
	2
1.2 Justification of Study.....	3
1.3 Objectives of the Study.....	
<b>Chapter two</b>	
Literature Review .....	5
<b>CHAPTER THREE</b>	
Materials and Methods.....	
3.1 Experimental Animals .....	12
3.2 Experimental procedure .....	12
3.2.1 Slaughter Method .....	12
3.2.2 Blood collection .....	12
3.3 Samples for Chemical Analysis .....	13
3.4 Statistical Analysis .....	13
<b>CHAPTER FOUR</b>	
Results.....	14
4.1 Blood, Skin, Leg and Head weights.....	14
4.2 Stomach full and Empty, Intestine full and Empty weights..	17
4.3 Lung and Trachea, liver, Heart and Kidney weights.....	20
4.4 Hot Carcass and Cold Carcass weight, Hot and Cold Dressing percentage	23
4.5 Shrinkage , bone and Meat weights .....	26
4.6 Ash, Moisture, Fat and Protein Percentage. ....	29
<b>CHAPTER FIVE</b>	
Discussion.....	32
5.1 Body component .....	32
5.1.1 Blood weight .....	32
5.1.2 Legs weight .....	33

5.1.3 Head Wight .....	33
5.1.4 Stomach full and Empty weights .....	33
5.1.5 Intestine Full and Empty weights .....	33
5.1.6 Lung and Trachea weights.....	33
5.1.7 Liver weights .....	34

5.1.8 Heart weight.....	34
5.1.9 Kidney weight .....	34
5.2 Carcass Characteristics .....	35
5.2.1 Bone and Meat weights.....	35
5.2.2 Shrinkage .....	35
5.2.3 Hot Dressing and Cold Dressing .....	36
5.2.4 Cold Carcass weight.....	36
5.2.5 Hot Carcass weight .....	36
5.3 Meat Chemical .....	37
5.3.1 Ash Percentage .....	37
5.3.2 Fat Percentage .....	37
5.3.3 Moisture and Protein Percentage Conclusions.....	37
<b>CONCLUSION</b> .....	38
Recommendation.....	38
Research suggestion.....	38
References .....	39
Appendices .....	

List of Tables:

Pages:

Table 1:	<b>(Blood, skin, leg and head weights)</b>	<b>15</b>
Table 2:	<b>( Stomach full and empty, Intestine full and empty weights)</b>	<b>18</b>
Table 3:	<b>( Lung &amp; trachea, liver heart and kidney weights)</b>	<b>21</b>
Table 4:	<b>(carcass hot and cold weight, hot and cold dressing percentage)</b>	<b>24</b>
Table 5:	<b>(Shrinkage, bone and meat weights)</b>	<b>27</b>
Table 6:	<b>(ash, Moisture, fat and protein percentage)</b>	<b>30</b>

## **List of Figures:**

### **Pages:**

Figure 1:	<b>(Blood, skin, leg and head weights)</b>	<b>16</b>
Figure 2:	<b>( Stomach full and empty, Intestine full and empty weights)</b>	<b>19</b>
Figure 3:	<b>( Lung and trachea, liver heart and kidney weights)</b>	<b>22</b>
Figure 4:	<b>(carcass hot and cold weight, hot and cold dressing percentage)</b>	<b>25</b>
Figure 5:	<b>(Shrinkage, bone and meat weights)</b>	<b>28</b>
Figure 6:	<b>(ash, Moisture, fat and protein percentage)</b>	<b>31</b>



## **Abstract**

The study was conducted to compare the effect of breed on carcass characteristics and meat composition of three sheep breeds namely Irani (Bluchi), Somali (Berbera blackhead) and Sudani (Desert sheep) breeds. Fifty five sheep of average weight 24.5 kilograms, were divided into three groups according to breed, group A consisted of 20 Irani sheep (Bluchi), group B consisted of 20 Somali sheep (barbera blackhead) and group C consisted of 15 Sudani (Sudani desert sheep).

The breed had highly significant effect ( $p < 0.01$ ) on the weight of blood, skin, leg, head stomach full, intestine full and empty, lung and trachea, liver, bone, meat, moisture percent and protein percent. While it had significant effect ( $p < 0.05$ ) on the weight of heart, kidney and cold carcass weight. On the other hand the breeds showed no significant effects on the weight of stomach empty, carcass hot, shrinkage and on the percentage of hot dressing, cold dressing, ash and fat.

Sudani desert sheep had heavier blood weight, leg weight, head weight, lung and trachea weight, heart weight, bone weight, meat weight, carcass cold weight, and protein percent than the other two groups, while Irani breed had heavier skin, intestinal full and empty weight and liver weight

than that of the other two groups , on the other hand Somali breed had heavier stomach full weight and moisture content than that of the other two groups.

No significant ( $p>0.05$ ) differences between the breed groups were observed for stomach empty weight, carcass hot weight, hot dressing percentage, cold dressing percentage, shrinkage weight, ash percentage and fat percentage.

## مستخلص الأطروحة

هذه الدراسة أجريت بكلية الطب البيطري و الإنتاج الحيواني – جامعة السودان للعلوم و التكنولوجيا و قد أجريت الدراسة لمقارنة و معرفة أثر النوع على خصائص الذبائح و التركيب الكيميائي للحوم في ثلاث أنواع من الضأن.

شملت الدراسة عدد 55 رأسا من الضأن بمتوسط وزن 24.5 كيلو غرام ، وزعت إلى ثلاث مجموعات حسب النوع. شملت المجموعة (أ) 20 رأسا من الضأن الإيراني (البلوشي) بينما احتوت المجموعة (ب) على 20 رأسا من الباربرا ذو الرأس الأسود الصومالي، فيما اشتملت المجموعة (ج) على 15 رأسا من الضأن السوداني الصحراوي.

وجد أن هنالك أثر معنوي ( $p < 0.01$ ) للنوع في وزن كل من الدم، الجلد و الرأس في حين أظهرت النتائج وجود أثر معنوي للنوع ( $p < 0.05$ ) على وزن الأرجل.

أظهرت الدراسة أن هنالك أثرا معنويا ( $p < 0.01$ ) للنوع في وزن كل من الأمعاء بمحتوياتها ووزنها بدون المحتويات و كذلك وزن المعدة بمحتوياتها، بينما لم يكن هنالك أثر معنوي ( $p > 0.05$ ) لوزن المعدة بدون محتوياتها.

أبانت الدراسة أنه يوجد أثر معنوي ( $p>0.01$ ) للنوع في وزن كل من الرئة و القصبات الهوائية، الكبد و الكلية بينما كان الأثر المعنوي ( $p<0.05$ ) للنوع في وزن القلب.

لم يكن هنالك أثر معنوي ( $p>0.05$ ) للنوع في وزن الذبيحة قبل التبريد hot dressing وبعد التبريد cold dressing بينما أوضحت أن هنالك أثرا معنويا ( $p>0.05$ ) للنوع على وزن الذبيحة بعد التبريد.

أوضحت الدراسة أن هنالك أثرا معنويا ( $p>0.01$ ) للنوع على وزن كل من اللحم و العظم بينما لم يكن هنالك اثر معنوي ( $p>0.05$ ) للنوع على وزن الانكماش.

أظهر التحليل الكيميائي للحم أن هنالك أثرا معنويا ( $p>0.05$ ) للنوع في نسبة كل من الرطوبة والبروتين بينما لم يكن هنالك أثر معنوي ( $p>0.05$ ) للنوع على نسبة كل من الرماد و الدهن.