PERFORMANCE OF BROILER CHICKENS FED DIETS CONTAINING ROSELLE (*Hibiscus sabdariffa* L.) SEEDS FERMENTED AT VARYING DURATIONS WITH OR WITHOUT ENZYME SUPPLEMENTATION

BY

ANGBULU ANNA OCHOLONGWA

DEPARTMENT OF ANIMAL SCIENCE,
FACULTY OF AGRICULTURE,
AHMADU BELLO UNIVERSITY, ZARIA.

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BY

ANGBULU ANNA OCHOLONGWA

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DEPARTMENT OF ANIMAL SCIENCE,
FACULTY OF AGRICULTURE,
AHMADU BELLO UNIVERSITY, ZARIA.

JUNE, 2017

DECLARATION

I declare that the work in this thesis entitled **"PERFORMANCE OF BROILER CHICKENS FED DIETS CONTAINING ROSELLE (*Hibiscus sabdariffa* L.) SEEDS FERMENTED AT VARYING DURATIONS WITH OR WITHOUT ENZYME SUPPLEMENTATION"** has been performed by me in the Department of Animal Science under the supervision of Prof. S. Duru and Prof. S.B. Afolayan. The information derived from literature has been duly acknowledged in the text and list of references provided. No part of this thesis was previously presented for another degree or diploma at any University.

_____	_____	_____
Name of student	Signature	Date

CERTIFICATION

This thesis entitled **"PERFORMANCE OF BROILER CHICKENS FED DIETS CONTAINING ROSELLE (*Hibiscus sabdariffa* L.) SEEDS FERMENTED AT VARYING DURATIONS WITH OR WITHOUT ENZYME SUPPLEMENTATION"** by Angbulu Anna meets the regulations governing the award of the degree of Masters of Science (Animal Science) in Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

Prof. S. Duru Chairman Supervisory Committee Head of Department, Animal Science, Ahmadu Bello University, Zaria.	Signature	Date
Prof. S.B. Afolayan Member Supervisory Committee Division of Agricultural Colleges, Ahmadu Bello University, Zaria.	Signature	Date
Prof. S. Duru Head of Department, Animal Science Ahmadu Bello University, Zaria	Signature	Date
Prof. S.Z. Abubakar Dean, Postgraduate School School of Postgraduate Studies	Signature	Date

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DEDICATION

This project is dedicated to Almighty God for his infinite mercy towards me all these years.

ABSTRACT

Two feeding trials were conducted to evaluate the nutritional value of Roselle seed fermented at varying durations in the diet of broiler chickens on growth performance, carcass chararacteristics, haematological parameters and nutrient digestibility. Experiment one involved Roselle seed fermented at varying durations, while in experiment two Roselle seeds fermented for 96 hrs were supplemented with enzymes. Two hundred and seventy Ross broiler chickens and two hundred and twenty five Ross broiler chickens were used in experiment 1 and 2 respectively. There were six treatment groups for both starter and finisher phases in experiment 1 and five treatment groups for both starter and finisher phases in experiment 2. Each treatment groups had three replicates with 15 birds per replicate and forty-five birds per group in a completely randomized design (CRD). In experiment 1, Roselle seeds fermented at varying durations were fed across the dietary treatments. T1 served as the control diet (0% fermented Roselle seed), while T2, T3, T4, T5 and T6 diets contained raw and diets containing Roselle seeds fermented for 24hrs, 48hrs, 72hrs and 96hrs respectively. In experiment 2, T1 (0 % Fermented Roselle seeds) served as the control diet while T2, T3, T4 and T5 contained Fermented Roselle seed (96 hrs), Frs + Protease, Frs + Roxazyme and Frs + Protease + Roxazyme respectively. The result of the first feeding trial at the starter phase showed that there were significant ($P<0.05$) differences in total feed intake, feed conversion ratio, weight gain and final body weight of broiler chicks fed diets containing Roselle seeds fermented at varying durations. Feed conversion ratio was better in birds fed the control diet (1.66) compared to birds fed diets containing raw Roselle seeds (3.13). At the finisher phase, final body weight increased linearly as the fermentation duration increased (502.10, 468.00, 578.77, 648.10 and 733.33 g/bird) respectively. Feed cost/Kg gain value was lower in fed birds diets containing Roselle

seeds fermented for 96 hours (₦158.16) compared to other treatments. The second feeding trial showed that dietary supplementation with enzyme significantly (P<0.05) affected total feed intake, weight gain final weight. At the starter phase, birds fed the control diet had significantly (P<0.05) higher final body weight (674.00 g/bird) compared to birds fed diets containing fermented Roselle seeds with enzyme supplementation (422.34, 348.34, 346.34 and 373.34g/bird). At the finisher phase, there were significant (P<0.05) differences in total feed intake, feed conversion ratio, weight gain and final weight across the dietary treatments. Birds fed the control diet had better performance in all parameters. Based on the results of these studies, it was concluded that Roselle seed fermented for 96 hours improved growth performance, nutrient digestibility, haematological parameters and carcass characteristics of broiler chickens.

TABLE OF CONTENTS

Declaration i
Certification ii
Acknowledgements iii
Dedication iv
Abstract v
Table of contents vii
List of Tables x
CHAPTER ONE 1
1.0 Introduction 1
1.1 Justification 3
1.2 Objectives 3
1.3 Research Hypothesis 4
CHAPTER TWO 5
2.0 Literature review 5
2.1 Origin and Distribution of Roselle seed 5
2.2 Climate and Rainfall Requirement of Roselle seed…. 5
2.3 Names of Roselle Seed… 6
2.4 Uses of Roselle Seed 6
2.5 Proximate Composition of Roselle Seed 6
2.6 Roselle seed in poultry Diet 8
2.7 Oil Content of Roselle Seed. 11
2.8 Medicinal and Industrial uses of Roselle seed. 11
2.9 Anti-nutritional factors of Roselle seed… 12
2.10.1 Phytic Acid 12
2.10.2 Trypsin Inhibitors (protease inhibitor) 13
2.10.3 Oxalate 13
2.10.4 Tannin 13
2.10.5 Saponin 14
2.11 Effects of Anti-nutritional factors in Animal Nutrition…… 14

2.12 Methods of Reducing Anti-nutritional factors 15
2.12.1 Fermentation 15
2.12.2 Soaking 16
2.12.3 Autoclaving 17
2.12.4 Toasting 17
2.12.5 Boiling 18
2.13 Effect of Processing on the Nutritional quality of Roselle seed 18
2.14 Haematological Factors of Broiler Chickens 19
2.14.1 Haematological Components and their Function in Farm animals 20
2.14.2 Effect of Roselle seed meal in Broiler diet on Haematological parameters 20
2.15 Enzyme Supplementation in Poultry Diet 21
2.15.1 Substrates and Enzyme Types 22
2.15.2 The importance of Enzyme Supplementation in Poultry Diet 24
2.15.3 Mechanism of action of Enzyme 26
2.15.4 Factors to consider when using Enzyme in Poultry diet 27
2.15.5 Proteases 29
2.15.6 Roxazyme 31
CHAPTER THREE 33
3.0 MATERIALS AND METHODS 33
3.1 Location of study 33
3.2 Sources of Experimental Material 33
3.3 Proximate Analysis of Processed Roselle seed samples 33
3.4 Experiment 1: Performance of Broiler Chickens Fed Diets Containing Roselle Seed Fermented at Varying Durations 34
3.5 Experiment 2: Performance of broiler chickens fed diets containing Fermented Roselle Seed with Enzyme Supplementation 45
3.6 Statistical analysis 52
CHAPTER FOUR 53
4.0 RESULTS 53
4.1 Chemical Compositions of Roselle Seed Fermented at Varying Durations 52
4.2 Effect of Fermentation on the Level of Anti-nutritional Content of Roselle Seed 53

4.3 The Effect of Diets Containing Roselle Seed Fermented at Varying Durations on the Performance of Broiler Chickens (0-4weeks) 55

4.4 The Effect of Diets Containing Roselle Seed Fermented at Varying Durations on the Performance of Broiler Chickens (5-9 weeks) 57

4.5 Haematological Parameters of Broiler Chickens Fed Diets Containing Roselle Seed Fermented at Varying Durations 59

4.6 Carcass Characteristics and Organ Weight of Broiler Chickens Fed Diets Containing Roselle Seed Fermented at Varying Durations 61

4.7 Nutrient Digestibility of Broiler Chickens Fed Diets Containing Roselle Seed Fermented at Varying Durations ..... .65

4.8 The Performance of Broiler Starter Chicks Fed Diets Containing Fermented Roselle Seed with Enzyme Supplementation (0-4 weeks) 65

4.9 The Performance of Broiler Chickens Fed Diets Containing Fermented Roselle Seed Supplemented with Enzymes (5-9weeks) 67

4.10 Haematological Parameters of Broiler Chickens Fed Diets Containing Fermented Roselle Seed Supplemented with Enzymes 69

4.11 Carcass characteristics and Organ Weight of Broiler Chickens fed Diets Containing Fermented Roselle Supplemented Seed with Enzymes 71

4.12 Nutrient Digestibility of Broiler Chickens fed diets containing Fermented Roselle Seed Supplemented with Enzymes 73

CHAPTER FIVE 78

DISCUSSION 78

5.1 Proximate Composition of Roselle seed 75

5.2 Effect of fermentation on Anti-nutritional factors of Roselle seeds 76

5.3 The Performance of birds fed Diets Containing Roselle Seeds Fermented at Varying Durations 77

5.4 Haematological Parameters of Broiler Chickens fed Diets Containing Roselle Seed Fermented at Varying Durations 80

5.5 Carcass Characteristics and Organ Weight of Broiler Chickens fed Diets Containing Roselle Seed Fermented at Varying Durations 81

5.6 Nutrient Digestibility of Broiler Chickens fed diets containing
Roselle Seed fermented at varying durations 82
5.7 Performance of Broiler Starter Chicks Fed Diets Containing
Fermented Roselle Seed Supplemented with Enzymes 83
5.8 Haematological Parameters of Broiler Chickens Fed Diets Containing
Fermented Roselle Seed Supplemented with Enzymes 85
5.9 Carcass Characteristics and Organ Weight of Broiler Chickens
Fed Diets Containing Fermented Roselle Seed Supplemented with Enzymes 86
5.10 Nutrient Digestibility of Broiler Chickens Fed Diets Containing
Fermented Roselle Seed Supplemented with Enzyme 87
CHAPTER SIX 89
6.0 SUMMARY, CONCLUSION AND RECOMMENDATION 89
6.1 Summary of the Findings 89
6.2 Conclusion 91
6.3 Recommendations 91
REFERENCES 92

LIST OF TABLES

Table 3.1: Composition of Broiler Starter Diets Containing Roselle Seed Fermented at Varying Durations (0-4 weeks) ..... .36

Table 3:2: Proximate Composition of Broiler starter diet ..... .37

Table 3.3: Composition of Broiler Finisher Diets Containing Roselle Seed Fermented at Varying Durations (5-9 weeks) ..... .38

Table 3:4: Proximate Composition of Broiler Finisher Diets Containing Roselle Seed Fermented at Varying Durations ……..... .39

Table 3.5: Composition of Diets for Broiler Starter Diet Containing Fermented Roselle Seed Supplemented with Enzymes (0-4 weeks) ..... .46

Table 3:6: Proximate Composition of Broiler Starter Diets Containing Roselle Seed Fermented at Varying Durations ..... .47

Table 3.7: Composition for Broiler Finisher Diets Containing Fermented Roselle Seed Diet Supplemented with Enzymes ..... .48

Table 3:8: Proximate Composition of Broiler Finisher Diet for Experiment 2 ..... .49

Table 4.1: Chemical Composition of Roselle Seed Fermented at Varying Durations ..... .52

Table 4.2: Anti-nutritional Levels of Roselle Seed Fermented at Varying Durations ..... .54

Table 4.3: The Effect of Diets Containing Roselle Seed Fermented at Varying Durations on Growth Performance of Broiler Chickens (0-4 weeks) ..... .56

Table 4.4: The Effect of Diets Containing Roselle Seed Fermented at Varying Durations on Growth Performance of Broiler Chickens (5-9 weeks) ..... .58

Table 4.5: The Effect of Diets Containing Roselle seed Fermented at Varying Durations on Haematological Parameters of Broiler Chickens (9 weeks) ..... .60

Table 4.6: Carcass Characteristics of Broiler Chickens fed Diets Containing Roselle Seed Fermented at Varying Durations. Exp 1 ..... .62

Table 4.7: Nutrient Digestibility of Broiler Chickens fed Diets
Containing Roselle seed Fermented at Varying Durations. ..... .64

Table 4.8: The Effects of Diets Containing Fermented Roselle Seed Supplemented
with Enzymes on Growth Performance of Broiler Chicks (0-4 weeks) 66

Table 4.9: The Effects of Diets Containing Fermented Roselle Seed Supplemented
with Enzymes on Growth Performance of Broiler Chickens (5-9weeks)..... ..68

Table 4.10: The Effects of Diets Containing Fermented Roselle Seed
Supplemented with Enzymes on Haematological parameters of
Broiler Chickens……..…….....70

Table 4.11: Carcass Characteristics and Organ Weight of Broiler Chickens Fed
Diets Containing Fermented Roselle Seed Supplemented with Enzymes..... ..72

Table 4.12: Nutrient Digestibility of Broiler Chickens Fed Diets Fermented
Roselle Seed Supplemented with Enzyme. Exp 2 74