

636.513

R61

2007

AND MICROSCOPIC ANATOMY OF THE TESTICLES OF
ALLY MATURE AND IMMATURE NATIVE CHICKEN
(*Gallus gallus domesticus*)

THESIS

EDELBERT CUADRA RODIS

College of Veterinary Medicine and Biomedical Sciences
CAVITE STATE UNIVERSITY
Indang, Cavite

513

April 2007

**GROSS AND MICROSCOPIC ANATOMY OF THE TESTICLE OF SEXUALLY
MATURE AND IMMATURE NATIVE CHICKEN
(*Gallus gallus domesticus*)**

Undergraduate Thesis
Submitted to the Faculty of the
College of Veterinary Medicine and Biomedical Sciences
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree of
Doctor of Veterinary Medicine

EDELBERT CUADRA RODIS
March 2007

ABSTRACT

RODIS, EDELBERT CUADRA, "GROSS AND MICROSCOPIC ANATOMY OF THE TESTICLE OF SEXUALLY MATURE AND IMMATURE NATIVE CHICKEN (*Gallus gallus domesticus*)." Undergraduate Thesis. Doctor of Veterinary Medicine, Cavite State University, Indang, Cavite, March 2007. Adviser: Eugene M. Principe, DVM,MS

The study described the gross and microscopic anatomy of the testicle of sexually mature and immature native chicken. The study used ten native chickens that are divided into two groups: sexually mature and sexually immature.

They are retroperitoneal in location, whitish-yellow in color, with the right being more cranial than the left testis. Testicular weight, length, width and diameter were significantly greater in sexually mature than in sexually immature native chicken.

Histologically, both testes of sexually mature and immature native chicken lack tunica vaginalis. The testis of sexually mature native chicken has a thick tunica albuginea and spermatogenic cells (spermatogonia, spermatocytes, spermatids, spermatozoa and Sertoli cells) are all present. For the immature testis, only the spermatogonia, spermatocytes and Sertoli cells are evident. No column formation was observed in the testis of sexually immature chicken. Few connective tissues were seen in between the seminiferous tubules of both testes of sexually mature and immature chicken. Myoid cells were also absent in both ages.

TABLE OF CONTENTS

	PAGE
BIOGRAPHICAL SKETCH.....	iii
ACKNOWLEDGMENT.....	iv
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	ix
LIST OF APPENDIX FIGURES.....	x
LIST OF APPENDICES.....	xii
ABSTRACT.....	xiii
INTRODUCTION.....	1
Significance of the Study.....	2
Objectives of the Study.....	3
Scope and Limitation of the Study.....	4
Time and Place of the Study.....	4
REVIEW OF RELATED LITERATURE.....	5
Native chicken (<i>Gallus gallus domesticus</i>).....	5
Reproductive System of the Male Fowl.....	6
Testis.....	7
Seminiferous Tubules.....	8
Sertoli Cells.....	9
Interstitial (Leydig) Cells.....	10
Sexual Maturity.....	11

METHODOLOGY.....	13
Study Animal.....	13
Study Design.....	13
Tissue Collection and Processing.....	14
Data Gathered.....	14
Gross Features.....	14
Microscopic Features.....	15
Statistical Analysis.....	15
RESULTS AND DISCUSSION.....	16
Macroscopic Description.....	16
Microscopic Description.....	19
Tunica Albuginea.....	20
Seminiferous Tubules.....	22
Interstitial or Leydig Cells.....	24
SUMMARY, CONCLUSION AND RECOMMENDATION.....	26
Summary.....	26
Conclusion.....	28
Recommendation.....	29
LITERATURE CITED.....	30
APPENDIX FIGURES.....	33
APPENDICES.....	42

LIST OF TABLES

TABLES	TITLE	PAGE
1	Mean Weight, Length, Width and Diameter of Right and Left Testicles of Sexually Mature and Immature Native Chicken.....	17
2	Mean Thickness of Tunica Albuginea, Diameter of Seminiferous Tubules and Thickness of Lining Epithelium of the Right and Left Testicles of Sexually Mature and Immature Native Chicken.....	19

LIST OF APPENDIX FIGURES

APPENDIX FIGURE	TITLE	PAGE
1	Sexually mature native chicken used in the study.....	34
2	Sexually immature native chicken used in the study.....	34
3	Retroperitoneal testis of native chicken with the right (R) more cranial than the left (L).....	35
4	Gross appearance of testis from sexually mature and immature native chicken showing difference in sizes.....	35
5a	Tunica albuginea (A) from testis of mature native chicken made up of collagen and elastic fiber with some blood vessels (B), 400X, H&E stain.....	36
5b	Tunica albuginea (A) from testis of immature chicken made up of collagen and elastic fiber with some blood vessels (B), 400X, H&E stain.....	36
6a	Different profiles of the seminiferous tubules from testis of mature native chicken, 100X, H&E stain.....	37
6b	Different profiles of the seminiferous tubules from testis of immature native chicken, 100X, Giemsa stain.....	37
7	Seminiferous tubules with spermatogonia (A), spermatocyte (B) and Sertoli cell (C) from the testis of sexually mature native chicken, 400X, H&E stain.....	38
8	Column formation (A) of the spermatogenic cells of the sexually mature native chicken, 400X, H&E stain.....	38
9	Two types of spermatogonia, spermatogonia A (A) and spermatogonia B (B) observed in the testis of native chicken, 400X, H&E stain.....	39
10	Spermatocyte (A) and spermatids (B) in the testis of sexually mature native chicken, 400X, H&E stain.....	39

11	Spermatozoa in the lumen of seminiferous tubules of sexually mature native chicken, 100X, H&E stain.....	40
12	Sustentacular (Sertoli) cell (A) inside the seminiferous tubules of sexually mature native chicken, 400X, Giemsa stain.....	40
13	Interstitial (Leydig) cells outside the seminiferous tubules of sexually mature native chicken, 400X, H&E stain.....	41

APPENDICES

APPENDIX	TITLE	PAGE
A	Survey Form for Age Determination of Male Native Chicken.....	43
B	Physical Examination Form.....	44
C	Embedding Paraffin.....	45
D	Haematoxylin and Eosin Stain.....	46
E	Giemsa Technique.....	47
F	Reference Color Pallete.....	48

**GROSS AND MICROSCOPIC ANATOMY OF THE TESTICLE OF SEXUALLY
MATURE AND IMMATURE NATIVE CHICKEN
(*Gallus gallus domesticus*)^{1/}**

EDELBERT CUADRA RODIS

^{1/}A thesis manuscript submitted to the faculty of the College of Veterinary Medicine and Biomedical Sciences, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Doctor of Veterinary Medicine with Contribution No. CVM 2006-07-01. Prepared under the supervision of Dr. Eugene M. Principe.

INTRODUCTION

The so-called native chickens are the non-descript and mongrel birds that are commonly found in the backyard of rural homes (Gapuz, 1992). Thus, they are organically produced animals of Philippine commodity. Peñaflorida (1986) stated that the native chicken, claimed by most Filipinos to have better quality meat and is most adapted to our local condition was neglected and very little attention was given to upgrade our native breed.

Researches about native chicken were only concerned with their management practice thus, neglecting their potentials not only as market profit but also as an economic advantage. The usual method of raising chicken employed by farmers needs improvement. Small farmers are less aware of new findings in breeding and management practices which account for its poor production output (Peñalba, 1977).