SEASONAL CHANGES IN THE PITUITARY GLAND OFA CERTAIN TELEOST FISH IN CORRELATION WITH ITS REPRODUCTIVE CYCLE

A Thesis Submitted for the degree of Ph. D. As a partial fulfillment for requirements of the Ph .D

BY

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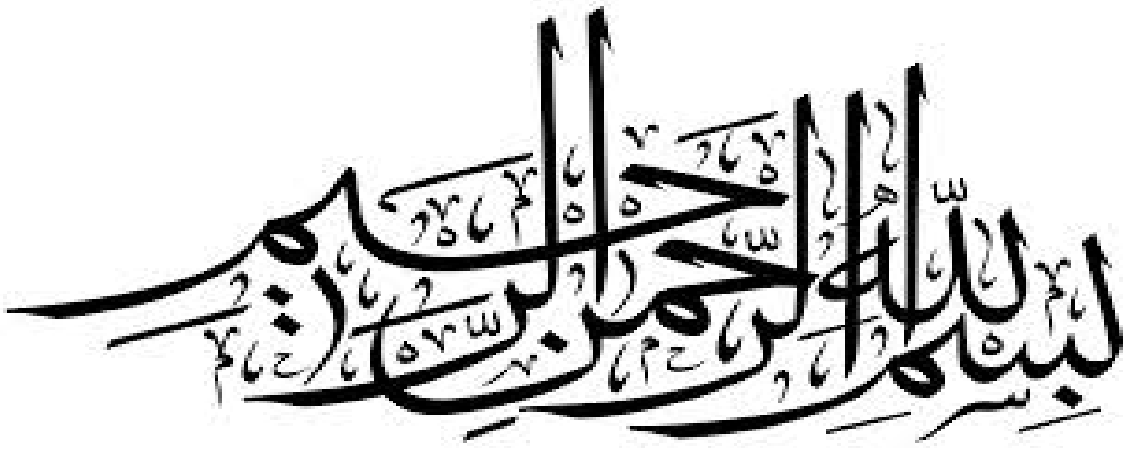
2014



قال تعالى: وَهُوَ الَّذِي سَخَّرَ الْبَحْرَ لِتَأْكُلُواْ
مِنْهُ لَحْمًا طَرِيًّا وَتَسْتَخْرِجُواْ مِنْهُ حِلْيَةً تَلْبَسُونَهَا
وَتَرَى الْفُلْكَ مَوَاخِرَ فِيهِ وَلِتَبْتَغُواْ مِن فَضْلِهِ
وَلَعَلَّكُمْ تَشْكُرُونَ....النحل: الآية 14

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ACKNOWLEDGEMENTS

At first, I d like to express my thanks to Allah who gave me the faith, strength and motivation to begin and finish this work.

Then, I would like to express my gratitude to my supervisor Prof. Dr . William Rizkalla for the useful comments, remarks and engagement through the learning process of this Ph.D. doctorah thesis.

I would like to express my sincere gratitude to my advisor Prof. Dr. Hamza El-Shabaka for the continuous support of my Ph.D. study and research, for his patience, motivation, enthusiasm and immense knowledge. His guidance helped me all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my Ph. D. study.

Furthermore I d like to thank Prof. Dr. Azza El Ganainy who helped me alot and provided technical facilities and some information about my studies.

Special thanks to the amazing Dr. Fawzia Abd El-Rahman who taught me alot through this thesis, and her spiritual support to me, her love, patierce, good comments and accurate remarks . Seriously she didn t make me feel uncomfortable.

Last but not the last, I would like to thank my husband, family and friends for their deep concern and love and for supporting me throughout my life.

ABSTRACT

The present study deals with morphological and histological variations of the pituitary gland of ***Liza carinata,*** from the Suez Bay of the Red Sea, in correlation with its reproductive cycle.

The study of the reproductive biology revealed that the spawning season of ***L. carinata*** extends from late September to late December.

The oogenesis of ***L. carinata*** is divided into seven stages, namely: the oogonia, the chromatin nucleolar, the early peri-nucleolar, the late peri-nucleolar, the vacuolated, the early yolk globular and the late yolk globular stages. In addition, the spermatogenesis is divided into six stages, namely: the spermatogonia A and B, primary and secondary spermatocytes, spermatids and spermatozoa.

The pituitary gland of ***L. carinata*** is differentiated into two main divisions, the adenohypophysis and neurohypophysis. The adenohypophysis is further divided into three glandular regions, namely: pro-, meso- and meta-adenohypophysis. The pro-adenohypophysis occupied by acidophils (A1), while the meso-adenohypophysis occupied by both acidophils (A2) and the basophils (B1) and (B2). The meta-adenohypophysis contains the amphiphils (Ml); in addition, the neurohypophysis is formed of a compact mass of nervous tissue. The cells of pituitary gland show no significant seasonal variations all the year round. However, the basophils (B1) seem to be the only gonadotrophs show pronounced seasonal variations.

CONTENTS

LIST OF ABBREVIATIONS

A1	Acidophils (A1).
A2	Acidophils (A2).
Ad	Adenohypophysis.
At.fc	Atretic follicles.
B1	Basophils (B1).
B2	Basophils (B2).
Bl.cap	Blood capillary.
Bs.lam	Basal lamina.
Ce.mm	Cell membrane.
Cen	Centriole.
Ch.nu.oo	Chromatin-nucleolar oocytes.
Ch.pat	Chromatin patches.
Cr.ms.l	Circular muscle layer.
Ct	Cysts.
Cy.brd	Cytoplasmic bridge.
Cy.ca	Cytoplasmic canal.
Cyk.mit	Cytoskeletal microtubules.
Dis.cen	Distal centriole.
En.r	Endoplasmic reticulum.
Er.pe.nu.oo	Early peri-nucleolar oocyte.
Er.sd	Early spermatids.
Er.yo.gl.oo	Early yolk globular oocyte.
F.brn	Fore-brain.
Fc.ce	Follicular cell.

Fc.l	Follicular layer.
Fl	Flagellum.
Fl.mm	Flagellum membrane.
Fl.win	Flagellar wing.
G.ap	Golgi apparatus.
Gr.ma	Granular material.
Ice.spa	Intercellular space.
Im.cm	Intermitochondrial cement.
In.ce	Interstitial cell.
Inl.c.t.s	Interlobular connective tissue septa.
La. pe.nu.oo	Late peri-nucleolar oocyte.
La.sd	Late spermatids.
La.yo.gl.oo	Late yolk globular oocyte.
Li.dr	Lipid droplets.
Lo. ms.l	Longitudinal muscle layer.
Lq.yo	Liquefied yolk.
M	Mitochondria.
Md.pic	Middle piece.
Md.sd	Middle spermatids.
Me.ad	Meso-adenohypophysis.
Mit	Microtubule.
Ml	Amphiphils (Ml).
Mt.ad	Meta-adenohypophysis.
Mv	Microvilli.
N	Nucleus.
N.fo	Nuclear fossa.

N.mm	Nuclear membrane.
N.por	Nuclear pore.
Ne.gr	Neurosecretory granules.
Neh	Neurohypophysis.
Neh.prs	Neurohypophysial processes.
Nu	Nucleolus.
Og.lm	Ovigerous lamellae.
Ogn	Oogonium.
Olm	Oolemma.
Oo	Oocyte.
Oo.lu	Oocyte lumen.
Oo.w	Oocyte wall.
Op	Ooplasm.
Out	Outpocketing.
Ov	Ovary.
Ov.lu	Ovarian lumen.
Ov.w	Ovarian wall.
P.sc	Primary spermatocytes.
Pe.n.ng	Perinuclear nuage.
Pfc.ce	Prefollicular cell.
Pit.gd	Pituitary gland.
Po.cen	Proximal centriole.
Por.ca	Pore canal.
Pr.l	Peritoneal layer.
Pro.ad	Pro- adenohypophysis.
Ps.ovu.st	Post ovulatory structures.
Res.bd	Residual body.
Res.sz	Residual spermatozoa.

Ri	Ribosomes.
Scr.gr	Secretory granules.
Sd	Spermatids.
Se.lb	Seminiferous lobules.
Sg.A	Spermatogonia A.
Sg.B	Spermatogonia B.
So.sc	Secondary spermatocytes.
Spr.cd	Sperm cloud.
Spr.d	Spermatic duct.
Sr.ce	Sertoli cells.
Sz	Spermatozoa.
Sz.hd	Spermatozoa head.
Th.ce	Thecal cell.
Th.l	Thecal layer.
Ts	Testes.
Tu.al	Tunica albuginea.
V	Vacuoles.
V.oo	Vacuolated oocyte.
Yo.gl	Yolk globules.
Yo.gr	Yolk granules.
Yo.n	Yolk nucleus.
Zn.ra	Zona radiata.
Zn.ra.e	Zona radiata externa.
Zn.ra.i	Zona radiata interna.

LIST OF FIGURES