Cairo University
Faculty of Veterinary Medicine
Department of Theriogenology

Studies on *In Vitro* Capacitation and Acrosome Reaction of Ram Spermatzoa

A Thesis Presented

by

khaled Ahmed Zaki Mohamed Ammar
(B.V.Sc. 1990; Cairo University)

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Under Supervision

Prof. Dr. Taysser Ismail Mohamed
Professor of Theriogenology
Faculty of Veterinary Medicine
Cairo University

Prof.Dr.
Khaled Hafez El-Shahat

Professor of Theriogenology
Faculty of Veterinary Medicine
Cairo University

Prof.Dr.
Magdy Ramadan Zaki

Chief Research in A.I. and E.T.
Animal Reproduction Research Institute
Agriculture Research Center

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رسالة مقدمة من

ط.ب/ خالد أحمد زكى محمد عمار
(بكالوريوس العلوم الطبية البيطرية جامعة القاهرة – ١٩٩٠)

للحصول على درجة الماجستير
(التوليد والتناسل و التلقيح الاصطناعي)

تحت إشراف

أ.د/ تيسير اسماعيل محمد
أستاذ التوليد والتناسل و التلقيح الاصطناعي
كلية الطب البيطري
جامعة القاهرة

أ.د/ خالد حافظ الشحات
أستاذ التوليد والتناسل و التلقيح الاصطناعي
كلية الطب البيطري
جامعة القاهرة

أ.د/ مجدي رمضان ذكي بدر
رئيس بحوث بقسم التلقيح الاصطناعي و نقل الأجنة
بمعهد بحوث التناسليات الحيوانية بالهرم
مركز البحوث الزراعية

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Name of candidate : Khaled Ahmed Zaki Mohamed Ammar.

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Supervisors: Prof. Dr.Taysser Ismail Mohamed .

Prof. Dr.Khaled Hafez El-Shahat .

Department: Theriogenology .

Abstract

Our objective is to compare and identify the best concentration of the best capacitating compound and the best incubation period to be used routinely in the IVF program of ram spermatozoa.

Split fractions (0.1ml) of the pooled semen were layered under 1 ml of S-TALP medium supplemented with either heparin (10, 25, 50,75and 100 µg/ml),caffeine(0.5,0.75,1,2mg/ml),theophylline(0.015,0.02,0.025,0.03,0.04 and0.05mg/ml),hypoxanthine(5,10,15,20mg/ml),calciumionophoreA23187(0.5,0.75,1,1.55mM/ml),Larginine(5,10,20,25mg/ml),PHE(10,20,30,40,50,75,1 mM/ml),oviductal secretion (10,20,50.75µl/ml) and follicular fluid (10, 20,40,50,100,150,200µl/ml). The best concentrations were 50 -75 µg/ml Heparin,1mg/mlCaffeine,0.05mg/mlTheophylline,20mg/mlLArginine,1.55mM/mlCalciumIonophoreA23187,75mM/mlPHE,20mg/mlHypoxanthine,50µl/ml Oviductal secretion and 40 µl/ml Follicular Fluid .In the present study the penetration rates of rate of oocytes inseminated with spermatozoa treated with calcium ionophore A23187, L-Arginine and heparin were higher as compared with other capacitating agents. Moreover, heparin and PHE achieved higher fertilization rates but without significant difference with other capacitating compounds.

Key words: Ram spermatozoa ; Capacitation ; Acrosome reaction ; Fertilization rate .

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