

Sudan University of Science and Technology
College of Graduate Studies

**Effect of Pre-incubation Heating Time of Japanese
Quail Eggs on Hatchability and Post Hatch
Performance**

تأثير تدفئة بيض السمان الياباني قبل الحضن على نسبة الفقس والاداء
الإنتاجي بعد الفقس

**A thesis Submitted for the Fulfillment of the Requirements
for the Degree of Master of Science in Animal Production
(Poultry Production)**

:BY

Nadia Abdalla Abdalrhman Ahmed

:Supervisor

Dr.Elfadil Ahmed Adam Fadul

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الاية

بسم الله الرحمن الرحيم

(وظللنا عليكم الغمام وأنزلنا عليكم المن والسلوي كلوا من طيبات ما رزقناكم وما ظلمونا ولكن كانوا أنفسهم يظلمون)

الاية (57) سورة البقرة.

Dedicatio

To the soul of my father

My mother with great love

My brothers

My sisters

My friends

My husband

**Also I dedicate this thesis to all
Who contributed in this study**

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ABSTRACT

This experiment aimed to evaluate the influence of different pre-incubation heating time (PREIHT) of Japanese quail eggs on hatchability and post hatch performance. A total of 1200 Japanese quail eggs were collected from 15 wk. old quail breeder. Male to female ratio was 1:3. Eggs were divided into four groups (A, B, C and D) each consisted of 300. Eggs were heated before incubation at 37.0°C and 65% RH for different times 3 hours (Group B), 6 hours (Group C) 9 hours (Group D) or without heated treatment (0 hours) or (control, Group A), all eggs were stored at 18°C and 75.0 % RH for 4 days. All eggs were weighed. After the storage then incubated in Avimatic ® incubator for 14 days at 37°C temperature and 65% RH. At 14 days of incubation eggs were transferred to the Avimatic ® hatcher adjusted at 36.6°C average temperature and 75%RH. After heating, all chicks were counted and weighted and hatchability was calculated. Un-hatched eggs were opened to determine the stage of embryonic mortality and fertility. Egg weight loss and chick yield were calculated. Chick quality was evaluated. Thirty first best quality chicks were selected from each treatment and reared for six weeks to determine their performance. The result revealed that pre- heating quail eggs for 6 hours significantly ($P \leq 0.05$) improved hatchability of total eggs (80.8%) and fertile eggs (88.6%) compared to the control (71.43% , 83.33%) respectively. And those pre-heated for 3 (76.0% , 85.8%) and 9 hours (71.70% ,83.78%). On the other

hand, heating quail eggs for 6 hours had significantly ($P < 0.05$) reduced early (1.71) and mid (2.85) embryonic mortality and pipped un-hatched chicks (2.85) compared to those heated for 3 and 9 hours (2.57, 3.41) (4.57, 4.28). Pre-heating quail eggs for 3 hrs. had significantly low late embryonic mortality (2.85) and egg weight loss (12.89%). No significant difference was observed in chick yield and Tona score. Subsequent growth performance of chicks was not significantly influenced by pre-heating time.

هدفت الدراسة إلى تقييم تأثير تدفئه بيض السمان قبل الحضن لفترات زمنية مختلفه على نسبة الفقس و الأداء الإنتاجي للكتاكيت بعد الفقس.أستخدم في هذه الدراسة عدد 1200 بيضة تم جمعها من قطيع تربية سمان عمرة 15 إسبوع حيث كانت نسبة الذكور الي الاناث 3:1 و تم تقسيم البيض إلى أربعة معاملات تحتوي كل منها علي 300 بيضة و إحتوت كل معاملة على أربعة مكررات بحيث تحتوي كل معاملة على 75 بيضة. تم تدفئة البيض على درجة حراره 37 درجة مئوية ورطوبة نسبية 65% لفترات زمنية مختلفه (صفر معاملة التحكم ، 3 ، 6 ، 9 ساعات) تم تسجيل وزن البيض و من ثم تم تخزين البيض لمدة أربعة أيام في حجره تحت درجة حراره 18 درجة مئوية ورطوبه نسبية 75 % وبعد إنتهاء مدة التخزين تم تفريخ البيض في مفرخ لمدة 17 يوم على درجة حراره 37.5 درجة مئوية و 65 % رطوبة نسبيه و عند نهاية مدة الفقس تم اخراج وعد الكتاكيت الفاقسة ووزنها و حساب نسبة الخصوبه و الفقس و الفقد في وزن البيض و نوعية الكتاكيت. أوضحت النتائج إلى أن تدفئة بيض السمان على درجة حراره 37.5 درجة مئوية لمدة 6 ساعات نتج عنها تحسن معنوي في نسبة الفقس الكلية(80.8%) ونسبة الفقس من البيض المخصب (88.6%) مقارنة بمجموعة التحكم (71.43% - 83.33%) وتلك التي تم تدفئة البيض فيها لمدة 3 ساعات (76% - 85.8%) و 9 ساعات (71.7% ، 83.78%) . من ناحية اخري عند تدفئة البيض لمدة 6 ساعات أدى الي إنخفاض معنوي في الن فوق المبكر (1.71) والمتوسط (2.85) والبيض الكابس (2.85) مقارنة بتدفئة البيض لمدة 3 أو 9 ساعات (2.57 و 2.85) كما أن تدفئة البيض لمدة 3 ساعات أيضاً قلل معنوياً من نسبة الن فوق المتأخر (2.85) ونسبة الفقد في وزن البيضة.ولم تلاحظ الدراسة اي فروق معنوية في وزن ونوعية الكتاكيت نتيجة للتدفئه.أما الأداء الإنتاجي للكتاكيت الفاقسة لم يتاثر معنوياً بزمن التدفئه.

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