DEDICATION

To my mother, my father, my brothers, my sisters and my aunts

To all my friends and all my love

With faithful and love

Attif

Acknowledgment

I express my sincerely and deep appreciation to Dr. Mukhtar Ahmed Mukhtar for his kind and constructive guidance during this research, with his professional observations and discussion and his friendly attitude, who lead me to achieve this study.

I also express my gratitude and appreciation to my family for their great help and facilities during this research and all my life thanks so much for them.

Special thanks to Department of Animal Production College of Agriculture Studies Sudan University of Science and Technology.

Table of content

Dedicationi
Acknowledgementii
Table of contentiii
List of tablesvi
List of figuresvii
List of Appendixviii
English abstractix
Arabic abstractx
CHAPTER I: INTRODUTION
CHAPTER II-: LITERATURE REVIEW3
2.1. Classification of Cajanus cajan3
2.2. Description of Cajanus cajan3
2.3. Distribution of cajanuns cajan4
2.4 .Chemical Composition of pigeon pea seed5
2.5: Anti nutritional Aspects in pigeon pea seed11

2.6: Functional uses of pigeon pea seed13
2.7: Pigeon pea as human food14
2.8: Pigeon pea as animal feed15
2.9: The Effect of Processing on Nutritive Value16
2.10: Pigeon pea seed as non conventional feed for poultry18
2.11: Caraway oil as additive21
Chapter three23
Materials and Methods23
2.1: Duration23
2.2: Experimental birds23
2.3. Experimental diets23
2.4 .Data collection24
2.5. Carcass preparation24
2.6. Statistical analysis24
Chapter 428
Results28
Economical appraisal31
Figures33
Chapter 540

Discussion	40
Chapter 6	42
Conclusion and Recommendations	42
References	43
Appendix	58

List of Tables

Table Page
Amino acids contents of raw and processed pigeon pea seeds (%DM)10
Chemical composition of Cajanus cajan raw seeds25
Percent inclusion rate of dietary ingredients in the experiment26
Effect of graded levels of pigeon pea seed supplemented with caraway oil
on the broiler chick performance32
Economics appraisal of Cajanus cajan in broiler diets39

List of figure

Figure page
Figure (1): Effect of graded levels of pigeon pea seed supplemented with caraway oil on the broiler chick performance
Figure (2). The effect of graded levels of pigeon pea seed supplemented
with caraway oil on Weekly final body weight34
Figure (3): The effect of graded levels of pigeon pea seed supplemented with caraway oil on weekly live body weight gain of broiler chick
(g/b/w/c)35
Figure (4): The effect of graded levels of pigeon pea seed supplemented
with caraway oil on weekly feed intake of broiler chicks
Figure (5): The effect of pigeon pea seed levels supplemented with caraway
oil on weekly feed conversion ratio of broiler chicks37
Figure (6): The effect of pigeon pea seed levels supplemented with caraway
oil non carcass components38

List of Appendixes

Weekly average maximum and minimum internal ambient temperature
during the experimental period58
The effect of graded levels of pigeon pea seed supplemented with caraway
oil on weekly feed intake of broiler chicks59
The effect of graded levels of pigeon pea seed supplemented with caraway
oil on weekly live body weight gain of broiler chicks (g/b/w/c)60
The effect of graded levels of pigeon pea seed supplemented with caraway
oil on Weekly final body weight61
The effect of pigeon pea seed levels supplemented with caraway oil on
weekly feed conversion ratio of broiler chicks62
The effect of pigeon pea seed levels supplemented with caraway oil non
carcass components63

Abstract

This experiment was designed to evaluate the Response of broiler chicks to graded levels of raw pigeon pea seed supplemented with caraway oil (0.2gm/kg) on broiler performance. One hundred and twenty unsexed commercial chicks (Ross308) were selected after a week of adaptation period, they were randomly assigned to five experimental diets in a completely randomized design .Each treatment group was replicated four times with 6 chicks per replicate. Five iso-caloric and iso-nitrogenous diets contains 0, 5, 10, 15 and 20% raw pigeon pea seeds were supplemented with (0.2gm/kg) caraway oil were formulated. Parameters measured weekly were feed intake, live body weight, weight gain and feed conversion ratio. Mortality recorded daily.

Results obtained for overall performance revealed that inclusion of raw pigeon pea seeds with caraway oil supplementation had significant (P<0.05) effects on feed intake ,live body weight ,weight gain and hot carcass weight with low significant (P>0.05) effect in feed conversion ratio compared to the control group .

It is concluded that addition of caraway oil at 0.2mg/kg to raw pigeon pea seed is eliminate or reduce the anti nutritional factors in pigeon pea seeds, so we can use the caraway oil as natural inhibit or anti-nutritional factors.

Economically pigeon pea seed supplemented caraway oil could be safely included in broiler diets up to 20%.

الخلاصة

صممت هذه التجربة لتقييم مدي استجابة الدجاج اللاحم لمستويات مختلفة من بذور اللوبيا عدسي مضاف اليها زيت الكراوية(٢,٠ملم/كجم). تم استخدام ١٢٠ كتكوت غير مجنسه من سلالة (روص٣٠٨) بعد فترة تأقلم امتدت لأسبوع (فترة التحضين) وتم توزيع الكتاكيت عشوائيا لخمسة علائق تجريبية وتم تكرار كل معاملة اربعه مرات وكل مكرر يحتوي علي ستة كتاكيت.

تم تركيب خمسة علائق تحتوي علي ٥٠٢٠،١٥،٢٠٠٠ بذور لوبيا عدسي مضاف اليها زيت الكراوية (٢٠,٠ملم /كجم). وتم اخذ القياسات اسبوعيا لمعدل العليقة المستهلكة، الوزن الحي، الوزن المكتسب ونسبة التحويل الغذائي. كما تم تسجيل النفوق يوميا.

أثبتت النتائج المتحصل عليها للاداء العام الكلي للدجاج اللاحم بإن إضافة بذور لوبيا عدسي مضاف اليها زيت الكراوية (7,0.05) ذات تأثير معنوي (P<0.05) علي العليقة المستهلكة ،الوزن الحي النهائي ، الوزن المكتسب ،والوزن الحار للزبيحة. كما أظهرت فروقات غير معنوية (0.05) علي نسبة التحويل الغذائي وذلك مقارنة بالعليقة القياسية (الكنترول).

الكتاكيت التي تغذت على عليقة تحتوي على % ٢٠٠٠من بذور لوبيا عدسي مضاف اليها زيت الكراوية (٢,٠٠ملم /كجم) سجلت افضل قيمة في القياسات ماعدا نسبة التحويل الغذائي .

خلصت الدراسة الاقتصادية أنة يمكن إضافة بذور لوبيا عدسي مضاف اليها زيت اللكراوية (٢,٠ملم /كجم) في علايق الدجاج اللاحم بنسبة ٢٠% بدون تأثيرات سالبة أو عكسية .