بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

EFFECT OF TREATED BARLEY STRAW BY BACTERIA (*Cellulomonas Cellulases*) AND CONDENSED MOLASSES SOLUBLE ON GROWTH PERFORMANCE OF BARKI LAMBS

By

AHMED FATHY ABD ALLAH ABD EL-GAWAD
B.Sc. Agric. Sci. (Animal Production), Fac. Agric., Suez Canal Univ., 2012

THESIS
Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

In

Agricultural Sciences
(Animal Production)

Department of Animal Production
Faculty of Agriculture
Cairo University
EGYPT

2021

Format Reviewer **Vice Dean of Graduate Studies**

APPROVAL SHEET

EFFECT OF TREATED BARLEY STRAW BY BACTERIA (*Cellulomonas Cellulases*) AND CONDENSED MOLASSES SOLUBLE ON GROWTH PERFORMANCE OF BARKI LAMBS

M.Sc. Thesis
In
Agric. Sci. (Animal Production)

By

AHMED FATHY ABD ALLAH ABD EL-GAWAD
B.Sc. Agric. Sci. (Animal Production), Fac. Agric., Suez Canal Univ., 2012

APPROVAL COMMITTEE

Dr. FOUAD ABD ELAZIZ FOUAD SALEM.....
Professor of Animal Nutrition, Fac. Agric., Ain Shams University

Dr. ABD EL-RAHMAN MAHMOUD ABD EL-GAWAD.....
Professor of Animal Nutrition, Fac. Agric., Cairo University

Dr. MOHAMED AHMED HANAFY.....
Professor of Animal Nutrition, Fac. Agric., Cairo University

Date: 4 / 7 / 2021

SUPERVISION SHEET

EFFECT OF TREATED BARLEY STRAW BY BACTERIA (*Cellulomonas Cellulases*) AND CONDENSED MOLASSES SOLUBLE ON GROWTH PERFORMANCE OF BARKI LAMBS

M.Sc. Thesis
In
Agric. Sci. (Animal Production)

By

AHMED FATHY ABD ALLAH ABD EL-GAWAD
B.Sc. Agric. Sci. (Animal Production), Fac. Agric., Suez Canal Univ., Egypt, 2012

SUPERVISION COMMITTEE

Dr. MOHAMED AHMED HANAFY
Professor of Animal Nutrition, Fac. Agric., Cairo University

Dr. HASSAN GODA HELAL
Researcher Professor of Animal Nutrition, Desert Research Center

Dr. MOHMMED HASSAN BAKR
Lecture of Animal Nutrition, Fac. Agric., Cairo University

Name of Candidate: Ahmed Fathy Abd allah Abd El-gawad **Degree:** M.Sc.

Title of Thesis: Effect of Treated Barley Straw by Bacteria (*Cellulomonas Cellulases*) and Condensed Molasses Soluble on Growth Performance of Barki Lambs

Supervisors: Dr. Mohamed Ahmed Hanafy
Dr. Hassan Goda Helal
Dr. Mohammed Hassan Bakr

Department: Animal Production **Branch:** Animal Nutrition

Date: 4 / 7 / 2021

ABSTRACT

Two experiments were carried out to evaluate treated barley straw by bacteria *Cellulomonas Cellulases* (TBS) with or without condensed molasses soluble (CMS) in ration of Barki lambs. In Exp1, twelve adult male Barki rams (43.56 ± 0.5 kg body weight) were divided into similar three groups (4 of each) for three experimental rations consisted of 50% concentrate feed mixture (CFM) plus 50% roughage either clover hay (CH) or treated barley straw (TBS) or TBS with condensed molasses soluble (CMS) for C (control), T_1 and T_2, respectively. However in Exp.2 ten growing Barki lambs (28.32 ± 1.25 kg body weight) were divided into two groups, group one (C) fed as the control ration (50% CFM + 50% CH) while group two fed 50% CFM +33% TBS +17% CMS). Rations were offered to animals at 3% of body weight (DM basis). The results showed that digestibility's of DM, OM, CF and EE didn't differ ($P<0.05$) among all rations, while CP digestibility recorded higher ($P<0.05$) value in T_2 compared to T_1 rations. The TDN values were ranged from 53.6 to 56.12% insignificant ($P<0.05$). Values of DCP were surpass ($P<0.05$) for T_2 compared to C and T_1, being 9.87, 9.11 and 7.28%, respectively. All parameters of rumen liquors and blood serum were within the normal ranges. Body weight gain and feed conversion of growing lambs didn't differ ($P<0.05$) also wholesale cuts and organs of T2 were similar to those of control ($P>0.05$. The economic efficiency was better for T2 group being higher by 15.3% than control group. Finally, treated barley straw with condensed molasses soluble could be used as good roughage (such as clover hay) in ration of growing Barki lambs in arid and semi-arid regions.

Key words: Barley straw; *Cellulomonas cellulases* bacteria; condensed molasses soluble; Barki sheep; nutritive values; growth performance.

ACKNOWLEDGEMENT

First of all thanks, to Allah for his continuous help during all my life. I wish to express my sincere thanks, deepest gratitude and appreciation to ***Dr. Mohamed Ahmed Hanfy*** *Professor of Animal Nutrition, Faculty of agriculture, Cairo University for his helping solving the problem, supervision, continued assistance and his guidance through the study and the revision of thesis. Sincere thanks to* ***Dr. Hassan Goda El-Seed Helal*** *Professor of Animal Nutrition, Dissert Research Center for sharing in supervision, continued assistance during the partial post of the work; statistical analysis . Sincere thanks to* ***Dr. Mohamed Hassan Baker*** *Lecture of Animal Nutrition, Faculty of Agriculture, Cairo University for his helping solving the problem, supervision, continued assistance and her guidance through all the study and his helping in writing and revising of thesis.*

I would like to express my family specially my mother, my father, my brother and my sisters for their support, love and encouragement during my study and my wife, and my son (Huzefa) for their continuous encouragement and confidence in me during my studies which was a great motivation for me to complete this work.

Finally my great thanks to all staff members of Animal and Poultry Nutrition Department, Desert Research Center.

LIST OF ABBREVIATIONS

ADF:	Acid-detergent fiber
ADG	Average daily gain
ADL	Acid-detergent lignin
ALP	alkaline phosphatase
ALT	Alanine transaminase
AST	Aspartate transaminase
BS	Barley Straw
BW	Body weight
Ca	Calcium
CFM	Concentrate feed mixtures
CH	Clover hay
CMS	Condensed molasses soluble
DCP	Digestible crud protein
DDGS	Dried distillers grains with solubles
DE	Digestible energy
DM	Dry matter
DMI	Dry matter intake
DVR	Dried vinasse rice
EE	Ether extract
FCR	Feed conversion ratio
GE	Grosse energy