بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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MONA MAGHRABY

Cairo University
Faculty of Veterinary Medicine
Department of Nutrition and Clinical Nutrition

Clinico-Nutritional Studies on the Use of Rosemary and/or Basil Leaves Powder to Investigate the Likelihood of Overcoming Some Metabolic and Health Problems in Rottweiler Dogs

Thesis

Submitted by

Noha Abdelrahman Hassanien Ibrahim

(Ms.V.Sc., Cairo university, 2015)

For

PhD degree

(Nutrition and Clinical Nutrition)

Under supervision of

Prof. Dr. Ramadan Abdel-Montaleb El-Banna
Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Maha Mohamed Hady
Professor of Nutrition and Clinical Nutrition Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Mahmoud Mohamed Arafa
Professor of Biochemistry
Department of Biochemistry
Animal Health Research Institute

2020

Cairo University
Faculty of Veterinary Medicine
Department of Nutrition and Clinical Nutrition

Approval sheet

This is to approve that the thesis titled

(Clinico-nutritional studies on the use of Rosemary and/or Basil Leaves Powder to investigate the likelihood of overcoming some metabolic and health problems in Rottweiler dogs)

Submitted by

Noha Abdelrahman Hassnien Ibrahem

(M.V.SC, Cairo University, 2015)
To Cairo University

For

Ph. D (Nutrition and Clinical Nutrition)

Has been approved by the examining committee:

Prof. Dr. Shibl Ramadan Samaha
Professor of Endocrinology and head of Physiology Department
Faculty of Medicine for Boy – Al - Azhar University

Prof. Dr. Fathy Farouk Mohamed
Professor and head of Nutrition and Clinical Nutrition Department
and Former Dean Faculty of Veterinary Medicine - Cairo University

Prof. Dr. Ramadan Abdel – Montaleb El – Banna
Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine - Cairo University **(Supervisor)**

Prof. Dr. Mahmoud Mohamed Arafa
Dept. of Chemistry, Animal Health Research Institute
Dokki , Giza , Egypt **(Supervisor)**

22/6/2020

Cairo University
Faculty of Veterinary Medicine
Department of Nutrition and Clinical Nutrition

SUPERVISION SHEET

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DEDICATION

To my Mother; *a strong woman with kind heart and gentle soul; who taught me to have faith in ALLAH and trust his choices. Every challenging work needs self-efforts as well as guidance of elders especially those who are very close to our heart. My humble effort I dedicate to my loving Mother whose affection, love, encouragement and prays of day and night made me able to get such a success and honor.*

I would like also to dedicate my thesis to ***my Father*** *who passed away 18 years ago. He was and stills my inspiring man who encouraged me while I was child and predicted to have a unique future filled with success. Today, I hope that his dream came true*

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Cairo University
Faculty of Veterinary Medicine
Department of Nutrition and Clinical Nutrition

Name: Noha Abd El-Rahman Hassanien.
Nationality: Egyptian.
Date of birth: 2/12/1989.
Place of birth: Cairo.
Specialty: Nutrition and Clinical Nutrition.
Degree: Ph. D.

Subject: Clinico-nutritional studies on the use of Rosemary and/or Basil leaves powder to investigate the likelihood of overcoming some metabolic and health problems in Rottweiler dogs

Supervisors:

Prof. Dr. Ramadan Abdel-Montaleb El-Banna
Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Maha Mohamed Hady
Professor of Nutrition and Clinical Nutrition
Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Mahmoud Mohamed Arafa
Professor of Biochemistry
Department of Biochemistry
Animal Health Research Institute

ABSTRACT

Since medicinal herbs have been used widely nowadays to prevent and/or control many metabolic, nutritional and health-related diseases in both humans and animals. In this thesis, a series of experimental feeding trials were conducted to evaluate the impact of dietary fortification of rosemary (*Rosmarinus officinalis* and /or basil *(Ocimum basilicum*) leaves powder as a promising clinico-nutritional management tool to prevent and/or control some metabolic and nutritional problems that are commonly occurs in dogs in order to offer results obtained to dog food manufacturers as reference and also as a typical model for human nutritionists. It is worth to say that all feeding trials in this study were carried out at a private Rottweiler dog farm located in Al-Obour city, Cairo, Egypt. The study protocol followed the guidelines of the International Animal Care Institute Committee of Cairo University (IACUC) and approved with protocol number of CU II F 18 18. Dogs utilized throughout the different trials were housed in individual kennels; (1 × 1.2 m) and had access to an outside kennel (10 × 20 m) for exercise and socialization with each other's for 1 hour daily. Kennels were cleaned twice daily. Dogs had access to fresh water ad-libitum throughout the experiment. All animals

were showered once weekly with Betadine® shampoo and Cytéal® antiseptic foaming solution. All basal diets used in the trials were locally processed in extruded form, iso-nitrogenous, equi-caloric, of the same fiber content and formulated based on energy distribution recommendation of American Association of Feed Control Officials (AAFCO). Each dog in different trials was fed separately and the appropriate amount of food was calculated and introduced to each dog according to its body weight, growth energy requirements and the energy density of the diets.

The first feeding trial aimed to study the impact of such phytogenic additives on glycemic status of dogs. Forty-five Rottweiler dogs with an average initial weight of (20.5 to 24.5 kg) were assigned to five experimental groups, each of three replicates (three dogs/replicate) and fed an experimentally processed extruded basal diet that was formulated based on energy distribution recommendation of AAFCO. The groups were as following: The first (G1) was fed the basal diet only without any fortification (negative control); the second (G2) consumed the basal diet fortified with a commercially available synthetic palatant (added during coating step) and served as (positive control); the third (G3) was fortified with rosemary leaves powder (at 0.05%); the fourth (G4) was fortified with dry basil leaves (at 0.05%) and the fifth (G5) was offered the basal diet to which both rosemary and basil leaves were fortified (each at 0.025%).

Results revealed that G4 and G5 exhibited a positive impact on growth performance traits. Dogs in G3, G4, and G5 showed significant decreases in serum glucose levels in comparison to dogs of the control groups (G1 and G2). It was clear that the inclusion level of 0.05% of basil leaves powder (G4) showed the greatest hypoglycemic action. Indeed, dogs in G4 showed a reduction of (31%) in blood glucose level, followed by G5 and G3 groups (16.25% and 14% respectively). Furthermore, dietary fortification of basil leaves significantly inhibited the amylase enzyme activity. Both insulin and cortisol levels were increased and decreased respectively in this group (G4) compared to control groups. In addition, dietary fortification with rosemary and/or basil significantly increased glutathione (GSH), superoxide dismutase (SOD) and catalase (CAT) levels, while values for malondialdehyde (MDA) and lactate dehydrogenase (LDH) decreased. It could be concluded that dietary fortification of dog diet with rosemary and/or basil leaves powder at 0.05% separately or 0.025% in combination might be used as promising modulators of blood glucose levels and could be safely used at such levels of fortification as clinico-nutritional management tool for the prevention and control of diabetes mellitus in dogs.

The second feeding trial was planned to evaluate the impact of the same additives (rosemary and /or basil leaves) on food palatability, growth performance parameters, health status, immune response, antioxidant status and explore the possibility of their use as clinico-nutritional management tool