UNIVERSITI PUTRA MALAYSIA

EFFECTS OF LECITHIN AS EMULSIFIER ON THE PERFORMANCE OF TURKEY POULTS

SITI NURZIHANUM HALIM

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BY

SITI NURZIHANUM BINTI HALIM

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CERTIFICATION

This project entitled 'The Effects Of Lecithin Act As Emulsifier On The Growth Performance Of Turkey Poults' is prepared by Siti Nurzihanum Binti Halim and submitted to the Faculty of Agriculture in fulfillment of the requirement of SHW 4999 (Final Year Project) for the award of the Degree og Bachelor of Agriculture (Animal Science).

Student's name: Student's signature:

Siti Nurzihanum Binti Halim

_____

(165054)

Certified by,

_____

Associate Professor Ismail Bin Idris,

Project Supervisor

Department of Animal Science

Faculty of Agriculture

Universiti Putra Malaysia

Serdang, Malaysia

Date: _____

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LIST OF ABBREVIATIONS

g	gram
kg	kilogram
min	minutes
FCR	Feed Conversion Ratio
FI	Feed Intake
TFI	Total Feed Intake
FE	Feed Efficiency
WK	Week
BWT	Body Weight

ABSTRACT

Effects Of Lecithin As Emulsifier On The Performance Of Turkey Poults.

By

Siti Nurzihanum Binti Halim

An experiment was conducted to determine the effect of Lecithin as emulisifier on performance of poults. Thirty poults, one-day old of Local Bronze Turkey were randomly divide into three main groups of ten birds.The three group have divided into three subgroup each containing five birds.The poults were allocated into three treatment which are different percentage of Lecithin volume to be used in feeding with each treatment replicated two times. The experimental treatments were as follow; (T1) basal diet with 0% Lecithin as control; (T2) basal diet with 0.05% Lecithin and (T3) basal diet with 1.0% Lecithin. At the end of the experiment (84 d), poults in Treatment 3 showed that the highest body weight gain ($p<0.05$) compared to the others treatment. There is significant different of body weight gain in poults in Treatment 1 with Treatment 2 and 3. Poults fed with 0.05% (Treatment 2) and 1% (Treatment 3) of Lecithin are not significantly different and show the same positive highest bodyweight gain compared with poults fed with 0% of Lecithin in Treatment 1 and as control indicates that the lowest bodyweight gain. During week 12, statistical test showed there is significant different ($P<0.05$) among the treatments except week 5 indicated that there is no signficant different between Treatment 1,Treatment 2 and Treatment 3. Total feed intake was significantly affected by the different percentage of Lecithin as emulsifier in feeding diet. Turkey poults in Treatment 1 consumed most feed, 981g followed by birds in Treatment 2, 857.91g. Least feed consumed 811.91g by turkey poults was recorded for Treatment 3. Turkey

poults in Treatment 3 had poor feed intake as compared to others treatments. Statistical test showed that there is significant different among these treatments. The various feeding diet with different percentage of Lecithin influnce on the efficiency of feed ultilization. The performance of turkey poults in Treatment 3, 1.046 of feed conversion ratio was encouraged in efficiency feed ultization and show good among others. Followed by Treatment 2, 1.243 feed conversion ratio and the poor of feed efficiency ultization showed in Treatment 1, 1.588 feed conversion ratio. As a conclusion that, feeding ration with Lecithin as emulsifier indicates that positive in result of feed conversion ration and good in performance of turkey poults compared than feeding ration without using the Lecithin as emulsifier. The result implied that treatment with soya-Lecithin as emulsifier had the highest growth performance compared with the treatment without added by soya-Lecithin.

Keywords: *Meleagris gallopavo,* Emulsifier, Growth performance

Chapter 1

INTRODUCTION

Diets are usually required to supply with high nutrient and energy concentrations in order to meet the nutrient requirements of modern intensively reared birds. Moreover, to achieve this high energy density, fats and oils are often included in the diets to increase the amounts of energy provided to the birds, adding fats into the poultry diet reduces dustiness, whch may otherwise have adverse affects on bird health.

Fats and oils are usually added to turkey diets as dietary energy-yeilding ingredient to improve productivity of turkey growth. Fats and oils play an important role in commercial turkey diets both physically and physiologically. A physical standpoint, fats and oils are associated with process related to improvement of live weight gain and efficiencies egg production and hatching rate. Beside that, from a physiological aspect, fats and oils play functional role in process associated with energy metabolism, nutrient transport and cellular structure.

It is commonly accept that turkey diets are typically formulated with greater added fat levels thatn other types of poultry, including broiler and layers. This is true because turkeys, have greater nutrient requirement (energy, amino acid, mineral, etc) than broiler to support very rapid genetic throughout a much longer production cycles. In the review from Hertrampf(2001), as young birds lack several digestion enzymes, fat digestion improves with ages. Huang (2007) reported that fat is water soluble, thus an emulsion step is required in fat absorption.

Fat is insoluble in a water medium of the gastrointertinal tract, should be emulsified before they can be digested by lipolytic enzymes (Gu and Li, 2003). The process of this emulsification depends on the nature fats mainly determined by the chain length, the position of the fatty acids on the tryglycerides and the fat saturation. Addition of lecithin as an emulsifier has also been shown to increases the apparent metabolizability of dietary fat fed to chicks (Roy, 2010). It may also improve feed conversion ratio, feed intake and performance of animals .

Lecithin is a by product from the processing of soybean oil. It can be serves as an emulsifier and has the potential to enhance utilization of dietary fat by animals. Soy-lecithin is also very popular for its possible benefits in lowering blood cholesterol levels referring to Ipatova (2004). Some studies indicate positive effects (Cox, 2000) while others reported lecithin did not induce any significant increases of broiler performances (Azman and Ciftci, 2004). For fat utilisation, animals must digest and absorb it into the gastrointestinal tract. Because fat is insoluble in water and difficult to handle in water medium, like the gastrointestinal tract, an emulsion step is required.

One of the strategies to improve the growth performance and feed efficiencies by using this emulsifier of lecithin in feeding treatment for young turkeys because the young turkeys should get the all the nutrient requirements.

1.1.0 OBJECTIVES OF STUDY

The aim of this study to determine the effect of lecithin emulsifier on the growth performance of turkey poults by observing changes in feed intakes , body weight and feed conversion ratio responses.

1.1.1 The specific objectives of this study :

1) To evaluate the growth performance of the turkey poults fed throughout the feeding period with different concentrations of lecithin emulsifier under the feeding ration.
2) To determine the feed intake of turkey poutls fed throughout the feeding period with different concentrations of lecithin emulsifier under the feeding ration.

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1.2.0 SIGNIFICANCE OF THE STUDY

The study will be able to determine the Lecithin as alternative emulsifier that can probably add in the commercial antioxidants. This study will also suggest the best percentage of the Lecithin can be used . Therefore, it is hoped that alteration of volumes in feeding ration such as reducing the quantity of commercial startet pellet when adding up some percentage of Lecithin will lower the cost of feeding material. Otherwise, reducing the quantity of feed which can give the best income for farmer in Malaysia.

1.3.0 RESEARCH HYPOTHESIS

Lecithin emulsifier from soya bean meal can help the young poults to maintain their growth performance . Poor growth performance as high feed conversion ratio will be used as the basis of rejection of the null hypothesis.

General hypothesis:

Ho : There is no difference on growth performance of turkey poults fed at different percentage of Lecithin on basal diet.

Ha : There is difference on growth performance of turkey poults fed at different percentage of Lecithin on basal diet.

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