UNIVERSITI PUTRA MALAYSIA

EFFECT SUPPLEMENTATION OF BAKER'S YEAST (*Saccharomyces cerevisae*) ON THE GROWTH PERFORMANCE AND NUTRIENT DIGESTIBILITY IN THE JAPANESE QUAILS

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A project report submitted to the Faculty of Agriculture, University Putra Malaysia,

In fulfillment of the requirement of SHW 4999 (Final Year Project)

For the award of the degree of

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CERTIFICATION

This project entitled "Effects supplementation of Baker's yeast (*Saccharomyces cerevisae*) on the growth performance and nutrient digestibility in a Japanese Quails" is prepared by Siti Noridayu bt Ismail and submitted to the Faculty of Agriculture in fulfillment of the requirement of the course SHW 4999 (Final Year Project) for the award of the Bachelor of Agriculture (Animal Science).

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LIST OF ABBREVIATIONS

ºC	Degree Celsius
C1	Control group
ADG	Average Daily Gain
BW	Body Weight
CF	Crude Fiber
CP	Crude Protein
DM	Dry Matter
DP	Dressing Percentage
FCR	Feed Conversion Ratio
FI	Feed Intake
g	gram
Kg	Kilogram
Ml	Milliliter
P	Significant Different
SAS	Statistical Analysis System
T1	Treatment 1
T2	Treatment 2
T3	Treatment 3

ABSTRACT

The study was conducted to determine the effect of feeding baker's yeast (*Saccharomyces cerevisae)* in diets of the growing of Japanese quails. Performance, nutrient digestibility, body weight gain, feed intake, and feed conversion ratio were studied. A total of 112 chicks (one day old unsexed) with the body weights ranging between 8 and 10g were used. The chicks were obtained from a local commercial breeder farm. The chicks were randomly divided into 4 treatments groups consisting of 4 replicates of 7 chicks and fed a starter ration for 2 weeks. After two weeks, they were fed the treatment diets comprising of a commercial grower supplement with yeast. The dietary treatments were control (0%) yeast, treatment 1 (0.5% yeast), treatment 2 (1.0 % of yeast) and treatment 3 (1.5% of yeast). The feeding trial lasted until 42 days of age after which they were slaughtered and dressing percentage determined. The result revealed that, birds fed with diets containing yeast at level 1.5% recorded significantly higher ($P< 0.05$) body weight gain compared to control diet. The feed conversion ratio significantly higher in dietary treatment with supplemented *Saccharomyces cerevisae.* After that, feed intake also show that ($P>0.05$) there were no significant different among the treatment group. The result of dressing percentage showed that the dressing percentage and proportion weight of organ showed no significant difference ($P>0.05$) among the treatment groups. It can be was concluded that adding yeast 0.05 to 1.5% in the diet improved growth of broiler quails.

ABSTRAK

Kajian ini adalah untuk mengkaji kesan pemberian yis *Saccharomyces cerevisae* (SC) untuk pertumbuhan puyuh . Prestasi , penghadaman , berat badan , kadar pengambilan makanan, dan kadar pertukaran makanan dikenal pasti dan direkodkan. Kajian dijalankan dengan menggunakan sebanyak 112 ekor puyuh pedaging yang tidak diketahui jantina dan berat awalnya ialah 8-10 g .Kesemua puyuh diperolehi daripada ladang komersial perternak yang berhampiran . Selepas itu, puyuh secara rawak dibahagikan kepada 4 kumpulan yang terdiri daripada 4 jenis rawatan terhadap makanan, setiap satu mengandungi 5 ulangan dengan 7 ekor dalam setiap ulangan.. Tempoh 2 minggu untuk penyesuaian puyuh terhadap persekitaran dan pemakanan. puyuh diberi makan makanan dengan permulaan komersial . rawatan makanan tersebut mengandungi 0% (kawalan), 0.5% , 1.0% , 1.5% yis (*Saccharomyces cerevisae*). Rawatan makanan tersebut bermula pada hari ke 14 sehingga 42 hari. Pada hari akhir eksperimen , 2 ekor puyuh diambil secara rawak dalam setiap rawatan kumpulan untuk merekod peratusan berat badan yang telah dibuang bulu, organ dalaman , dan berat tulang di analisis untuk data. Hasil dari eksperimen didapati nisbah penukaran makanan yang lebih tinggi dicatatkan pada rawatan 1.5% iaitu ($P<0.05$). nisbah penukaran kadar makanan lebih tinggi dalam rawatan diet dengan ditambah yis. Selepas itu, pengambilan makanan juga menunjukkan bahawa ($P>0.05$) tidak ada perbezaan yang signifikan di antara kumpulan rawatan. Hasil peratusan berpakaian dan berat bahagian organ menunjukan perbezaan yang signifikan antra kumpulan rawatan. Ia boleh disimpulankan bahawa penambahan yis 0.05-1.5% dalam makanan puyuh pedaging memberikan kesan yang baik.

CHAPTER 1

1.0) INTRODUCTION

Nowadays, there are many type of feed additives used in livestock and poultry production, but rarely in Japanese quails (Minvielle, 2004). Japanese quails could be considered as a good and economical source of animal protein. The edible parts of its carcass are higher as compared to other species of poultry (Saleh, 1998). As we know nutrition plays an important role and largest cost in a livestock production. This is because in quails, diet must be formulated to provide the entire nutrient requirement (Gaggia, 2010). So, feed additive which include antibiotics, enzymes and probiotics have been efficiently used to enhance feed and improve growth rate in monogastric animals (Ademola, 2003). Feed additive such as *Saccharomyces cerevisae* were used to stimulate appetite and improve the performance, increasing daily weight gain during feed intake and for the disease prevention (Verstegen, 2005).

As we know, quails are highly resistant to diseases (Apata, 2008). However, birds also tend to face several stresses by the various factors which are affecting growth and feed intake such as crowding, vaccination, and overheating (Kornegay, 1995). So, feed additive can be used in quail production.

This is because feed additive can be act as feed supplement for animals that cannot get enough nutrients from regular meals that the farmers provide, (Sarkar, 2011). Recently many growth promoters are being used including probiotics, which have helped to improve feed utilization, microbial balance and growth rate of birds (Moderti, 2004). Yeasts is a common probiotic used in poultry production as it has ability to stimulate digestion and aid in maintaining microbial equilibrium in the gut(Raoul and Nivoix, 2005) .

The live yeast such as *Saccharomyces cerevisae* produces several enzymes which aid in digestive tract in the digestion. It has been reported that yeast may be known as probiotic in animal feed (Ahmed and Hassan, 2011). Probiotic is a microbial feed supplements which is stimulate the growth as well as modify the intestine in a beneficial ways for the host. Addition of yeast in animal diet improved the growth performance and control disease *(*Dhigra, 1993). Other than that, yeast has microorganisms that promote better intestinal environment and also increasing protection against toxins produced by pathogen (Santin and Macari, 2001).

A probiotic is defined as a live, non-pathogenic microbial supplement that give positive influence on the health or physiology of the host, in probiotic consists of bacteria, especially acid bacteria which is used for intestinal balance (Raoul and Nivoix, 2005). Supplementing birds with microbial cultures provides beneficial bacteria to aid in nutrient absorption and enhance the microbial balance in the avian digestive tract (Kabir and Ahmed, 2004).

One such alternative is the addition of yeast to quails diet. The supplementation is *Saccharomyces cerevisae* which has positive effect on growth performance (Apata ,2008).

In some cases if animals do not have some specific nutrient in its diet it may not grow properly. Adding specific nutrient or other feed substances may act as feed additive and improve the performance of quails. Therefore, objective of the study was to determine the effect of *Saccharomyces cerevisae* as feed additive to quails performance.

1.1 Objectives

The general objective of this study is:

1) To determine effect of addition supplementation of *Saccharomyces cerevisae* of growth performance of Japanese quails.

The specific objectives of this study are;

1) To determine the effect of varying amount of yeast (*Saccharomyces cerevisiae)* supplementation to the growth and performance in quails.
2) To examine carcass quality and dressing percentage of quails fed diet supplemented with yeast

1.2 Significance of the study

By supplementation diet with yeast may improve growth performance due to increase feed efficiency. Subsequently, cost of production may be reduced and hence increase of income of farmer.

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