



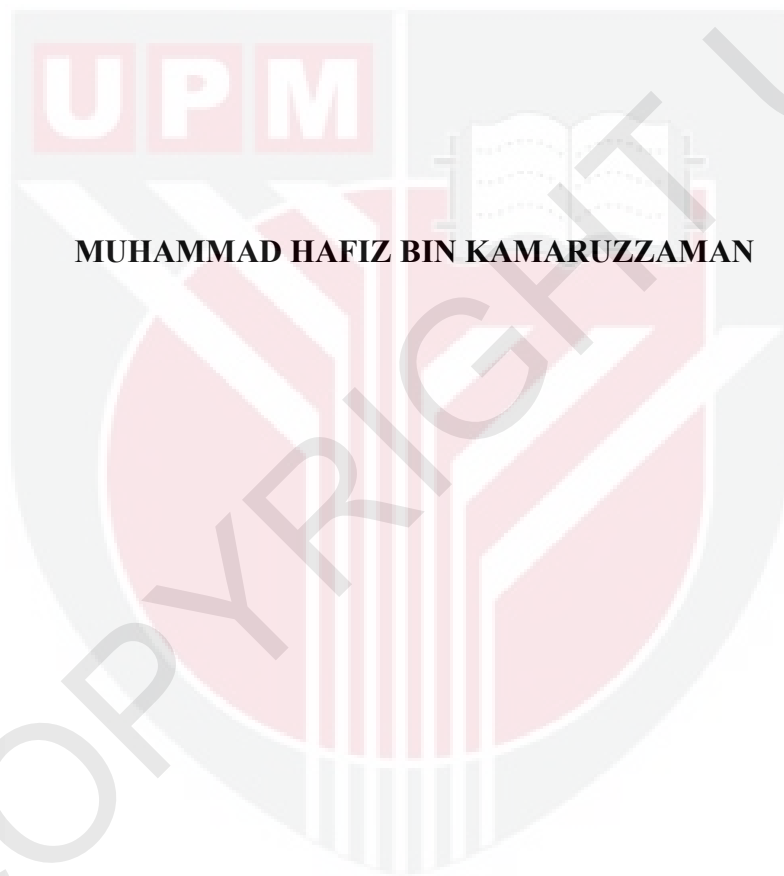
UNIVERSITI PUTRA MALAYSIA

***Manihot esculenta* LEAF AS TO CONVENTIONAL ANTI-COCCIDIAL IN
*Gallus gallus domesticus***

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**FACULTY OF AGRICULTURE
UNIVERSITI PUTRA MALAYSIA
SERDANG, SELANGOR**

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Manihot esculenta LEAF AS TO CONVENTIONAL ANTI-COCCIDIAL IN *Gallus gallus domesticus*

By

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A project report submitted to the
Faculty of Agriculture, Universiti Putra Malaysia,
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**FACULTY OF AGRICULTURE
UNIVERSITI PUTRA MALAYSIA
SERDANG, SELANGOR
2016/2017**

CERTIFICATION

This project entitled *Manihot esculenta* LEAF AS TO CONVENTIONAL ANTI-COCCIDIAL IN *Gallus gallus domesticus* (VILLAGE CHICKEN)” is prepared by **MUHAMMAD HAFIZ BIN KAMARUZZAMAN** and submitted to the Faculty of Agriculture in fulfillment of the course SHW 4999 (Final Year Project) for the award of the degree of Bachelor of Agriculture (Animal Science)

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LIST OF ABBREVIATIONS

°C	degree celcius
CRD	Complete Randomized Design
gm	gram
ml	milliliter
l	liter
OPG	Oocytes Per Gram
DM	Dry Matter
CP	Crude Protein
CF	Crude Fiber
ADF	Acid Detergent Fiber
NDF	Neutral Detergent Fiber
ADL	Acid Detergent Lignin
OM	Organic Matter
D	Digestibility
ME	Metabolize Energy
MJ	Megajoule
ANOVA	Analysis of Variance
DMRT	Duncan Multiple Range Test
SEM	Standard Error Means

Manihot esculenta* LEAF AS TO CONVENTIONAL ANTI-COCCIDIAL IN *Gallus gallus domesticus

BY

MUHAMMAD HAFIZ BIN KAMARUZZAMAN

ABSTRACT

A study was conducted to evaluate the number of oocytes which is oocytes per gram (OPG) in village chicken and effect on weekly body weight of the village chicken. In general, coccidiosis is one of the most common intestinal parasite that reduce the productivity of chickens, especially when are reared under traditional system. In general, this project is to determine the effectiveness of dietary cassava leaf supplementation to control coccidiosis in village chicken and to determine the effectiveness of dietary cassava leaf in reducing oocytes count in the chicken gut and its effect on growth performance of village chicken. The total number of the chicken were used to calculate the number of oocytes and body weight of the chicken were 27 chickens. Location of this study was at Unit Poltri, Ladang 2 Universiti Putra Malaysia. Fecal analysis was conducted at Parasite Laboratory, Faculty of Veterinary Medicine, Universiti Putra Malaysia. This study was carried out from August until September 2016. Proximate analysis was conducted at Nutritional laboratory, Department of Animal Science, Faculty of Agriculture, Universiti Putra Malaysia. The experiment unit for this project was the UPM village chicken (*Gallus gallus domesticus*), cassava leaves and coccidiostat. There were 3 treatments, each with 3 replicates, and 3 chickens per replicate. The first treatment was a chicken grower diet

(control diet), the second treatment was control diet + cassava leaf at 3% level and the third treatment was control diet + 1% coccidiostat. The experimental design was a Complete Randomized Design. Village chickens, aged 8 weeks from a free-range area was transferred to broiler cages according to treatment groups. Cassava leaves was collected, dried in the oven for 48 hours at 60°C and then ground and mixed the grower feed. Dietary cassava leaf and coccidiostat were given at day 1 to day 4 only. The parameters recorded in this experiment were the number of coccidia oocytes per gram (OPG) of faeces (weekly basis) and weekly bodyweight of chicken. A one-way analysis of variance (ANOVA) by using Duncan Multiple Range Test was done for the experimental data. The number of coccidia oocytes in treatment 1 was significantly higher oocytes counts than treatments 2 and treatment 3. However, Treatment 2 and treatment 3 were not significant ($P < 0.05$), so it indicated positive effect of dietary cassava leaves and coccidiostat in prevention of coccidiosis, with levels of oocytes falling below 300 OPG, indicate infection level. For the weekly bodyweight shown there was no significant difference in weekly bodyweight among village chicken in all treatments ($P < 0.05$). The bodyweight among village chicken increase disregard the presence or absence of anti-coccidial supplements. Throughout for this study, it shown that cassava leaves have anticoccidial effect and can be used to replace coccidiostat in chicken production.

Keywords: Village chicken, cassava leaves, coccidia, coccidiostat, weekly bodyweight

**DAUN UBI KAYU SEBAGAI BAHAN KOVENSIONAL ANTI-COCCIDIAL
DALAM AYAM KAMPUNG**

BY

MUHAMMAD HAFIZ BIN KAMARUZZAMAN

ABSTRAK

*Kajian telah dijalankan untuk mengenalpasti jumlah oosit koksidia dalam ayam kampung dan juga melihat kepada prestasi mingguan berat ayam kampung. Secara amnya, koksidia adalah salah satu lazim parasit di bahagian usus yang mengurangkan produktiviti ayam, terutama apabila diternak di bawah sistem tradisional. Secara umumnya, projek ini adalah menentukan keberkesanan suplemen daun ubi kayu untuk mengawal koksidiosis dalam ayam kampung dan untuk menentukan keberkesanan daun ubi kayu dalam mengurangkan oosit dalam usus ayam dan kesannya ke atas prestasi pertumbuhan ayam kampung. Jumlah ayam yang digunakan di dalam kajian ini sebanyak 27 ekor ayam. Kajian ini dilakukan di Unit Poltri, Ladang 2 Universiti Putra Malaysia, Makmal Parasitologi, Fakulti Perubatan Veterinar, Universiti Putra Malaysia dan juga Makmal Analisa Makanan, Jabatan Sains Haiwan, Fakulti Pertanian, Universiti Putra Malaysia. Unit eksperimen untuk projek ini adalah ayam kampung UPM (*Gallus gallus domesticus*), daun ubi kayu dan koksidiostat. Terdapat 3 rawatan dan setiap rawatan mempunyai 3 rawatan. Rawatan yang pertama adalah diet pembesaran ayam (kawalan diet), rawatan kedua adalah kawalan diet + daun ubi kayu pada tahap 3% dan rawatan yang ketiga ialah kawalan diet + ubat pengawal koksidia pada tahap 1%. Rekabentuk uji kaji adalah "Complete Randomized Design". Ayam*

kampung yang berusia 8 minggu dari kawasan bebas telah dipindahkan ke sangkar ayam mengikut kumpulan rawatan. Daun ubi kayu dikutip dan dikeringkan di dalam oven selama 48 jam pada suhu 60°C dan dihancurkan kepada saiz yang lebih kecil. Daun ubi kayu dan koksidiostat telah diberikan kepada ayam pada hari 1 hingga ke hari 4 sahaja. Parameter direkodkan dalam eksperimen ini, adalah bilangan oosit “*coccidia per gram (OPG)*” dalam najis dan mingguan berat badan ayam. Analisis sehala varians (ANOVA) dengan menggunakan “*Duncan Multiple Range Test*” yang telah dilakukan dalam data eksperimen. Bilangan oosit koksidia dalam rawatan 1 adalah kiraan oosit ketara lebih tinggi daripada rawatan 2 dan rawatan 3. Walaubagaimanapun, rawatan 2 dan rawatan 3 tidak signifikan ($P < 0.05$), jadi ia menunjukkan kesan positif daun ubi kayu dan ubat pengawal koksidia dalam dalam pencegahan koksidiosis, dengan tahap oosit jatuh di bawah 300 OPG, menunjukkan tahap jangkitan. Untuk berat badan mingguan menunjukkan terdapat perbezaan yang signifikan dalam berat badan mingguan di kalangan ayam kampung mengikut rawatan ($P < 0.05$). Dalam peningkatan berat badan ayam kampung tidak mengambil kesan kepada suplemen anti-koksidia. Jadi menerusi kajian ini, daun ubi kayu dapat menggantikan ubat pengawal koksidia untuk mengawal oosit di dalam pengeluaran ayam.

CHAPTER 1

INTRODUCTION

Village chicken is an important component of social economic in rural area. It provides animal protein and also source of income for farmer. Like other disease, intestinal parasites disease problem may affect the production of village chicken. Intestinal parasites can be classified into two basic groups, worms and protozoa. Coccidia, the most common protozoan parasite of the chicken consists of the *Eimeria* family. Scavenging, a natural behavior in village chicken lead birds to parasite infestation (Skallerup *et al.*; 2005). Avian coccidiosis is common in free-range and organic free-range system that may cause deaths, disability in nutrition absorption and incompetent feed utilization depending on seriousness of infections (Peek and Landman, 2003). Drugs are used for preventive treatment and to eradicate parasites. However, the use of drugs like coccidiostats is not reasonable to the small-scale farmer (Almeida *et al.*; 2012) due to element of cost and easiness of availability.

Cassava (*Manihot esculenta*) belongs to the Euphorbiaceae family, is tuberous, woody perennial and shrub is a non-conventional of feed. Cassava (*Manihot esculenta*), as a tropical crop, is traditionally cultivated as a source of starch. Besides, the main product that is the root, cassava also produces a big amount of leaf that can be utilized (Almeida *et al.*; 2012). Cassava roots and leaves contains cyanogenic glycosides which is a toxic substances (Salvador *et al.*; 2014). Cyanogenic glycosides can be revealed or eliminate by drying, boiling, soaking and wetting (Salvador *et al.*; 2014). As other botanical product like as *Artemisia annua*, *A. vulgaris*, *Manihot esculenta* has potential as feed supplements provided as daily feed or drinking water before and/or after the appearance of clinical symptoms of

coccidiosis (Almeida *et al.*; 2012). The impact of cassava dried leaves at 2mg/day for 8 consecutive days on *Eimeria spp.* was attributed to the presence of concentrated tannins (Almeida *et al.*; 2012).

In this study, cassava leaf (*Manihot esculenta*) was mixed with commercial feed, and fed to village chicken. They were compared to coccidiostat mixed with commercial feed and control feed (grower diet).

1.1.0 Objective

1.1.1 The General Objective of this experiment is:

- To determine the effectiveness of dietary cassava leaf (*Manihot esculenta*) supplementation to control coccidiosis in village chicken.

1.1.2 The Specific Objective of this experiment is:

- To determine the effectiveness of dietary cassava leaf in prevention of coccidiosis in village chicken.
- To determine the effect of dietary cassava leaf on growth performance of village chicken.

1.2 Significance of Study

Cassava leaf can be used as alternative to conventional medication to control parasitic disease of intestinal tract caused by single cell protozoa parasite belonging to genus *Eimeria*.

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