

**NUTRITIONAL EVALUATION OF SOME VEGETABLE
CROP WASTES USED IN RABBITS FEEDING**

By

FAWZIA AMER HASSAN HUSSEIN

**B.Sc. Agric. Sci. (Food Science), Fac. Agric., Cairo Univ., 1999
M.Sc. Agric. Sci. (Poultry Science), Fac. Agric., Cairo Univ., 2005**

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APPROVAL SHEET

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Approval Committee

Dr. Mohamed Mohamed Mohamed Abdella.....
Professor of Poultry Nutrition, Fac. Agric., (Moshtohor), Banha University

Dr. Galal El-Din Mohamed Abd El-Aziz.....
Assistant Professor of Animal Nutrition, Fac. Agric., Cairo University

Dr. Ali Mohamed Ali.....
Assistant Professor of Animal Nutrition, Fac. Agric., Cairo University

Dr. Mohamed Reda Mohamed Ibrahim.....
Professor of Poultry Nutrition, Fac. Agric., Cairo University

Date: / /

SUPERVISION SHEET

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SUPERVISION COMMITTEE

Dr. Mohamed Reda Mohamed Ibrahim
Professor of Poultry Nutrition, Fac. Agric., Cairo University

Dr. Ali Mohamed Ali
Assistant Professor of Animal Nutrition, Fac. Agric., Cairo University

Dr. Gamal Hussein Mostafa Zaza
Head of Research of Animal Nutrition,
Animal Production Research Institute,
Agriculture Research Center, Ministry of Agriculture

Name of Candidate: Fawzia Amer Hassan Hussien

Degree: Ph.D.

Title of Thesis: Nutritional Evaluation of Some Vegetable Crop Wastes Used in Rabbits Feeding

Supervisors: Dr. Mohamed Reda Mohamed,
Dr. Gamal Hussien Zaza
Dr. Ali Mohamed Ali

Department: Animal Production

Branch: Poultry Nutrition

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ABSTRACT

The aims of this work were to determine the nutritive value of some vegetable crop wastes (pea vines (PV), green bean vines (GBV), squash vines (SV), cantaloupe vines (CV) and artichoke leaves(AL)) and to study the possibility of replacement of clover hay by these vegetable crop wastes in rabbit diets and their effects on growth performance of growing New Zealand White rabbits.

Results obtained indicated that PV, GBV and SV had the highest nutritive values expressed in term of TDN, DCP and DE and they are nearly similar to the nutritive values of clover hay and showed the possibility of using these feed materials as non-conventional wastes instead of clover hay at suitable levels in growing rabbit diets.

The replacement of tested vegetable crop wastes (PV, GBV and SV) at 25, 50, 75 and 100% for clover hay improved the final weight of rabbits compared to the control group. Rabbits groups fed PV, GBV and SV at level of 50% recorded higher values of daily weight gain compared to the other experimental groups. The average daily feed intake was higher with the inclusion of tested vegetable crop wastes at 25, 50, 75 and 100% than that of control diet. The rabbits group fed PV recorded the best FCR compared to the other experimental sources. Besides, 50% vegetable crop wastes recorded the best FCR compared to other experimental levels. Also, FCR was improved ($P<0.05$) by replacing 50 and 75% PV, 25 and 50% GBV and 50% SV instead of clover hay compared to the control group. No significant differences among vegetable crop wastes sources in the digestibilities of DM, OM, CP and CF. While a level of 50% recorded the best ($P<0.05$) values of OM, CP and NFE digestibilities compared to the other experimental levels (25, 75 and 100%). Significant increase ($P<0.05$) in DCP was noticed when rabbit groups fed diets containing PV, GBV and SV at 25, 50, 75 and 100% compared to the control group. The differences in TDN between rabbits group fed 50% PV and all treatments except (50% GBV fed group) were significant. The same trend was observed for the DE of experimental diets. A level of 50% vegetable crop wastes recorded the best N. balance (%) and N. retained/ N. digested (%) compared to the other experimental levels. There was an increase in N. balance % for the experimental groups compared to the control group

Vegetable crop wastes sources did not affect on most carcass characteristics traits regardless the edible giblet percentage. Rabbits fed 50% PV recorded the highest ($P<0.05$) meat CP content and lowest meat EE content compared to the other experimental groups and the control. Values of plasma total protein, albumin, globulin, A/G ratio, AST, ALT, creatinine, urea and cholesterol concentrations were found to be within the normal range of plasma blood parameters. Rabbits group fed PV, GBV and SV at a level of 100% had the lowest total cost of feed and the highest economic efficiency.

Finally, it could be recommended to replace pea vines, green bean vines and squash vines for clover hay in rabbit diets up to 100% level without any negative effects on growth performance.

Key words: Rabbits, vegetable crop wastes, nutritional evaluation, digestibility and carcass traits.

DEDICATION

*I dedicate this work to whom my heart felt thanks;
to my parents; my brothers and my sisters for their love,
continuous encouragement and kind help they offered along the
period of my post graduation.*

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INTRODUCTION

Shortage of feeds and its high cost are the major problems of deficiency of animal protein sources for human in the developing countries at the present time, which are due to limited land resources and the high competition between human and livestock for high quality grain and protein supplements. Therefore efforts have been made towards the solution of feeds shortage by improving the conventional sources and investigating more unconventional feeds for availability feeds.

Egypt like other developing countries is also facing a deficiency of animal protein sources. So the production emphasis will be on those animals that are least competitive with man. The rabbit, being a non-ruminant herbivore, efficiently uses different sources of roughage.

Feeding cost is the single largest expense in animal production. In rabbit, as for other livestock production, feeding costs represents at least 60% of the total production costs. The challenge for the feed formulation is to obtain least cost diets that fully match animal requirements (Maertens *et al.* 2002).

High costs of rabbit diets are constraints stand against the successfulness of most rabbit projects. The feeding cost may be reduced by incorporation some of locally agricultural by-products in rabbit diets that can be economical substitutes for more conventional feedstuffs that are not available or are expensive. And also, the use of these by-products as unusual feedstuffs in animal nutrition presents the opportunity to produce feeds of plant origin without aggravating the competition for nutrients sources between man and animal.

Vegetable crops cultivation has been increased in Egypt during the last three decades to be 17,954,925 tones yearly; Egypt has now attained self sufficiency in vegetable production (Ministry of Agriculture, 2007), so there are large quantities of vegetable crop wastes such as dried green tops (vines), may participate in solving the