شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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USING SOME PLANTS BY-PRODUCT IN RABBIT FEEDING

By

HAYAM ELSAYED MOHAMED DERAZ
B.Sc. Agric. Coop. Sci., Agric. Higher Institute for Agric. Coop., 1996
M.Sc. Agric. Sci., Fac. Agric., Ain Shams Univ., 2015

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ABSTRACT

Hayam El- Sayed Mohamed Deraz: Using Some Plants By-Product in Rabbit Feeding. Unpublished Ph.D. Thesis, Arid Land Agricultural Graduate Studies, and Research Institute, Faculty of Agriculture, Ain Shams University, 2021.

To investigate the effect of replacing Fennel straw or basil straw by-products at 25, 50and 75% of alfalfa hay as a source of fiber in the diets of growing rabbits. Eighty-four unsexed, weaned New Zealand white rabbits, aged 5 weeks, with an average body weight of 625.42g ± 18.25 were randomly assigned to seven dietary treatments (12 rabbits/treatment). A control diet; three diets the basil hay substituted for 25%, 50% and 75% of alfalfa straw; and three diets the fennel hay replaced 25%, 50% and 75% of alfalfa straw. Results obtained showed that replacement of alfalfa hay with 25 % fennel straw significantly reduced average daily gain compared with the other experimental treatments, while no significant difference was observed among the other experimental treatments during the stage 5-8 week. On the contrary, the animals fed diets contained 25 % fennel straw gave significantly higher average body weight gain compared with the other experimental groups and no significant differences were observed among the other experimental treatments during 8-11 weeks. Regarding body weight gain during the total period from 5 to 11 weeks of age, the result indicates that no significant differences among all treatments were detected. The values of FCR showed no significant differences within all tested groups. Rabbits group fed B50% recorded the highest significant digestibility coefficients of dry matter, organic matter, crude protein, ether extract, neutral detergent fiber, acid detergent fiber, TDN and DCP when compared to all groups. Levels of basil straw or fennel straw in rabbit diets induced an insignificant effect on hemicellulose. There were higher dressing and hot carcass percentages were recorded with rabbits fed B50%. Plasma values of total protein, albumin, globulin, cholesterol or Alanine aminotransferase (ALT) and Aspartate aminotransferase (AST) concentration were not significantly

affected due to adding basil straw or fennel straw to rabbit diets. Replacement alfalfa hay with fennel and basil straw resulted in decrease feed cost. Rabbits fed B25% showed higher economic efficiency percentage compared to the other treatments. The results revealed that using basil straw and fennel straw at 25% in growing NZW rabbit diets had no detrimental effects on productive performance, the physiological and biochemical status and it could be used economically instead of alfalfa hay.

Keywords: Fennel straw, Basil straw, Rabbit, Performance, Carcass traits, Economic efficiency

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LIST OF ABBREVIATIONS

Abbreviations	Description
ADF	Acid Detergent Fiber
ADL	Acid Detergent Lignin
ALP	Alkaline phosphatase
ALT	Alanine transaminase
AST	Aspartate transaminase
BWG	Body weight gain
CF	Crude Fiber
CP	Crude Protein
DCP	Digestible crude Protein
DE	Digestible Energy
DFC	Daily feed consumption
DM	Dry Matter
EE	Ether Extract
EEF	Economic efficiency
FCR	Feed conversion ration
FI	Daily feed Intake
LBW	Live body weight
NDF	Natural Detergent Fiber
OM	Organic Matter
REEF	Relative economical efficiency
TDN	Total Digestible Nutrient
TP	Total proteins
TVF’s	Total Volatile Fatty acids
NDF	Neutral detergent fiber
NFC	Non fiber carbohydrate
NFE	Nitrogen free extract

INTRODUCTION

Water problems are emerging as the most compelling sets of issues facing agricultural production in these decades in Egypt as a result of the Renaissance Dam and the environmental changes. Also, Egypt hides acute water shortages in localities, result from a rapid population increase or natural scarcity **(World Resource Institute 1988)**. Moreover, Egypt suffering from a large shortage of fodder crops needed for feeding farm animals, especially in the summer season. Since clover is the main fodder crop in winter and occupies large areas at the expense of the other essential crops, so it is clear that there is a need to search for an alternative solution.

Potentially useful sources of cheap roughage are agriculture by-products. Feedstuff is the most limiting factor for livestock production system development. Transforming some of these by-products into animal foodstuffs will help a great deal in overcoming this deficiency.

The high cost of concentrate feed mixture and alfalfa hays, and unavailability of fresh Egyptian berseem **(Trifolium alexandrinum)** and during summer seasons are the major problems confronting the development of livestock. Therefore, it is believed that the inclusion of some agricultural by-products to replace a part of the diet for animals become an obligation **(El-Tahan *et al.*, 2003).**

Egypt likes other developing countries suffering from a deficiency in animal protein sources. So, emphasis should be placed on producing animals less competitive to man. The rabbit, being a non-ruminant, herbivore, efficiently uses different sources of roughage and therefore is used as a source of high-quality animal protein for human consumption.

Medicinal and aromatic plants are cultivated in large areas in Egypt (About 48 thousand feddan) were cultivated with medicinal and aromatic plants in Egypt **(Agriculture Economic, 2006)**. Fennel (Foeniculum Vulgare) is cultivated in 2207 feddans and produced 3394 tons of seeds and an average of 15-18 tons of green forages /feddan **(Abo –Zeid, 1988)**. Basil (Ocimum basilicum) is cultivated mainly to produce dry leaves and seeds

in about 5300 feddan to yield about 13500 tons and 159000 tons of wastes. **(Agriculture Economic, 2005)** Recently **Radwan and Khalil (2002)** and **Abo Sekken *et al.*, (2008)** suggested that fennel hay (FNH) could be used in a rabbit diet up to 50% without any adverse effects on the performance of growing rabbits.

So, this study aims to evaluate the effect of replacement of alfalfa hay with ascending level of fennel hay or basil hay in rabbit diets on its productive performance