

UTILIZATION OF FIG (*Ficus thonningii*) AND MANGO(*Mangifera indica*) LEAVES BY WEANER RABBITS

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ABSTRACT

A study lasting 42 days was carried out to determine the intake and utilization of Fig (*Ficus thonningii*) and Mango (*Mangifera indica*) leaves by rabbits. Ten weaner rabbits of average weight 700g were randomly assigned to two treatment groups in a completely randomized design. The results of the study showed that the intake of *Ficus thonningii* leaves was significantly ($P>0.01$) higher than that of *Mangifera indica* leaves. Both treatments however, showed consistent increase in dry matter intake throughout the experimental period. Rabbit fed *Ficus thonningii* leaves had significantly ($P>0.01$) higher average daily weight gain and feed efficiency. Based on the result of this study, it is concluded that *Ficus thonningii* and *Mangifera indica* leaves have feeding value as fodder for rabbits. These plants can be used as standing feed reserve for rabbits during critical periods of feed scarcity especially the dry season.

Key words: Rabbits, *Ficus thonningii*, *Mangifera indica*, leaves, utilization, Weaner

INTRODUCTION

Browse plants play Significant role in animal production primarily by providing animals with feed resources rich in protein, energy, vitamins and minerals at a time when food is scarce or of low quality (Obi and Tuley, 1993). Browsers either in form of fodder trees, shrubs form an integral part of tropical farming systems (Smith, 1993). Browse forms an important component of the diets of goats, camel and, to a lesser extent, sheep and cattle (Devendra and Bums, 1983). Rabbits can convert green crops and browse to meat more efficiently than most animals (Aduku,2004; Field and Taylor,2018). In Northern Africa, browse forms 60 - 70% of rangeland production and 40% of total available animal feed in the region (Le Hoverou, 1980). The use of browse as sole feed for goats have been reported by Ademosun *et al.* (1988). Although the nutritional potential of tropical forages are enormous for rabbits, many producers do not know the right type of forages to use and their nutritional contents. It has been reported that some forages such as *Leuceene leucepha/a* and *Zomie glochideato* can impair the growth rate of rabbits (Agishi, 1985).

The basic forage resources at present come from the natural vegetation. The arid and semi-arid zones are characterized by long dry season, and forage during this season is dry and of low quality (Devendra, 1990). In order to sustain growth rate and reproduction throughout the year, alternative sources of green forages must be sought, particularly in the dry season. The fluctuation in feed supply with attendant shortages in dry season can be alleviated by proper conversion of excess forages and crop residues during the wet and harvest periods, respectively (Otaru, 1998). In the dry season, primary attention is diverted to forages that remain green and succulent, and are competed for by other animals like sheep, goats and cattle .This study was carried out to determine the feed intake, growth rate and feed efficiency of rabbits fed *Ficus thonning* and *Mangifera indica* leaves.

MATERIALS AND METHODS

This experiment was conducted at the rabbitry unit of the Department of Animal Production Technology, College of Agriculture, Garkawa, Mikang, Nigeria. Ten rabbits weighing an average of 700g were used for this study, which lasted 42 days. A completely randomized design was used comprising of two dietary treatment groups to which the animals were assigned to give five rabbits per treatment. The

experimental diets consisted of *Ficus thonningii* and *Mangifera indica* leaves cut the previous day and given to animals at 8:00h daily. This was provided *ad libitum*. A concentrated supplement (16% CP) was also provided at the rate of 2% body weight per rabbit per day. During each feeding time, the animals were first given the concentrate ration and subsequently *Ficus* and *Mango* leaves. Water was provided *ad libitum*. Feed intake was determined by the difference between the amount of feed offered and that, which was left over the next day. Rabbits were weighed weekly. The data was analyzed using t-test analysis of variance (ANOVA).

RESULTS

Table 1 gives the ingredient and proximate composition of supplemental diet. Proximate composition of *Ficus thonningii* and *Mangifera indica* leaves is shown in Table 2. *Ficus thonningii* had a higher percentage of dry matter (DM), crude protein (CP) and ash values. Values for nitrogen free extract (NFE) and ether extract (EE) were similar while crude fibre (CF) was higher in *Mangifera indica* leaves. The mean weekly DM intake of *Ficus thonningii* and *Mangifera indica* leaves (Table 3) was significantly higher ($P > 0.01$) in *Ficus thonningii* treatment than *Mangifera indica* through out the period of the study even though both treatments showed consistent increase in DM intake as the period of the study progressed. All concentrate supplement offered were consumed daily.

Table 1: Ingredient and Proximate Composition of Supplemental Diet

Ingredient	%
Maize	69.23
Soybean	21.00
Rice offal	5.00
Bone meal	2.00
Limestone	2.00
Vit/min premix	0.20
Salt	0.50
Proximate analysis	
Dry matter	75.01
Crude protein	16.02
Crude fibre	5.12
Nitrogen free extract	65.24
Ether extract	4.59
Ash	6.42

Table 2: Proximate Composition of *Ficus thonningii* and *Mangifera indica* leaves

Composition	<i>Ficus thonningii</i>	<i>Mangifera indica</i>
Dry matter	52.32	52.98
Crude protein	18.50	17.44
Crude fibre	16.22	22.58
Nitrogen free extract	42.40	42.85
Ether extract	5.54	5.84
Ash	17.34	11.29

Table 3: Mean Weekly Dry Matter Intake (g) of *Ficus thonningii* and *Mangifera indica* Leaves by Rabbits

Week	<i>Ficus thonningii</i>	<i>Mangifera incica</i>	SEM
1	639.67 ^a	287.24 ^b	31.83
2	694.66 ^a	292.56 ^b	140.22
3	887.26 ^a	418.44 ^b	128.08
4	950.71 ^a	409.00 ^b	12.55
5	959.18 ^a	433.16 ^b	13.69
6	962.76 ^a	447.36 ^b	9.36
Total feed intake	5094.24 ^a	2285.76 ^b	48.26
Average Daily Feed intake	121.23 ^a	54.42 ^b	12.81

a,b mean values on the same row with different superscripts differ significantly (P<0.01)

Table 4: Live Weight Changes (g) and Feed Efficiency of Rabbits Fed *Ficus thonningii* and *Mangifera indica* Leaves by Rabbits

Parameters	<i>Ficus thonningii</i>	<i>Mangifera indica</i>	SEM
Initial weight	700	700	-
Final weight	1020 ^a	820 ^b	0.26
Total weight gain	320 ^a	120 ^b	212
Average daily weight gain	7.62 ^a	2.86 ^b	6.48
Feed efficiency	15.9 ^a	19.05 ^b	12.6

a,b mean values on the same row with different superscripts differ Significantly (P<0.01)

Table shows the live weight changes and feed efficiency of rabbits fed *Ficus thonningii* and *Mangifera indica* leaves. The average daily weight gain and feed efficiency of rabbits fed the *Ficus thonningii* leaves was significantly (P>0.01) higher than those of the *Manifera indica* leaves.

DISCUSSION

The proximate composition of *Ficus thonningii* and *Mangifera indica* show that except for the values of CF, which is lower (16.22%) in *Ficus thonningii* than in *Mangifera indica* leaves (22.58%) and ash where the content was also lower in *Mangifera indica* leaves (11.29%) than in *Ficus thonningii* leaves, the two experimental diets were similar and comparable in their content of DM, CP, NFE

and EE.

The high crude fibre content of the *Mangifera indica* leaves might have accounted for the lower intake. Aduku *et al.* (1989) also observed that it was poorly accepted by rabbits. This was attributed to the fibrous nature and hard texture (Milligan and Sule, 1992). The increase in DMI over time also indicates the adaptability of the rabbits to these browse plants over time. This was reported by Otaru (1998).

The average daily DMI obtained in this study was higher than values (71.3g/day) obtained by Pote *et al.* (1980), and Aduku *et al.* (1989). Rabbits on the *Ficus thonningii* treatment had a significantly ($P<0.05$) higher average daily weight gain compared to those on *Mangifera indica* leaves. The results obtained in this study was however, below the value obtained by Otaru(1994) and Pote *et al* (1980).

The feed conversion efficiency was also high when compared to what was reported by Abdulmalik *et al.* (1994) where rabbits were fed mucuna forage. Based on the results of this study, it was concluded that *Ficus thonningii* and *Mangifera indica* have feeding value as fodder for rabbits. These browse plants can be used as standing feed reserve so that rabbits can survive critical periods of feed scarcity during the dry season without weight losses.

CONCLUSION

Based on the result of this study, it is concluded that *Ficus thonningii* and *Mangifera indica* leaves have feeding value as fodder for rabbits. These plants can be used as standing feed reserve for rabbits during critical periods of feed scarcity especially the dry season.

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