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Comparative Response of Growing Rams Fed Solely on *Centrosema pascuorum* and *Alysicarpus vaginalis*

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Abstract: Growth and digestibility experiments were conducted with Yankasa rams offered *Centrosema pascuorum* and *Alysicarpus vaginalis* hays fed as sole. Twenty rams with a weight ranging between 19.3 and 29.0kg were randomly assigned to 2 treatment groups in a completely randomized design. The results of the study showed that the Dry Matter intake of *Centrosema pascuorum* and *Alysicarpus vaginalis* did not differ significantly among treatments. Rams fed *Centrosema pascuorum* had significantly ($P < 0.05$) higher average daily weight change, and total weight change, while *Alysicarpus vaginalis* had significantly ($P < 0.01$) higher digestibilities. Based on the result of this study, it is concluded that *Centrosema pascuorum* and *Alysicarpus vaginalis* hays have feeding value for rams and can be used to improve the growth of sheep during critical periods of the dry season if conserved.

Key words: Rams, *Centrosema pascuorum*, *Alysicarpus vaginalis*, hays, growth

Introduction

Nutrition is perhaps the most important consideration in livestock management. In the tropical regions of the world, feed deficit and low quality of the available feed particularly during the 3 to 7 months dry season are major constraints for optimum livestock production. To ameliorate some of these constraints the use of pasture legumes is one of the numerous ways of achieving year round good quality forage.

Forage legumes are locally adapted, require minimal inputs for establishment and maintenance and may be utilized in mixed farming systems (Atta-Krah and Sumberg, 1988). Most of the legumes have promising features for sown pasture production. Plant vigour, productive growth, high quality herbage and drought resistance are among the outstanding features.

Supplementation of poor quality roughage with forage legume has been shown to increase intake (Said and Tolera, 1993) and intake and digestibility (Roger *et al.*, 1999). Improved liveweight gains have been reported on legumes (Thomas and Lascano, 1999). The objective of this study was to compare *Centrosema pascuorum* and *Alysicarpus vaginalis* fed sole to rams.

Materials and Methods

The experiment was conducted at the National Animal Production Research Institute Zaria, Nigeria. Twenty rams with a weight ranging from 19.3 and 29.0kg were used for this study, which lasted for 42 days. A completely randomized design was used comprising of two (2) dietary treatment groups to which the animals were assigned to give ten rams per treatment.

The experimental diets consisted of *Centrosema pascuorum* and *Alysicarpus vaginalis* legumes

harvested in November the previous year and stored until required for feeding. The legumes were given at 0800 hours solely at 5% body weight daily. 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. Rams were weighed weekly. The data was analyzed using t-test analysis of variance (ANOVA) using general linear model SAS (1987).

Results

The proximate composition of *Centrosema pascuorum* and *Alysicarpus vaginalis* is shown in Table 1. *Alysicarpus vaginalis* had a higher percentage DM and CF values. Values of EE are similar while CP and ash is higher in *Centrosema pascuorum*.

Table 1: Chemical Composition (g/kg DM) of Experimental Diets (Legumes)

	Centrosema	Alysicarpus
Dry Matter	93.99	98.29
CP	20.56	15.81
Acid Detergent Fibre	46.27	55.43
Ash	7.93	6.14
CF	42.27	52.08
EE	5.34	5.60

The mean daily (Table 2) DM intake of *Centrosema pascuorum* and *Alysicarpus vaginalis* did not differ significantly among treatments. The average daily weight change and total weight change of rams fed *Centrosema pascuorum* was significantly ($P < 0.05$) higher than those fed *Alysicarpus vaginalis*.

The mean values of nutrients digestibilities are as

Table 2: Mean daily dry matter intake and liveweight change of yankasa rams fed *Centrosema pascuorum* and *Alysicarpus vaginalis* Diets

Variables	Treatments			
	Centrosema	Alysicarpus	SEM	Significance level
Average daily dry matter intake (g/head/day)	811.43	996.67	59.33	NS
Initial Weight (Kg)	23.08	27.60	1.563	NS
Final weight (Kg)	23.23	26.8	1.635	NS
Total Weight Change (Kg)	0.15	-0.80	0.705	*
Average Daily Change (g)	7.14	-38.10	3.357	*

Table 3: Mean apparent digestibility of nutrients by sheep fed *Centrosema pascuorum* and *Alysicarpus vaginalis* (%)

Variable	Treatments			
	(Centrosema)	Alysicarpus	SEM	Sig.
DM	62.72 ^b	73.54 ^a	1.338	**
CP	67.25	72.56	5.529	NS
EE	47.84	41.52	7.399	NS
CF	50.24 ^b	63.42 ^a	1.523	**
ADF	50.31 ^b	69.89 ^a	1.112	**
NDF	53.01	71.88	1.721	**

presented in Table 3. the digestibilities of DM, CF, ADF and NDF were significantly ($P < 0.01$) higher for animals fed *Alysicarpus vaginalis* compared to those fed *Centrosema pascuorum*. There was no significant ($P > 0.05$) difference in crude protein digestibility between the treatments.

Discussion

The proximate composition of *Centrosema pascuorum* and *Alysicarpus vaginalis* show that except for the values of DM, which is higher (98.29%) in *Alysicarpus vaginalis* than in *Centrosema pascuorum* (93.99%), CP which is lower (15.81%) in *Alysicarpus vaginalis* than in *Centrosema pascuorum* and CF where the content is also higher (52.08%) in *Alysicarpus vaginalis* than observed in *Centrosema pascuorum*, the two experimental diets are similar and comparable in their ash and EE.

The higher CF content of *Alysicarpus vaginalis* did not have any effect on intake. The increase in Dry Matter intake (DMI) indicates the adaptability of the rams and also might be as a result of its physical nature. This was reported by Otaru (1998). This higher intake did not lead to increased weight gains, suggesting that use of the diet was impaired.

The average daily DMI of *Centrosema pascuorum* obtained in this study is higher than values (579.75g/day) obtained by Yashim (2005). Rams on the *Centrosema pascuorum* treatment had a significantly higher average daily weight gain compared to those of *Alysicarpus vaginalis* legume. This result obtained in this study clearly indicates that rams on legumes loss weight which was evident by diarrhea observed during the experiment.

It is concluded that *Centrosema pascuorum* and *Alysicarpus vaginalis* based on the results of this study

have feeding value as fodder for sheep. These legumes can be used to improve the performance of sheep during critical periods of the dry season if conserved.

The relative high digestibility of all nutrients recorded for animals fed *Alysicarpus vaginalis* is comparable to other results in which digestibility of nutrients was high when *Ficus thonningii* was fed to Red Sokoto goats (Otaru, 1998) or when *Ficus elasticoides* was fed to West African Dwarf sheep (Anugwa, 1990).

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