Growth of pigs fed with *Brachiaria* hybrid Mulato II and *Cratylia argentea* meal as protein supplement

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1. INTRODUCTION

- The perennial grass hybrid *Brachiaria* Mulato II (Fig. 1) can be grown in subhumid regions, in a wide range of soil pH (4.5–8.0), in medium fertile soils up to a height of 1800 masl. It yields ~25 t DM/ha*year.
- The perennial legume shrub *Cratylia argentea* (Desv.) Kuntze (Fig. 2) shows even a wider range of environmental adaptation: soil pH (3.8-6.0), low fertility soils and up to 1200 masl. It yields 2-5 t DM/ha.
- The crops were investigated for the assumed high level of nutrients, especially protein, which suggests a good suitability as feed supplement for swine.

Fig. 1: Hybrid Mulato II *(Brachiaria)*

Fig. 2: *Cratylia argentea*

2. MATERIALS & METHODS

- The trial took place on the experimental farm of the National University of Colombia, Palmira. The forages were harvested before flowering, sun-dried and milled to 3 mm mesh size.
- Fifteen commercial female pigs of 84.5 kg initial weight on average were utilized for the experiment. It was a completely randomized block design with 3 treatments and 5 replicates.
- The 3 diets were Control, mixture of Cratylia and Mulato (Cra*Mul) replacing 15% of the crude protein (CP) contributed by soybean meal, and Cra*Mul , 30 % CP replacement.
- Adaptation period of 7 days and measurement during 5 weeks.
- At the end of the trial the pigs were slaughtered and the caracass evaluated. The color was determined according to the S.E.U.R.O.P classification system **http://www.infoporcinos.com/sitio/ParametrosTecnicos.aspx**

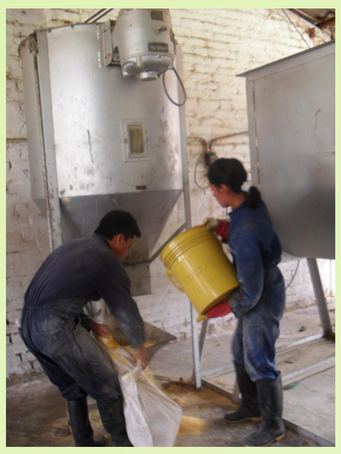

Fig. 3: Preparation of diets

Fig. 4: Daily rations

Fig. 5: Weighing pigs each week

Fig. 6: Pig receiving diet

Table 1. Nutritional composition of the diets (%)

Treatment	Dry matter	Crude protein	Gross Energy kcal/kg	Ash	Ether extract
Control	81.24	0.23	4238	3.30	8.50
Cra*Mul 15% CP	89.41	0.23	4329	2.89	9.60
Cra*Mul 30% CP	90.65	0.21	4295	3.04	12.06

3. RESULTS

- The variables consumption and daily feed consumption in terms of g DM per kg of metabolic live weight were similar for the treatments (P>0.05) (Table 2).
- Daily live weight gain and feed conversion did not show significant differences between treatments (P>0.05) (Table 2).
- No differences were observed in the digestive tract in pH of stomach, duodenum ileum, cecum and colon between treatments when slaughtered.
- The carcass parameters showed no significant differences (rate of carcass yield, backfat, back pH, carcass temperature, color and loss by dripping), although higher forage inclusion (33% of the total diet) showed an interesting tendency to less fat content and loss by dripping.

Table 2. Behaviour of pigs fed with forage meal as protein supplement

	Control	Cra*Mul 15% CP	Cra*Mul 30% CP	VC%	P
Initial weight kg	84.6	84.9	84.0	6.0	0.96
Final Weight kg	111.5	107.0	105.5	7.0	0.48
Live weight gain kg/day	0.768	0.631	0.614	20.2	0.21
Consumption DM kg/day	2.4	2.2	2.4	9.3	0.49
Feed Conversion	3.2	3.6	4.0	23.5	0.37
Consumption g DM/ kg $LW^{0.75}$	86	80	85	10.2	0.51

Table 3. Carcass parameters of pigs fed with forage mealas protein supplement

		Control	Cra*Mul 15% CP	Cra*Mul 30% CP	VC%	P
Carcass yield %		82.3	80.5	80.7	1.6	0.14
Back pH	0 horas	5.79	5.60	5.75	3.19	0.34
	24 horas	5.58	5.55	5.53	1.28	0.65
°C	0 horas	33.00	34.25	28.25	80.17	0.03
	24 horas	5.50	5.50	5.50	0.00	---
Color	0 horas	2.25	2.00	2.00	13.86	0.41
	24 horas	2.00	2.00	2.00	0.00	---
Loss by dripping %		2.39	2.36	2.24	9.31	0.49
Back fat, mm		19.0	21.0	15.4	24.4	0.25

4. SUMMARY & CONCLUSIONS

- The inclusion of a Cratylia * Mulato mixture as herbage meal of up to 33% of the total diet is regarded as a viable option for pigs in the finishing phase.

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