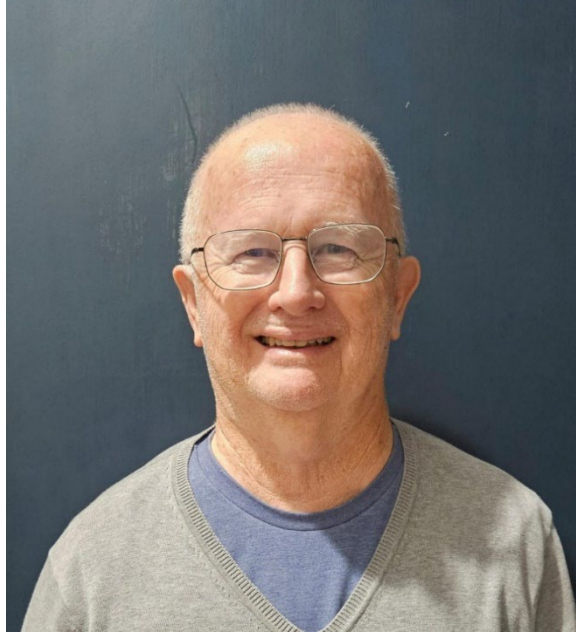




Lambs fed Kraft lignin, ionophore and E vitamin with selenium on performance, meat quality and rumen health



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1. Introduction

Kraft lignin is a byproduct of the alkaline hydrolysis of wood that contains low molecular weight phenolics (125 to 155 g/mol) that have antioxidant activity. According to Baurhoo; Ruiz-Feria; Zhao, (2008), Kraft lignin has biological effects different from the lignin found in forages, with no limitations for digestion in ruminants.

2. Material and methods

Thirty-two lambs of the Dorper and Santa Inês breeds, aged 90 days and 20 kg BW, were confined in individual stalls and equally distributed in four treatments:

- 1.Diet without additives (CTL);
- 2.Diet with lignin (KL);
- 3.Diet with monensin, selenium and vitamin E (MSeE);
- 4.Diet with lignin, monensin, selenium and vitamin E (KLMSeE).

The diet was formulated with 15% roughage and 85% concentrate. The concentration of Kraft lignin was 18 g/kg DM, monensin sodium (Rumensin ®Elanco) was 16 mg/kg DM, selenium was 0.33 mg and E vitamin 100 IU/kg DM. The animals were fed for 60 days and weighed on the first day and then at 15-day intervals. The data obtained was analyzed using the SAS with the MIXED procedure and the Tukey test at 5% statistical probability.



Kraft lignin

3. Results and discussion

Table 1. Performance, carcass characteristics and rumen health

	Treatments				SEM	P-value
	No Lignin		With Lignin			
	CTL	MSeE	KL	KLMS _E E		
Final weight, kg	38.8	39.06	40.14	37.55	2.7	0.5244
ADG, kg	0.28	0.29	0.31	0.25	0.06	0.2172
FC, kg/kg	4.55	4.68	4.36	5.09	0.84	0.3708
DMI/LW,%	3.27	3.45	3.33	3.19	0.58	0.9308
CCY,%	45	44	45	45	0.02	0.8308
LEA, cm ²	16.52	15.32	15.2	14.78	2.53	0.3428
SFT, mm	2.03	2.49	2.03	2.24	0.49	0.4968
Mesenteric and omental fat, kg	1.14 A	1.48 B	1.16 A	0.89 A	0.35	0.0103
Frequency (%)						
Ruminitis	6.67	60	6.67	26.67		0.0894
Petechias	5.71	4857	22.86	22.86		<.0001

CTL - no additives added; KL - 18g of purified lignin per kg/MS; MSeE – monensin 16 mg kg/DM, selenium 0.33 mg kg/DM and vitamin E 100 IU kg-1; KLMSeE – 18g of purified lignin per kg/DM, monensin 16 mg kg/DM, selenium 0.33 mg kg/DM and vitamin E 100 IU kg-1; ADG - average daily gain, FC - feed conversion, DMI/LW, % - average daily dry matter intake per kg of body weight; CCY – cold carcass yield; LEA – Loin eye area; SFT – subcutaneous fat thickness; SEM – Standard error of the mean; A-B Means on the same line with different superscript letters differ by the test at 5% significance; P - value – descriptive level of the test.

The treatments had no effects on animal performance and carcass characteristics (P>0.05) with an average final weight of 38.87 kg. However, the animals fed MSeE had more visceral fat than the other treatments (P<0.05). Although diets with high levels of forage decrease the rate of food passage, and consequently, the gastrointestinal tract becomes fuller, and heavier, contributing to the reduction of carcass yield (de O. Nascimento et al., 2020). Contrary to what was expected, this did not happen in diets with LKR in the present experiment.

4. Conclusion

It can be concluded that the purified Kraft lignin did not adversely affect performance, carcass quality and rumen health. There was no significant rumen inflammation.

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5. References

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