

The Utilization of Some Feed Supplements by Using or Without Molasses on Local Male Sheep on Fermentation Results in Rumen Liquid, Daily Live Weight Gain, Production, C/N Ratio and Water Content of Feces.

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ABSTRACT: The objective of this experiment was to know how much pH, ammonia (NH₃) and volatile fatty acid total (TVFA) concentration in rumen liquid, daily live weight gain (DLWG) and feed consumption increase, production and water content in feces due to local male sheep given feed supplement of UMMB, MFS and MFS No molasses. Experimental design used Double Latin square design 4x4, and then if the feed treatments are significantly different, it would be tested by Duncan's Multiple Range test. Parameters measurement were consist of pH, NH₃, TVFA, DLWG, feed consumption, production and water content of feces. The results indicated that pH, NH₃, TVFA, feed consumption and production of feces were not significantly different on P>0.05. Whereas, DLWG/head/day was significantly different due to the feed treatments, the values of T₁, T₂, T₃ and T₄ were 49.41, 67.26, 111.94 and 88.10 g/head/day respectively. In addition, the water content in feces of male sheep also had a significant difference on P<0.05, the values were 7.42, 7.72, 8.84 and 7.81%.

Keyword : feed supplement, fermentation, production, water, feces

INTRODUCTION

Feed supplement of UMMB, MFS and MFS no molasses had been used for feeding dairy goat of Etawah generation. The result indicated that thus feed supplements were capable of increasing dry matter, organic matter, and crude protein intake, and tending dry and organic digestibility of feed. A part from thus, the feed supplements also influenced milk total solid of early lactation dairy goat of ettawa generation (Asih, *et al.*, 2014 and Suharyono, *et al.*, 2014). Feed supplement could be mentioned as a potential feed for ruminant animal, when it has been treated not only in dairy goat but also in dairy cows, and beef cattle. Dairy cow and bee cattle had been given thus supplements, the results shown milk production, daily live weight gain, and dry matter and organic matter digestibility increased sharply (Kurniawan, 2011; Suharyono, *et al.*, 2014; Waluyo, 2014). Sheep is one of ruminants animal that has not been treated by thus supplements is, therefore, it will be tested on local male sheep. The impact of thus supplements were not only investigated on rumen fermentation results, nutrient digestibility and daily live weight gain but also to be measured excretion, water content and C/N ratio of feces ram. The expectations of this experiment are feed supplement to have potential role for increasing production of ruminant animals.

MATERIAL AND METHODS

The experiment had been conducted at Nutrition group laboratory, Agriculture division, Centre for Application Isotope and Radiation, National Nuclear Energy Agency, Jakarta.

Experimental animals used four local male sheep, which their ages 1 year old and the average of early body weight were 20 kg. Feed treatments were local grass + concentrate (T₁), T₁ + 0.1% UMMB (T₂), T₁ + 0.1% MFS (T₃) and T₄ was T₁ + 0.1% MFS No Molasses. pH, NH₃, TVFA, DLWG, feed consumption, production and water content feces will be measured. Double Latin square design 4x4 will be used for statistical analysis. Nutrient content of feed treatments are presented in Table 1.

Table 1. Nutrient content in experimental ration

Nutrient content (%)	Feed treatments			
	T ₁	T ₂	T ₃	T ₄
Dry matter	49.82	51.53	51.48	51.56
Ash	13.89	14.52	14.24	14.22
Crude protein	11.35	11.81	11.74	11.76
Crude fat	5.83	6.08	6.17	6.12
Crude fiber	22.19	22.50	22.56	22.67
Total digestible nutrient	72.21	73.22	73.84	73.46

Suharyono *et al.*, 2010

RESULT AND DISCUSSION

The results of the experiment are shown in Table 2. Fermentation results such as pH, NH₃ and TVFA were not significantly different. Their values were in conditional normal microbial growth; these were in between 6.46-6.64; 206.9-236.3 mg/L; and 94.5-97.5 mg/L respectively. Arora (1995) reported that pH normal in rumen liquid is 6-7. Normal content of NH₃ concentration in rumen liquid for growing microbes is 50-250 mg/L (Preston and Leng, 1987). Whereas TVFA is mentioned normal condition in rumen liquid for microbial growth to be 80-160 mg/L (Jalaludin, 1994).

Table 2. The average of fermentation results, DLWG, feed consumption, production and water content of feces on local male sheep.

Parameters	Feed Treatments				Remarks
	T1	T2	T3	T4	
pH	6.46	6.64	6.55	6.51	Ns
NH ₃ (mg/L)	228.2	233.7	206.9	236.3	Ns
TVFA (mg/L)	94.5	97.5	96.0	97.5	Ns
DLWG (g/head/day)	49.41 ^a	67.26 ^{ab}	111.94 ^{bc}	88.10 ^{bc}	Suharyono <i>et al.</i> 2010
Feed consumption (g/head/day)	1083	1104	1138	1133	Suharyono <i>et al.</i> 2010
Efficiency of feed utilization (%)	4.59 ^a	6.08 ^{ab}	9.78 ^b	8.09 ^b	Suharyono <i>et al.</i> 2010
Dry matter (DM) digestibility (%)	61.84	63.85	70.66	67.77	Ns
Production of feces ((Kg/head/day)	0.67	0.68	0.66	0.62	Ns
Water content of feces (%)	7.42 ^a	7.72 ^{ab}	8.84 ^b	7.81 ^b	P<0.05
Ratio C/N feces on male sheep	26	25	27	25	Ns

The daily live weight gain (DLWG) were influenced by supplementation of UMMB, MFS and MFS non molasses on $P < 0.05$, when compared with T_1 (Local grass + concentrate commercial). The values were 67.26, 111.94, 88.1 and 49.41 g/head/day respectively. By increasing of DLWG due to addition of feed supplement, the efficiency of feed utilization was also significant different $P < 0.05$. Feed supplement of MFS treatment tended to higher than UMMB and MFS no molasses. When T_3 was compared to T_1 , the values were 9.78% and 4.59% respectively. Maynard and Loosly (1979) reported that the animals are more fast growing of daily weight, it mean that the utilization of feed ration is more efficient. Composition of UMMB, MFS and MFS no molasses consist of protein, energy, minerals essential, non protein nitrogen, by pass protein and fermentable carbohydrate sources. It mean that the nutrient content of thus supplement has potential role for fast growing of microbe to digest of feed in rumen of sheep (Suharyono *et al*, 2010). It was supported by dry matter digestibility result. The value of DM digestibility tended to be higher in T_3 than T_4 , T_2 and T_1 . These values were 70.66, 67.77, 63.85 and 61.84%, although was not significant different on $P > 0.05$.

Most of nutrient content in feed treatments was almost the same (Table 1), except on TDN content in T_1 tended to be lower than T_2 , T_3 and T_4 , the values were 72.21%, 73.22, 73.84 and 73.46% respectively. C/N ratio and excretion of feces were not significant different on $P > 0.05$, however, water concentration in feces was significant different $P < 0.05$, T_3 tended to be higher than T_1 , T_2 and T_4 , these were 8.84 vs 7.42, 7.72 and 7.81% respectively. Regarding of feed supplement's composition in T_2 and T_3 contained molasses, whereas T_1 and T_4 were not molasses's include. These supported by content of water in MFS's feed supplement (T_3) was higher than commercial concentrate (T_1), UMMB (T_2) and MFS non molasses (T_4), the values were 17.11, 12.16, 14.5 and 13.41%.

CONCLUSION

Feed supplements of UMMB, MFS and MFS no molasses are able to increase daily live gain of male sheep and efficiency of feed utilization. MFS tended to be better respond than UMMB and MFS no molasses that was supported by value of dry matter digestibility also tended to be higher, it was 70.66% vs 63.85 and 67.77%

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