

Utilization of Skin of Mung Bean Sprouts for Weaning Rabbits

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ABSTRACT

Skin of mung bean sprouts (SMBS) is the waste production of mung bean sprouts are available every day in many traditional markets. Nutrient content SMBS supposedly good enough to be used as animal feed, especially rabbits. Two experiments were conducted to investigate the use of SMBS in rabbits. The first study to study the dry matter digestibility (DMD), every treatment consisted of 3 replications with 3 NZW weaning rabbits each, for 2 weeks experiment. The second study was to study the effect of various levels of SMBS (0, 10, 20 and 40%) in the ration on the performance of growth for 4 weeks, each treatment has 6 replicates @ 3 weaning rabbits. All data were subjected to analysis of variance and differences between treatments were analysed by LSD. The results obtained showed that DMD of SMBS was quite moderate, 58.9%. It is interesting to note that the use of SMBS up to 40% can improve daily body weight gain (DBWG) 19-25 g/h/d, even up to 3rd week of observation pf DBWG can reach 29-35 g/h/d, almost equal with results in sub-tropical countries. Inclusion of 40% in the diet lowers DMD of SMBS and FCR, but did not reduce the consumption and DBWG. Feed conversion of inclusion up to 20% ranged from 2.2 - 2.52 at the beginning of the week and 2.93 – 3.10 at week 4. Inclusion of SMBS at 10, 20 and 40% in the diet lowered apploximately 6, 12 and 26% of feed price.

Key words: skin of mung bean sprout, performance, weaning rabbits

INTRODUCTION

Rabbits is small herbivore which their feed is depending upon forage and agricultural by-product. They utilize crude fibre less efficiently as compared to the large herbivores Rabbit farming in Indonesia in general is still small and micro-scale, with the main feed forage. The use of higher fiber and reduce the starch content is expected to avoid digestive problems that required a higher protein content than recommended (> 15%) (Carabano, et al., 2008).

One of the alternative ingredients that can be used for animal feed is skin of green bean sprouts. The skin of mung bean sprouts is a waste from the manufacture of mung bean sprouts, which are quite large. In Indonesia, the skin of mung bean sprouts is very potential to be used as a mixture of animal feed. Skin sprouts are 20 -40% part of bean sprouts that are currently generally wasted or a small portion used in cow diet.

Nutritional content of bean sprouts are 13-14% protein and about 49.44% crude fiber (Rahayu *et al.*, 2010).

Low fiber consumption has an effect on the growth of weaning rabbits that will lead to digestive problems. Nutrition content of SMBS is expected good enough to be used for mix rabbit feed so it can be an alternative ingredient in the preparation of diet and has a good economic value.

Nutrient content SMBS supposedly good enough to be used as animal feed, especially rabbits. The purpose of this research is to investigate the possibility of using SMBS in the right level in the ration of rabbits.

MATERIALS AND METHODS

This experiment was carried out at rabbitry complex of Research Institute of Animal Production- Bogor. Two experiments were conducted to investigate the use of SMBS in rabbits. The first study to study the dry matter digestibility (DMD), every treatment consisted of 3 replications with 3 NZW weaning rabbits each, for 2 weeks experiment. The second study was to study the effect of various levels of SMBS (0, 10, 20 and 40%) in the ration on the performance of growth for 4 weeks, each treatment has 6 replicates @ 3 weaning rabbits and parameters measured were feed consumption, daily bodyweight gain (BWG), feed conversion (FCR). All data were subjected to analysis of variance and differences between treatments were analysed by LSD (Steel and Torrie 1980).

RESULTS AND DISCUSSION

The evaluation of consumption, daily growth and feed efficiency showed that difference between the treatment (table1). There were no differences of daily consumption among treatment, eventhough the highest supplementation of SMBS tend have lower consumption.

Table 1. Performance of rabbits fed with the addition of skin of mung bean sprouts

Treatment	Initial body weight (g)	Body weight gain (g)	Consumption (g/d/h)	FCR
Control	1089,0	914,2 ^b	104,09	2,68 ^a
SMBS 0%	1086,3	874,4 ^b	103,57	2,86 ^a
SMBS 20%	1075,7	878,1 ^b	105,04	2,89 ^a
SMBS 40%	1048,5	742,1 ^a	92,47	3,73 ^b

Superscript different on the same columns show the effect of a significantly different ($p < 0,05$) between treatment.

The addition of SMBS treatment has significant effect ($P < 00.5$) on BWG and efficiency, the addition of 40% SMBS will decrease BWG and feed efficiency. Feed intake during treatment was not significantly different between treatments although in the addition of 40% SMBS will decrease consumption. Additions of SMBS up to 40 will change the feed composition which can lead to decreased palatability and fiber composition of the feed so it will decrease consumption, it is consistent with BWG and feed efficiency.

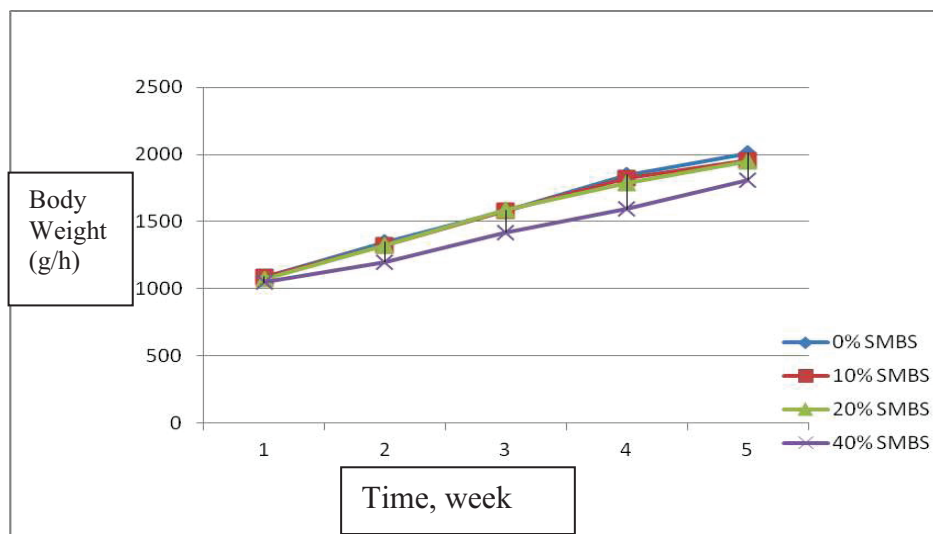


Figure 1. Body weights of rabbits were given different levels of SMBS

Performance of rabbit from week to week seem that the increasing of body weight were stable except in treatment with 40% addition indicates have a smaller body weight rabbit body weight compared to other treatments.

Table 2. Digestibility of diet with the addition of skin of mung bean sprouts

Treatment	DM digestibility (%)	Air dry digestibility (%)
Control	67,2 ^b	63,68 ^b
SMBS 0%	65,2 ^b	62,42 ^b
SMBS 20%	64,6 ^b	62,00 ^b
SMBS 40%	52,9 ^a	53,48 ^a

Superscript different on the same columns show the effect of a significantly different ($p < 0,05$) between treatment.

The table above shows 2 digestibility values of dry matter and air dried, the addition of SMBS treatment has a significantly effect ($P < 00.5$) on digestibility, the pattern of both digestibility value is similar, where the 40% SMBS addition treatment gives the lowest digestibility value. Calculated value of DM digestibility is slightly different from that of dry air digestibility although the trend of treatment is the same, the value of dry digestibility water is more realistic because of the possibility that during drying there is loss other than moisture content

The skin of mung bean sprouts also contains a high enough fiber that can be one source of fiber in the ration. The use of fiber from various sources of fiber will affect the health conditions of digestion because it can affect the activity of microbe digestion and caecal (Gidenne *et al.*, 1998). The use of SMBS in the feed will provide a variety of fiber types while the protein content is high enough to improve the quality of feed.

CONCLUSIONS

Inclusion of 40% in the diet lowers DMD of SMBS and FCR, but did not reduce the consumption and DBWG. Feed conversion of inclusion up to 20% ranged from 2.2 - 2.52 at the beginning of the week and 2.93 – 3.10 at week 4. Inclusion of SMBS at 10, 20 and 40% in the diet lowered apploximately 6, 12 and 26% of feed price.

REFERENCES

- Carabaño, R., I. Badiola, S. Chamorro, J. García, A. I. García-Ruiz, P. García-Rebollar, M. S. Gomez-Conde, I. Gutiérrez, N. Nicodemus, M. J. Villamide, J. C. de Blas. 2008. New trends in rabbit feeding: Influence of nutrition on intestinal health. *Spanish J. Agri. Res.*, 6: 15-25.
- Gidenne T., R. Bellier, J. Van Eys. 1998. Effect of the dietary fibre origin on the digestion and on the caecal fermentation pattern of the growing rabbit. *Anim. Sci.* **66**, 509-517.
- Rahayu, S.D., D.S. Diapari, Wandito, W.W. Ifafah. 2010. Survey potensi ketersediaan limbah tauge sebagai pakan ternak alternatif di Kodya Bogor. Laporan Penelitian. Fakultas Peternakan. Bogor (ID): Institut Pertanian Bogor.
- Steel, R. G. D. and J. H. Torrie. 1980. *Principles and Procedures of Statistics*, Second Edition, New York: McGraw-Hill.