

Influence of EM on the performance of the domestic rabbit (*Oryctolagus cuniculus*)

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Abstract

Domesticated rabbit (*Oryctolagus cuniculus*) has a great potential as a source of meat. Though the rabbits are good converters of fibrous plant material into lean meat, being a monogastric animal, they can use fibre as a result of hind gut fermentation, which in fact is less efficient to rumen fermentation. Therefore, there is a great potential of using feed additives to enhance the digestibility of fibrous feeds and the performance of the animal. Effective Micro-organisms (EM), being a mixed culture of naturally existing beneficial organisms is one of such additives.

Two feeding trials were carried out during 7 and 10 weeks with rabbits using EM. In the first experiment, twenty four, 9-10 weeks old New Zealand White rabbits (mean body weight of 2150g) of both sexes were allotted to four treatments to study the effect of EM on nutrient digestibility at two different dietary qualities. A low quality ration (LQR) containing 50% rice bran and 25% poultry by product meal or a commercial feed (broiler finisher - BF) were fed alone or in combination with EM for 7 weeks. Dried grass (*Brachiaria brizantha*) and water were provided *ad libitum*. Feed intake was measured weekly and nutrient digestibilities were estimated during 3 collection periods.

In the second experiment, twelve 8-9 weeks old, male and female rabbits of the same breed were fed a basal feed formulated to contain all nutrients required by rabbits (NRC, 1977) with or without EM during 10 weeks. Feed intake and weight gain were measured weekly. Nutrient digestibility at ileum, caecum, large intestine and in faeces, and carcass characteristics were evaluated to study the effect of EM.

In the first experiment, EM improved the intake and crude protein digestibility of LQR by 3.4, and 3.3%, respectively, while the crude protein digestibility of the commercial feed was increased by 1.9%. Luther (1985) reported an increased digestibility of both drymatter and CP of corn silage when it was given with microbial inoculant. CF digestibility of LQR was also improved by EM (Table 1). This is in agreement with the results of other researchers (Mayne, 1990; Smith, 1993). In BF, fibre digestibility was not affected by EM.

Table 1. Digestibility of Crude protein (CP) and Crude fibre (CF) of different diets by rabbits (p<0.05).

Treatments	CP digestibility	CF digestibility
LQR	0.609 ^a	0.164 ^a
LQR+EM	0.629 ^b	0.184 ^b
BF	0.698 ^c	0.169 ^a
BF+EM	0.711 ^d	0.169 ^a

In the second trial, EM improved the feed intake, weight gain and feed efficiency by 4.0, 32.6 and 21.6%, respectively (Fig 1 and Table 2). Li *et al.* (1995) and Inciong (1996) also showed increased feed efficiency due to EM in an experiment done with chicken. Carcass recovery was improved by 16.7%. Sex of the rabbits did not have any significant influence on any of the parameters tested. EM resulted heavier pancreas and caecum compared to the control.

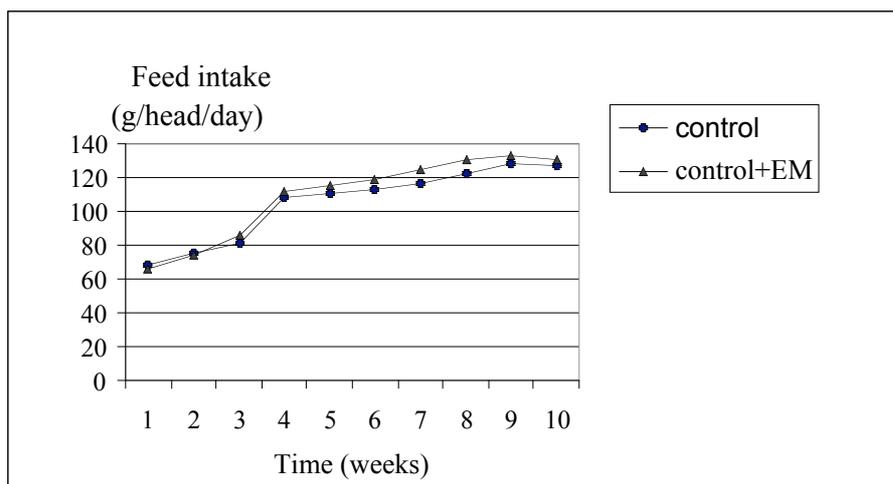


Figure 1. Mean feed intake of rabbits in experiment 2

Table 2. Weight gain, Feed Conversion ratio (FCR) and dressing percentage of rabbits ($p < 0.05$) in experiment 2

Treatments	Mean body weight gain (g/day)	FCR (g/g)	Dressing percentage
Control	12.78 ^a	8.20 ^a	48.52 ^a
Control+EM	16.95 ^b	6.43 ^b	56.60 ^b

Crude protein digestibility at ileum, caecum, large intestine and in faeces with EM were 0.702, 0.678, 0.712 and 0.723, respectively, as compared to 0.668, 0.649, 0.675 and 0.698, respectively, in the control. Corresponding crude fibre digestibilities with EM were 0.172, 0.175, 0.175 and 0.179 which were higher than that of control (0.164, 0.166, 0.167 and 0.169, respectively). As a live beneficial microbial culture, EM must have improved the microbial activity and thus the nutrient digestibility and performance of the animal. EM reduced the feed cost per kg live weight and per dressed weight by 15.5 and 27.6%, respectively.

Present findings indicate that rabbits could be reared more economically on locally available low cost feed stuffs, if the feed is supplemented with EM.

Key words: domestic rabbit, Effective microorganisms, nutrient digestibility, feed efficiency, dressing percentage

References

- Inciong, B. (1996). Test of EM toxicity to chicken. Proc. of 3rd Conference on Effective Microorganisms, 7-8.
- Li, W.J., Ni, Y.Z. and Umemura, H. (1995). Effective Microorganisms for sustainable animal production in China: Proc. of the 4th International Conference on Kyusei Nature Farming, 171-173.
- Luther (1985) Effect of microbial inoculation of whole-plant corn silage on chemical characteristics, preservation and utilization by steers. J. Anim. Sci. 63, 1329-1336.
- Mayne, C.S. (1990). An evaluation of an inoculant of *Lactobacillus plantarum* as an additive for grass silage for dairy cattle. Animal Production. 51, 1-13.
- Smith, E.J. (1993). The influence of an inoculant/enzyme preparation as an additive for grass silage offered in combination with three levels of concentrate supplementation on performance of lactating dairy cows. Animal Production. 56, 301-310.