

Dried Betel Vine (*Piper betel* Linn) Leaves as Feed Additive in Weaning Pig Diets

T. Vearasilp¹, R. Turagij¹, S. Jaturasitha¹, T. Apichartsrungkoon¹, N. Chongkasikit¹, N. Simasatitkul¹, K. Gatphayak¹ and U. ter Meulen².

¹*Department of Animal Science, Faculty of Agriculture, ChiangMai University, THAILAND*
²*Institut für Tierernährung und Tierphysiologie, Universität Göttingen, GERMANY.*

Introduction

Betel vine is widely cultivated as a medicinal plant in tropical area especially in Thailand. Its leave, extract or oil has an antimicrobial activity (Pongpech and Prasertsilpe, 1993., Urasopon *et al.*, 2003., Chatshawanchoneera *et al.*, 2005). Diarrhea in piglet at post weaning period causes a considerable economic loss to the pig production system because of animal's dehydration, a lack of electrolytes and can result in death. The most common causes of diarrhea in piglet are *Escherichia coli*, *Clostridium perfringens* and coccidia. This experiment was conducted to evaluate the potential of using dried betel vine (*Piper betel* Linn) leaves as feed additive in weaning piglet diets and decrease diarrhea incidence.

Materials and Methods

Experimental diets: Fresh green leaves of Betel vine leaves were dried in an oven at 60⁰ C for 2 days and ground before supplemented as feed additive in basal diet as shown in Table1.

Table1. Feed composition of the basal diet.

Ingredient	%
Ground corn	33
Broken rice	20
Rice bran	8
Soybean meal	24.5
Fish meal	6.5
Mungbean meal	3
Tallow	3
Dicalcium phosphate	0.7
Salt	0.3
Premix (minerals/vitamines)	0.7
Lysine	0.2
Methionine	0.1
Total	100

Calculated nutrients composition of the basal diet

Crude protein (%)	19.98
ME (Kcal/kg)	3182.62

The experimental diets are as the following:

1. Control basal diet,
2. Basal diet supplemented with dried betel vine leaves 0.5%,
3. Basal diet supplemented with dried betel vine leaves 0.75% and
4. Basal diet supplemented with probiotic 1%.

Animals and Management: 8 male and 8 female piglets of Largewhite x Landrace x Duroc breed type weaned at 28 days of age at mean initial weight 9.98 kg. were used in this experiment. Two males and 2 females were allocated randomly and divided into 4 groups in a completely randomized design (CRD). Each piglet was housed in an individual cage and fed *ad lib* with the experimental diets at 07:00, 11:00 and 15:00 hours for 30 days. Initial weight, finishing weight, feed intake, feed refusal, feces score and feces color were recorded daily. Feces scores were based on the following scale: 1=solid feces; 2=normal shape feces; 3=mildly soft, looser than normal feces; 4=thick liquid feces; 5=thin liquid diarrhea feces. Feces colors were based on the following scale: 1= black; 2=greenish black; 3=gray; 4=yellowish gray; 5=yellow.

Statistical analysis: Data were analyzed using a specific model for CRD using the ANOVA procedure of SAS (1988).

Results and Discussion:

Production performance of the piglets fed experimental diets is shown in Table2.

Table2. Production performance of the piglets fed experimental diets.

Items	Control	Dried Betel vine leaves 0.5%	Dried Betel vine leaves 0.75%	Probiotic
Initial wt. (kg)	11.80	9.07	9.35	9.20
Finishing wt.(kg)	29.45	26.80	26.50	25.65
Weight gain (kg)	17.65	17.72	17.15	16.45
Daily feed intake (gm)	960	840	790	710
Average daily gain (gm)	588	590	571	548
Feed conversion ratio	1.662 ^b	1.466 ^{ab}	1.404 ^{ab}	1.309 ^a
Feces score	3.413 ^b	2.819 ^a	2.922 ^a	3.637 ^b
Feces color	3.1.3 ^b	2.629 ^a	2.790 ^a	3.318 ^c
Diarrhea Incidence (%)	40.43	33.33	33.33	47.50

Means in the same row with different superscript differ at (p<0.05)

Average daily gain (ADG) and feed conversion ratio (FCR) of the pigs were 588, 590, 571 and 548 g/day and 1.66, 1.46, 1.40 and 1.30, respectively. There was no significant difference ($P>0.05$) in ADG among the groups. The pigs fed with the basal diet supplemented with probiotic 1% had significantly better FCR ($P<0.05$) than that of the controlled group but it was not significantly different ($P>0.05$) from the pigs fed with dried betel vine leaves 0.5% and 0.75%. The feces score and feces color of the pigs fed with basal diet supplemented with dried betel vine leaves 0.5% and 0.75% were significantly better ($P<0.05$) than those of the pigs in the control group and probiotic 1% supplementary group. Furthermore, the pigs fed with basal diet supplemented with dried betel vine leaves 0.5% and 0.75% had the lowest diarrhea incidence. In conclusion, it can be recommended that dried betel vine leaves can be fed as feed additive in weaning pig diets to decrease diarrhea incidence.

References

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