

The supplementation of *Andrographis paniculata* compound in the sow gestation feed does not decrease fecal progesterone during early pregnancy

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Introduction

To minimize the use of antimicrobial drugs as feed additive in the swine industry, a number of alternative medicines have been applied. An *Andrographis paniculata* (*A. paniculata*) is one of the most well known herbs, commonly used in treating infections and some diseases for decades. Andrographolide, a chief extracted constituent, is used as an immunostimulant [2,3]. It enhances the tumor necrosis factors α production and cluster of differentiation marker expression, resulting in increased cytotoxic activity of lymphocytes [6]. Our previous study has found that *A. paniculata* improves reproductive performance of lactating sows [4]. The present study aimed to evaluate the effect of *A. paniculata* compound on fecal progesterone (P₄) level during early pregnancy in sows.

Materials and methods

The present study was conducted in a commercial swine herd in the eastern part of Thailand from April to August 2010; and included 86 crossbred Landrace x Yorkshire multiparous sows (parity 0 to 8). The sows were classified into 2 groups: control (n=46) and treatment (n=40). The control sows were fed with conventional gestation feed from mating to farrowing. The treatment sows were fed with the gestation feed supplemented with 500 ppm of the *A. paniculata* compound (Herbatob-mix[®], Lily FoodAnSci Limited, Bangkok, Thailand). All sows were housed in a conventional open-housing system in individual stalls. Feed was provided twice a day (1.5-3.5 kg/d during gestation). The feed was a rice-corn-soybean-fishmeal base containing 15% crude protein, 2,900 kcal/kg metabolizable energy and 0.8% lysine. The sows received water via water nipples. Fecal samples were manually collected from rectum of the sows at 25.1±0.8 days of pregnancy. One gram of feces was suspended in 10 ml, 0.01 M, phosphate buffer with 0.15 M, NaCl (pH 7.0). The samples were shaken for 12 h at room temperature, centrifuged at 2,700 x g for 15 min. The supernatant, afterwards, was collected and used for the assay. A bovine milk progesterone Qualitative test EIA Kit (Ovucheck[®], Biovet, QC, Canada) was used to determine the concentration of P₄ metabolite in feces [5]. The sows were defined as pregnant when fecal P₄ was ≥400 pmol/g and not

pregnant when fecal P₄ was <400 pmol/g [5]. Conception rate was compared between groups by Fisher's exact test. The mean fecal P₄ were analyzed by Student's *t*-test. The correlation between total number of piglets born per litter (NTB) and fecal P₄ was analyzed by Pearson's correlation.

Results

At 25 days after mating, conception rates were 97.8% and 95.0% in the control and treatment groups, respectively (*P*=0.595). One sow in the control group and two sows in the treatment group were not pregnant and they were excluded from the analyses. Of the pregnant sows, fecal P₄ were 732.3±5.8 and 738.2±9.6 pmol/g in control and treatment groups, respectively (*P*=0.601). So far, 26 sows had farrowed and NTB was 11.0±0.6 piglets/litter. NTB was positively correlated with fecal P₄ concentration during early pregnancy (*r*=0.42, *P*=0.03).

Discussion

The present study demonstrated that *A. paniculata* could be supplemented in gestation feed of the pregnant gilts and sows without any decrease in the P₄ level during early pregnancy. In order to maintain pregnancy, P₄ is required throughout gestation period in pig. Serum P₄ increased to the peak by day 12 after mating and remained throughout gestation [1]. P₄ could be used as an indicator of pregnancy. In pregnant sows, serum P₄ was usually ≥5 ng/ml [1]. In feces of the sows, P₄ ranged 695-1038 pmol/g during luteal phase and ranged 150-330 pmol/g during follicular phase [5]. In conclusion, the supplementation of *A. paniculata* in the feed of gestating gilts and sows did not influence fecal P₄ during early pregnancy period. However, fecal P₄ during early pregnancy significantly correlated with NTB.

References

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