Virginiamycin is an antibiotic produced from a mycogenic fungus, Streptomyces virginiae, which was isolated from a sample of Belgian soil by DDSOMER and VAN DEN BROEK. In 1955, it was shown, initially that the activity of this antibiotic is against gram-positive microorganisms (SYRSEN & DE BEVER, 1963).

Works developed by MILLER et al.(1975), MILLER (1975), FENT et al.(1978) and YOUNCEF et al.(1978) showed that virginiamycin inhibits the glucose fermentation and decreases pH, decreases lactate, acid fatmetabolism and amino production by the microorganisms, and increases the intestinal absorbtion by increasing the transit velocity on the contents in the gut. Studies carried out with rats and other animals have also demonstrated that virginiamycin is not absorbed in the gut, and when the treatment with this antibiotic before slaughter it was not found residues in the meat (MILLER, 1975; MILLER et al:1977).

According to KEMP & KESER (1970), VANDAMME & CNOER (1979), the growing factor was used as additive in the ration must cause the following characteristics: enzyme response in animal productivity, little or none application as therapeutic agent in human beings and animals, to stimulate the growth of the animals at different ages and do not induce the development of resistance.

Pacheco et al.(1880) showed that, in growing and fattening pigs, the use of virginiamycin and bacitracin resulted in an additive effect of weight gain, but without effect in the food efficiency. On the other hand, the castrated males showed a better performance than the females.

This experiment was carried out with the aim to assess the effects of virginiamycin on the performance and carcass characteristics of swine, during the growing stage and finishing stage. Thirty crossbred males (Large White X Landrace X Large White) were sexed: 15 females and 15 castrated males kept in individual pens which were cleaned daily, with food and water ad libitum. The animals were divided into three groups: each group of ten animals had 5 females and 5 castrated males. Each group received one of the following rations: Group I: basal ration. Group II: basal ration + virginiamycin at the level of 5.0 ppm for the growing stage and 10.0 ppm for the finishing stage. Group III: basal ration + virginiamycin at 20.0 ppm in the raising stage and 5.0 ppm in the finishing stage. The stages were defined by the mean weight of the animals: 27-42 kg for the growing stage (27.1 to 47.1 kg), and 56-84 kg for the finishing stage (56.3 to 84.8 kg). The statistical analysis did not show any significance among the experimental treatments.

The growing stage, with a period of 26 days, was followed by the finishing stage, with a period of 42 days, the weight gain (g), feed intake (kg) and feed conversion for the different groups, respectively, 1-16.4-31.51 and 2.89; 1-14.7-35.46 and 2.44; and 1-15.6-31.06 and 2.49. The statistical analysis did not show any significance among the experimental treatments. During the finishing stage, the performance of the animals was calculated, respectively, 1-14.7-22.18 and 2.94; 1-17.7-23.45 and 3.22; and 1-16.0-27.32 and 2.93. The different levels of virginiamycin during the total experimental period did not show statistical significance for the variables assessed. Despite of the non-significant difference the virginiamycin gave some positive effect on the weight gain and feed conversion but it was due to the increase in the food intake.

The results of the carcass analysis which were not statistically different among the trials for dressing percentage, carcass length (cm), back fat thickness (mm), loin eye area (cm²), ham percentage and meat/fat ratio were respectively: 1.77-20.47-3.41-20.96 and 0.52; 1.78-20.76-3.72-20.30-3.50 and 0.52; and 1.78-21.19-25.68 and 0.52.

Conclusions

Although the results of this experiment did not show statistical differences for all characteristic studied, virginiamycin gave some positive effects on weight gain at the different stages of the animals development. This effect was higher (12.04%) in the growing stage with the lowest level of virginiamycin. Considering the total period of the experiment, the higher level of virginiamycin determined a better weight gain which was 8.90% bigger than the control. Virginiamycin always determined a high food intake irrespectively of the developmental stages. During the growing stage food intake was 8.84% higher for the animals receiving the lowest level of virginiamycin. It was observed that in the total period food intake was 6.98% higher for the pigs which received the higher level of this antibiotic.

For the carcass characteristics virginiamycin at high level produced a better dressing percentage (2.15%) and loin eye area (5.91%) however it produces a bigger back fat thickness (10.56%).

Regarding the performance as well as carcass characteristics, the addition of virginiamycin in the ration produced the same effect for both males and females except for ham percentage, which the females showed a better performance than the castrated males.

Selected references: VANDAMME, CNOER, et al. (1880); MILLER et al. (1975); WANG, W. et al. (1977); KREIDER, J. et al. (1976).