

SUMMARY

MEDIUM CHAIN FATTY ACIDS; PERFORMANCE AND DIGESTIBILITY IN WEANED PIGLETS

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In this study, we investigate the potential of MCFAs as feed additives to improve pig gut health. Performance and Ileal Digestibility trials were carried out for that purpose. The trial was conducted with 24 healthy cannulated weaned Topigs x DanDuroc hybrid barrows. Pigs were randomly assigned to one of 3 treatment groups, thus 8 piglets were used in each treatment. The piglets' live weight (LW) was between 17 and 19 kg when they were surgically fitted with a simple T-cannula at the distal *ileum*. The implemented cannula was suitable to a maximum of 40-45 kg LW pig. The experiment consisted of a 28-day-long performance trial.

During the trial, treatment A pigs were fed with a basal diet containing no specific feed supplement or growth promoter, Trt B and C pigs received basal diet supplemented with MCFA derived from palm-kernel oil (2 kg/T) and with sustainable MCFA (3 kg/T), respectively. The experimental data were analyzed with one-way ANOVA (SAS OnDemand for Academics, 2023). In case of any significant treatment effects, the differences among the experimental groups were checked by the Tukey test (SAS OnDemeand for Academics, 2023). It was observed that the average daily gain (kg) and feed conversion ratio (kg/kg) on the day 0 –7 (1 week gain) of Treatment B and C group was significantly different compared to Treatment A ($p < 0.05$). The current study had no significant effect on nuclear cell viability on the 1st, 2nd and 3rd collection ($p > 0.05$) for apoptosis, necrosis, and live percentages. However, the 2nd collection showed a significant difference at the late apoptotic stage ($p < 0.05$). Thus, the late apoptotic value of treatment C was 58.6% lower than treatment B's.

It was also observed that MCF content and ratio had no significant effect ($p > 0.05$) on the faeces and ileal digesta.

In conclusion, using MCFA in nursery pig diets improves growth performance, does not significantly affect polymorph nuclear cell viability, and does not significantly alter content and ratio in faeces and ileal digesta. Looking ahead, we anticipate that MCFAs may become an important class of feed additives in pig production for gut health enhancement.