

Activity of Sangrovit® against *Lawsonia intracellularis* in grower pigs and its impact on gut physiology and host immunity

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Abstract

Sanguinarine, a quaternary benzophenanthridine alkaloid plant extract of *Macleya cordata*, has demonstrated to have anti-inflammatory, antimicrobial and immunomodulatory effect. It increases the availability of aromatic amino acids and decreases the levels of toxic biogenic amines. This study was aimed to evaluate the effect of Sangrovit® supplementation as compared to tylosin on growth performance, feed efficiency and *Lawsonia intracellularis* shedding in pigs, and to determine the effect of Sangrovit® on the immune system. A total of 24 pigs, four weeks-old challenged with *Lawsonia intracellularis* were randomly allocated to a treatment group (control non-supplemented, 40 g Sangrovit®/mton, 75 g Sangrovit®/mton, and 22g /kg tylosin). Pigs were weighed weekly and average daily gain (ADG), average daily feed intake (ADFI) and gain to feed ratio (G:F) were calculated. Fecal samples were collected weekly for isolation and quantification of *Lawsonia intracellularis* using qPCR as well as blood samples for determination of IgA and IgG levels. After 21 days (acute phase), three pigs from each treatment group were euthanized for recording of lesions of the acute phase of the disease; the remaining 12 pigs were euthanized 90 days after challenge (chronic phase). Results showed that ADG and ADFI was higher for pigs receiving tylosin as compared to the other groups ($p>0.05$). Pigs receiving 75 gr. Sangrovit®/mton showed a higher G:F ratio as compared to the other groups ($p>0.05$). None of the treatment groups showed significant differences in *Lawsonia* shedding level based on quantitative PCR. Only control group presented characteristic lesions of *Lawsonia* infection at the acute stage of the disease (21 days). At the chronic stage, the highest ileum thickness score was observed in pigs receiving tylosin. Findings suggest that Sangrovit® supplementation is effective for improving growth performance and reducing pathognomonic lesions. Further studies are needed to determine the effect of Sangrovit® on the immune system.