IMPACT OF AMAFERM® ON THE ABSORPTIVE CAPACITY OF THE PIGLET GUT

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Inclusion of Amaferm in drinking water improves the absorptive capacity of the intestinal epithelium of weanling pigs.

SUMMARY

DOSE OF AMAFERM USED
0.611 mL/L

Administering Amaferm through the drinking water to healthy piglets increased ($P < 0.04$) the absorptive capacity the intestinal epithelium (jejunum) exposed to a saturating concentration of glucose (500 mM) ex vivo (Ussing chambers). This effect was explained by an increase in passive transport (does not require energy) and its magnitude was estimated to reach up to about 30% (upper limit of the 95% confidence interval).

VALUE

This study showed that in piglets Amaferm improves the nutrient transport or absorptive capacity of the gut.

PROTOCOL

Type of Animals/Experimental Units

- Weaned male piglets (21 days of age, 6.0 kg)/16 animals individually housed.

Number of animals/experimental units

- Total of 8 pigs per treatment/2 piglets per Ussing chamber run/2 jejunal mucosal replicated 4 times per chamber/total of 32 replications per treatment.

Trial Design

- Complete randomized design. The model includes treatment as a fixed variable and pig within treatment as random variable.

PROTOCOL (CONTINUED)

Treatments

- Control with 0 mL/L of Amaferm® and treatment with 0.611 mL of Amaferm per liter of drinking water.

Diet Information (general)

- 23% corn, 22% wheat, 19% full fat soy, 13.6% soybean meal (47% CP), 8.6% lactose, 6% barley, 3.6% soy oil, 0.86% calcium carbonate, 0.56% lysine, 0.4% trace mineral/vitamin mix, 0.38% salt, 0.24% methionine, 0.22% threonine, 0.09% valine, 0.06% tryptophan.

Data Collection

- Feed and water intake, body weight, short circuit current in jejunum (Ussing chambers), and transepithelial electrical resistance in jejunum (Ussing chambers).

DISCUSSION OF RESULTS

- Previous work showed that the gut of pigs fed Amaferm has increased capacity for transepithelial transport. This study not only confirms such findings but also expand them by demonstrating that Amaferm enhances the absorptive capacity of the intestinal epithelium via passive transport.
- The magnitude of this effect is estimated to reach up to about 30%.
- These results support the notion that Amaferm improves gut function via a multi-factorial mechanism that also involves augmented capacity for energy-independent nutrient absorption.

Points to Consider

This is the second study with piglets demonstrating the impact of Amaferm on transepithelial transport.

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