

## **RICERCHE EFFETTUATE**

### **IGIENE DEGLI ALIMENTI AD USO ZOOTECNICO**

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#### **The influence of fat protection of calcium formate on growth and intestinal defence in Escherichia coli K88-challenged weanling pigs**

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An experiment was conducted to test whether free or fat-protected dietary calcium formate improves the growth and health of weanling pigs that may or may not be susceptible to intestinal adhesion of enterotoxigenic Escherichia coli (ETEC), when orally challenged with ETEC. Sixty pigs, weaned at 21 days of age (day 0), were divided into three groups (20 pigs each), balanced for number, litter and live weight, and fed the same base diet but three different 30.5 g/kg supplementations: a control (CO-with dicalcium phosphate, calcium sulphate, lard and sepiolite); a free calcium formate (FF), with this additive, monosodium phosphate and lard; a fat-protected calcium formate (PF), with this additive and monosodium phosphate only. The final diets did not differ for total calcium and phosphorus content. The pigs, individually penned, were orally challenged with 1.5 ml of a 10<sup>10</sup> CFU E. coli K88 suspension on day 2 and slaughtered on day 7 or 8. Data were analysed using analysis of variance with a three-factor design, including diet, block, sensitivity of intestinal villus to ETEC adhesion, and first level interactions. The factor diet never interacted with the others. Compared to the control diet, the formate supplementations improved growth (P<0.05), feed intake (P=0.062) and GT (gain:feed) ratio (P=0.063). Both forms of formate addition reduced the faecal score (P=0.062), days of diarrhoea (P<0.05) and total E. coli faecal excretion (P<0.05) but not E. coli K88 faecal excretion, and increased villus height in the small intestine (P<0.05). The number of enterocytes and goblet cells in the ileum was not changed by formate supplementations. In saliva, total IgA activity tended to be reduced by acidifiers (P=0.067). The anti-K88 IgA in the saliva, the blood and the jejunum secretion, and the expression of the TNF $\alpha$  gene in the stomach and jejunum wall were not affected by the diet. The pH of the stomach, the duodenum and the ileum was not affected while the formate reduced the pH in the colon and the caecum. Fat-protected calcium formate did not improve the results obtained with free formate supplementation. Calcium formate has a growth-promoting effect in weanling pigs challenged with E. coli K88, independently of their susceptibility to the intestinal adhesion of this strain. Its action seems to be more related to a general control of the total E. coli rather than of E. coli K88. At the same dietary concentration, no particular advantage comes from using the protected formate instead of the free additive.

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#### **Test di appetibilità alimentare per acetilsovaleriltiosina (Aivlosin® Schering-Plough) = Test of appetibility for acetylsovaleryltiosin (Aivlosin®, Schering-Plough)**

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Meeting annuale della Societa' Italiana di Patologia ed Allevamento dei Suini (SIPAS) (33. : Modena : 29-30 Marzo 2007)

E' stato condotto uno studio di preferenza finalizzato a misurare la preferenza del suino nei confronti di due molecole antibiotiche (acetilsovaleriltiosina e tilmicosina) incluse nell'alimento. Nella prova sono stati inclusi 12 suini svezzati di un allevamento commerciale di 45 giorni vita e del peso di 13,4 ± 0.3 kg. Per la prova è stato utilizzato un mangime commerciale nel quale erano stati inclusi o 63.75 ppm di acetilsovaleriltiosina (mangime A) o 300 ppm di tilmicosina (mangime B). I suini sono stati collocati a random in una gabbia singola dove avevano libero accesso a due mangiatoie identiche di metallo contenenti una il mangime A e l'altra mangime B. Dopo 20 giorni sono stati registrati il peso dei suini, il consumo di alimento e lo spreco di alimento. I maschi hanno mostrato una preferenza statisticamente significativa per il mangime A (acetilsovaleriltiosina) mentre le femmine hanno mostrato un modello di comportamento piuttosto distribuito e poco chiaro. I risultati complessivi mostrano una preferenza (statisticamente non significativa) per il mangime A

(acetilisovaleriltiosina).

*A test preference study was performed in order to measure pig preference to two different antibiotics molecules (acetylisovaleryltylosin and tilmicosin) included in feed. Twelve commercially raised weaned piglets (six males and six females) of 45 days of life weighting  $13,4 \pm 0.3$  kg were included in the trial. A commercial meal feed for weaning was included either with 63.75 ppm of acetylisovaleryltylosin (feed A) or either with 300 ppm of tilmicosin (feed B). The piglets were allocated randomly in individual pens with free access to two identical metal feeders containing one the feed A and the either the feed B. After 20 days pig weight, feed waste and feed consumption were recorded. Males showed a statistically significant preference for feed A (acetylisovaleryltylosin) while the females showed a fairly distributed and unclear pattern of preference. Overall results show a preference (statistically not significative) for feed A (acetylisovaleryltylosin).*