

International Conference on Livestock Nutrition

August 11-12, 2015 Frankfurt, Germany

Non-specific antiviral components in plasma can contribute to the safety of SDPP towards PEDV

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Spray-dried porcine plasma (SDPP) is used as a functional ingredient in weaning diets for piglets. In 2014, Canadian feed-related cases of Porcine Epidemic Diarrhea Virus (PEDV) prompted the need for a risk assessment of PEDV in SDPP. Infected pigs shed high amounts of infective virus in feces but PEDV RNA has also been detected in saliva and acute phase serum. Besides prevalence of infection in market-age pigs, the applied collection method may also affect PEDV load in raw abattoir blood. Still Heat-Alkalinity-Time (HAT) pasteurization, spray-drying and storage at low water activity effectively inactivate PEDV. We examined temperature dependency of non-specific antiviral effects of porcine plasma against PEDV. Dilutions of plasma in cell culture medium were mixed with PEDV strain CV777 and incubated at 4°C or 37°C. Residual infectivity was determined on Vero-Ba cells. Refrigerated plasma did not neutralize PEDV. Only in the presence of 90% plasma, PEDV was considerably sensitive to incubation at 37°C; where 105.65 PFU PEDV/ml was reduced to 100.68 PFU/ml in 2 hours. These *in vitro* data suggest that PEDV would not remain infectious for more than a few hours in the blood of live pigs. As abattoir blood is refrigerated upon collection, non-specific plasma components would not substantially neutralize PEDV derived from cross-contamination. Acute phase serum indeed did not transmit PEDV in a bioassay but virus-spiked refrigerated pig serum did. Present study demonstrates that plasma components contribute to the level of safety obtained through temperature-based wet processes in the production of SDPP.

Biography

Isabelle Kalmar holds a degree in Veterinary Medicine and in Laboratory Animal Sciences. She completed a PhD in Veterinary Medicine on the topic of nutrition and feeding behavior of pet birds and performed Postdoctoral studies in Immunology at Ghent University. She completed a second PhD in the field of Nutrition related metabolic diseases in broilers obtained at the Department of Animal Sciences of Wageningen University. She is the Senior Veterinary Scientist at VEOS group, a producer of animal-based food and feed ingredients with focus on plasma proteins. She has published over 30 papers in reputable journals.

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