Suitability of oral fluid for herd monitoring and generation of preharvest data in pig farms

Franziska Schott[1], Michael Haessig[2], Roger Stephan[3] Xaver Sidler[1]
[1] Department for Farm Aninals, Division of Swine Medicine, [2]Department for Farm Animals, Section of Herd Health, [3]Institute for Food Hygiene and Safety, Vetsuisse Faculty, Winterthurerstrasse 260, CH-8057 Zurich

Key words
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Aim of the study
The aim of this study were to determine if oral fluids obtained under field conditions are suitable for the detection of antibodies against Hepatitis E Virus (HEV), Salmonella spp. and *Toxoplasma* gondii and for the detection of Methicillin Resistant *Staphylococcus aureus* (MRSA) and *Yersinia enterocolitica* with regard to herd monitoring and generation of preharvest data in pig farms.

Material and methods
Oral fluid samples were collected from 135 pens in 33 Swiss pig farms by use of cotton ropes. Samples were taken at the beginning and end of one fattening period. Results were compared to blood samples from 1427 pigs, nasal swabs from 815 pigs and fecal samples from 135 pens. Oral fluids were tested for the occurrence of antibodies(IgG) against *Salmonella* spp. (pigtype® Salmonella Ab, QIAGEN Leipzig, Leipzig, Germany), HEV (PrioCHECK® HEV Ab porcine, Prionics, Schlieren, Switzerlandand), T. gondii (PrioCHECK® Toxoplasma Ab porcine, Prionics AG, Schlieren-Zurich, Switzerland) and for the occurrence of MRSA and Y. enterocolitica by culture methods.

Results and significance
For *Salmonella* spp. and T. gondii no positive results could be obtained in oral fluids so far although individual pigs were tested positive. For HEV results from oral fluid testing and from conventional samples were in agreement in 74.4% at the first sampling and in 55.1% at the second sampling. In 2 farms oral fluids tested positive although pigs were negative at all times which indicates that some form of cross reaction must have taken place. For Yersinia results were in agreement in 60.2% at the first sampling and in 72.6% at the second sampling and for MRSA results were in agreement in 92.7% at the first sampling and in 95.7% at the second sampling. These results indicate that oral fluid has the potential to be used as a screening tool for the detection of different swine pathogens, particularly for the detection of MRSA, but further studies are needed to realize the full potential of oral fluid testing, especially as results are in good agreement when pigs are tested negative, but not when individual pigs are tested positive. Several additional trials were performed to try to get more concordant results, this included increasing incubation time and temperature, different types of oral fluid storage, spiking of negative oral fluid with positive serum and concentration of oral fluid. All this trials were performed with regard to the amount of antibodies in oral fluid and the possibility to detect them.

Publications, posters and presentations

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