Research project IZS VE 11/12

Porcine Reproductive and Respiratory Syndrome virus (PRRSV) and Porcine Circovirus type 2 (PCV2) monitoring using oral fluids by serological and molecular methods

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In both humans and animals, antibodies and pathogens may be detected in oral fluids collected from infected individuals. The presence of antibody in the oral fluids was demonstrated as early as in 1909. Antibodies (IgM, IgA, and IgG) are produced locally in salivary glands and lymphoid tissue, but the primary source of antibodies in the oral fluid is the oral mucosal transudate. The use of oral fluids in human diagnostics has been extensively described in the literature. Recently, oral fluid-based diagnostics has been successfully proposed also in veterinary medicine, since a variety of infectious agents and pathogen-specific antibodies have been detected in oral fluids collected from different animal species.

In swine farms, Porcine Reproductive and Respiratory Syndrome virus (PRRSV), porcine circovirus type 2 (PCV2) cause significant economic losses. In part, the disease status quo is maintained by the lack of timely information on the circulation of these pathogens. At present, the health status of the herd is monitored by blood sera testing. However, blood collection is a labour-intensive procedure and can cause stress to animals. On the contrary, oral fluid sampling is easier and thus offers an interesting opportunity to collect herd-level disease data on a periodic basis. In this regard, both PRRSV and PCV2 have been detected in buccal samples. Moreover, under experimental conditions, oral-fluid samples from pigs inoculated with PRRSV were shown to contain diagnostic levels of virus.

This project aims to validate the use of oral fluids for the detection of PRRSV and PCV2 infections in pigs at different ages as well as to assess the value of oral-fluid diagnostics as a method of disease monitoring in weaning herds.