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ANIMAL HEALTH & VETERINARY

First study of pig saliva microbes reveals high variability

With further research, pig producers could test saliva for indicators of animal health, scientists say.

By — [Emma Penrod](#)

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Pig saliva could open a new window into [animal health](#) and dietary needs, according to the researchers behind a first-of-its-kind study characterizing the microbiota of saliva from weaned piglets.

Researchers at the University of São Paulo and The Pennsylvania State University opted to study the saliva of weaned piglets to fill a basic

scientific gap, said Vinicius Buiatte, lead author on the paper and a Ph.D. candidate at The Pennsylvania State University. Although samples of oral fluids are used to diagnose diseases, we don't really know what that microbial community normally looks like in healthy pigs, Buiatte said.

The study found significant differences in samples collected from five different farms, but noted the bacterial communities identified in oral fluids from piglets appear to be less diverse than those in fecal or environmental samples. The study also determined that bacterial communities in fecal samples were more likely to reflect the piglets' environment than the oral samples.

“That was very interesting because the fecal microbiota is very even between animals,” and typically reflects the environment, said Vera Letticie de Azevedo Ruiz, a professor of veterinary medicine at the University of São Paulo and also an author on the paper. “The mouth and saliva should have the composition of the environment, and we didn't find that. They are very different from the feces and that is very interesting.

The researchers specifically selected samples from weaned piglets, Buiatte said, because weaning typically induces a state of stress, and because the samples would reflect less influence from the mother sows.

Samples from all five farms contained *streptococcus* bacteria, and analysis of those samples suggest *streptococcus* plays a key role in the oral microbiome of piglets in spite of its potential to cause disease in pigs and humans, according to Ruiz.

“That's a very important pathogen, and it was quite surprising for us because almost all the piglets had that bacteria,” Ruiz said.

Veillonella and bacteria from the *Pasteurellaceae* family were also particularly abundant in the oral samples.

Veterinarians already use oral fluids to screen for viruses and antibodies, Ruiz said, but she and Buiatte believe these fluids could be used to screen for other indicators of health. However, Buiatte said there is still work to be done to be sure that veterinarians and animal producers can interpret these samples effectively. Ruiz said she is raising funds for additional research on the oral microbiome of pigs.

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