Identification of the causative agents for diarrhea in piglets from a Taiwanese pig farm

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Post-weaning diarrhea (PWD) of weaned piglets was found to frequently occur in a commercial pig farm in western Taiwan. The purpose of this study was to find and characterize the causative agents. From September 11, 2014 to February 11, 2015, 15 stool samples from healthy piglets and 58 rectal swab specimens from diarrheic piglets were collected from the pig farm, and 26 and 100 E. coli strains were isolated independently. These 126 strains were checked by PCR for genes of six virulence factors: heat-labile enterotoxin (LT; encoded by eltAB), heat-stable enterotoxin A (STa; encoded by estA), heat-stable enterotoxin B (STb; encoded by estB), enteroaggregative E. coli heat-stable enterotoxin 1 (EAST1; encoded by astA) and Shiga toxin 2e (Stx2e; encoded by stx2e), and F18 fimbriae (encoded by fedA); secretion of LT and ST were also examined by ELISA-based commercial kits. None of the 126 strains were carrying stx2e. Of the 26 strains recovered from healthy piglets, none carried fedA nor secreted LT, 23% (6/26) secreted ST, and 50% (13/26) carried astA. In contrast, of the 100 E. coli strains recovered from diarrheic piglets, 41% (41/100) carried fedA, of which 88% (36/41) secreted both LT and ST, but none carried astA. Thus, the main causative agent for PWD in this Taiwanese pig farm was identified to be the F18 fimbriae-positive, LT and ST secretion-positive enterotoxigenic E. coli, which were carrying fedA, eltAB, estA and estB, but not astA nor stx2e.

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