Control panels of meat juice samples for a Salmonella enzyme-linked immunosorbent assay - DTU Orbit (31/12/2018)

Control panels of meat juice samples for a Salmonella enzyme-linked immunosorbent assay

In the Danish pig production system, an indirect enzyme-linked immunosorbent assay (ELISA) for detection of antibodies in meat juice is used for Salmonella surveillance. Quality control (QC) of this ELISA was previously based on repeated testing of control serum samples. The purpose of the study reported here was to collect, characterize, and implement a panel of meat juice pools for supplemental internal QC. Muscle samples for extraction of meat juice were collected from slaughter pigs of 5 herds infected with Salmonella spp. and from 4 herds without Salmonella infection. A QC panel with 39 pools of meat juice, yielding ELISA optical density (OD) values covering the full range of expected OD values, was prepared and tested repeatedly to determine mean and SD OD values. Each pool was tested twice on each microtitration plate, and the results were used to determine limits for validity of future tests. This QC panel was included as an internal QC to be tested every month. Besides the QC panel, 2 panels containing 100 samples of meat juice with OD above the positive cut-off value and 100 samples with OD below that value were prepared for quarterly control of the diagnostic sensitivity (DSe) and the diagnostic specificity (DSP) of the ELISA. The inclusion of these panels in the QC system will provide information about drifts in DSe and DSP of the test. The procedures described here can be applied to other tests where meat juice samples are used for testing.

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