

**TITLE:** COMPARISON OF MEAT JUICE SEROLOGY AND BACTERIOLOGY FOR SURVEILLANCE OF *Salmonella* IN THE BRAZILIAN PORK PRODUCTION CHAIN

**AUTHORS:** VIANA, C.; SERENO, M.J.; BERSOT, L.S.; KICH, J.D.; NERO, L.A.

**INSTITUTION:** Universidade Federal de Viçosa, Avenida Peter Henry Rolfs, s/n – Campus UFV, Viçosa, MG, Brazil.

**ABSTRACT:**

This study assessed an ELISA based assay to detect *Salmonella* in swine as a potential tool to predict the presence of *Salmonella* in swine carcasses. Also, the research evaluated if meat juice can be used as an alternative to blood serum as a matrix for ELISA. The following samples were collected from ten batches of swine: blood (n = 100); environment (barn floor, n = 10, and lairage floor, n = 10); meat juice (n = 100, obtained after defrosting of diaphragm); tonsils (n = 100); mesenteric lymph nodes (n = 100); and carcasses after bleeding (n = 100), after singeing (n = 100), after evisceration (n = 100), and after final rinsing (n = 100). Blood and meat juice were subjected to ELISA to detect antibodies against *Salmonella*, and other samples were subjected to *Salmonella* detection by ISO 6579. *Salmonella* was detected in 3 samples from barn floors, 7 lairage floors, 45 tonsils, 43 mesenteric lymph nodes and in 3 carcasses. Based on ELISA, *Salmonella* positive samples were: 86 and 46 blood serum (20% and 40% cut-offs) and 68 and 46 meat juice (20% and 40% cut-offs). Optical density (OD) readings from blood serum and meat juice presented a high and significant correlation ( $r = 0.93$ ,  $P < 0.001$ ), and a substantial agreement for *Salmonella* detection ( $K = 0.69$ , ELISA 40% cut-off). ELISA

and microbiological detection presented an absence or poor agreement for *Salmonella* detection from different samples of the same pig carcass, with the exception of results obtained by ELISA 40% cut-off from blood serum and meat juice with mesenteric lymph nodes (K = 0.49 and 0.50, respectively) and tonsils (K = 0.29 and 0.30, respectively). Meat juice can be considered an alternative to blood serum as a matrix for ELISA in order to allow preliminary detection of *Salmonella* in mesenteric lymph nodes and tonsils, allowing the identification of potential sources of contamination during slaughtering.

**Keywords:** *Salmonella*; pig; ELISA; surveillance; conventional isolation

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