Comparison of different enrichment media for the isolation of Salmonella from naturally infected slaughter pigs

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Abstract

The present study aimed to assess the impact of different enrichment media, Rappaport-Vassiliadis (RV) broth, Rappaport-Vassiliades Soya (RVS) broth, Diagnostic semi-solid Salmonella (DIA) agar, Simple Method Salmonella (SMS) agar, Modified Semisolid Rappaport Vassiliadis (MSRV) agar and Mueller Kauffmann Tetrathionate novobiocin (MKTTn) broth, on the detection of Salmonella as well as on the isolated serotype and genotype. Up to 3 suspected colonies per medium were examined.

In total, duodenal contents of 458 slaughtered pigs were examined for the presence of Salmonella. In 14.8% (68/458), Salmonella was isolated by at least one of the used techniques. MSRV showed the highest detection rate (86.8%), followed by DIA and SMS (both 85.3%), RV (58.8%), RVS (54.4%) and MKTTn (50.0%). Of the 8 identified serotypes, S. Typhimurium (67.9%) was the predominant serotype, followed by S. Derby (17.3%). In the isolates of 9 pigs (13.6%) multiple serotypes were identified between (1 pig), within (4 pigs), and between and within (4 pigs) the different media used. Genotyping by pulsed field gel electrophoresis (PFGE) was performed on isolates of 38 from 60 pigs that were Salmonella positive on at least two enrichment media types. Within the same serotype, similar genotypes were found except for the isolates deriving from 3 pigs, showing different genotypes within the same medium. In isolates of 2 pigs, the PFGE fingerprint showed a difference in only one band, while in isolates of the last pig a total different genotype was identified.

The results show that testing multiple media and multiple colonies per medium increase the number of serotypes and genotypes found in the duodenal content. This may be important to consider in epidemiological studies.