Comparison of Six Culture Methods for Salmonella Isolation from Poultry Fecal Samples

Abstract

Background and Objective: Salmonellosis is one of the most important food-borne bacterial zoonotic diseases worldwide, and poultry and its products are the major sources for salmonella transmission to human. Isolation of Salmonella enterica from poultry needs bacteriologic enrichment and selected cultures of fecal samples. In this study, different culture methods for the isolation of salmonella from fecal samples were compared.

Material and Methods: Forty-five positive samples from infected farms and 45 negative samples from normal farms were processed using enrichment media including tetrathionate broth, selenite cistine and Rappaport-Vassiliadis. Then the samples were incubated in selective cultures, and after 24 h, their results were compared with standard method.

Results: Specificity of all methods for salmonella isolation was 100%, and salmonella was not isolated from the negative samples. The highest susceptibility was related to the method in which the sample first in Selenite cistine and later in Rappaport-Vassiliadis was enriched (100%). Enrichment in Rappaport-Vassiliadis could isolate 41 salmonella from 45 positive samples (91%) while the result of enrichment in tetrathionate was 6 isolates (13.3%).

Conclusion: This study shows that enrichment in selenite cistine and then in Rappaport-Vassiliadis is currently the best method for isolating salmonella from fecal samples of poultry.

Key words: Salmonella; Bacteriologic Culture; Diagnosis; Isolation; Enrichment; Poultry