Development of Biochemical Rapid Detection System and Analysis of Inactivation for Salmonella spp.

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We studied the development of a biochemical method for the rapid and simple detection of Salmonella and the direct analysis of inactivation for Salmonella after trisodium phosphate treatment in vitro and in vivo. LB medium was selected as a basic medium because no auto fluorescence was developed by MUCAP test. We developed a Salmonella detective modified LB medium using the H_2S-test technique to distinguish Salmonella. SDMLB also contains bile salt mixture and sodium citrate as inhibitors. In a mixed culture of Staphylo. aureus, E. coli, and Sal. enteritidis in SDMLB, Sal. enteritidis cells dominated regardless of the initial population. Among the MUCAP test results of 10 strains grown in SDMLB, Salmonella and Enterobacter showed blue fluorescence. But Salmonella was distinguished with Enterobacter by the H_2S test. And in vitro, after TSP treatment and fluorescent staining, we made direct inactivation analysis of Salmonella without plate counts using confocal microscopy(CLSM) and flow cytometry. Most of Salmonella cells were inactivated within 1 min. In vivo, we found that most of Salmonella cells attached on chicken skin were inactivated after TSP treatment for 5 min, using CLSM.