Molecular characterization of horseshoe crab anti-lipopolysaccharide factor C-peptide for hybridization-based detection method of gram negative bacteria.

ABSTRACT

Recent advances in molecular techniques have revolutionized the detection of microorganism. The development of a molecular-based technique for detection of the three different targets of Enterbacteriacae was undertaken. Primer and probe were designed based on specific pepted of novel hemolymph protein of horseshoe crabs (Factor C anti-LPS) Tachypleus tridentatus that is believed to be involved in the binds to the lipopolysaccharide of Escherichia coli, Salmonella and Vibrio cholerae. The aim of our study the exploit part of cell wall polysaccharide in the development of improved detection method based on molecular approaches. In the gene detection assay, Lipopolysaccharide gene of Salmonella, V. cholera and E. coil were hybridized to anti-LPS factor gene found in the biolysate of the marine animals. The wzm and wzt genes encoding O-polysaccharide genes were amplified in these pathogens and the LPS factor C were amplified from the marine lysate. Development of a PCR-based technique for detection of the food-borne pathogens particularly Sa Salmonella, V. cholera and E. coil were achieved. Thus rapid, sensitive and reliable techniques for the detection of food-borne pathogens developed.

Keyword: Gram negative bacteria; Lipopolysaccharide; Horseshoe crab; Factor C anti-LPS; Polymerase chain reaction; Sequencing and dot blot hybridization.