

Application of horseshoe crab-turbidity basis in the development of a sensitive detection assay for gram negative.

ABSTRACT

Quantitation assay of *Escherichia coli*, *Salmonell* sp. and *Vibrio cholerae* cells investigated by exploiting the component consistently present on the outer surface of Gram-negative bacteria. In this study, a simple marine biolysate-based method for simultaneous detection of the gram negative pathogenic bacteria based on lipopolysaccharide component was optimized. The detection technique focused on the surface of these bacterial species, which is covered by polysaccharides and has high affinity to marine biolysate. *E. coli*, *Salmonell* sp. and *V. cholerae* with similar initial cell count per mL have different but consistent absorbance readings by using the spectrophotometer and turbidity meter. This revealed that different genera of Gram Negative bacteria can be directly differentiated through standard curve that is plotted from the carbohydrate and marine biolysate assays absorbance readings. Both the assays elucidated a qualitative and quantitative detection of the pure culture pathogens.

Keyword: Lipopolysaccharide; Biolysate horseshoe crab; Turbidity assay; Carbohydrate assay; Food-borne bacteria; Absorbance