ABSTRACT

The external filament of *Salmonella typhimurium's* flagella is composed of several thousand copies of a single protein known as flagellin which is reported as a major antigen involves in causing enteric fever typhoid. In this study we analyzed whole proteome sequence of *Salmonella typhimurium* through reverse vaccinology (In-silico computer-aided technique). After analysis we discovered the flagellin as a potent trigger of innate as well as adaptive immune responses and because of its ability to generate high antibody titer as predicted by a bioinformatics tool C-Immsim, flagellin can also consider as an ideal candidate for development of a DNA vaccine against typhoid fever. The main aim of the present study was to develop a basis of DNA vaccine by expressing *fliC* gene which encodes flagellin known as strong antigen. The flagellin encoding, *fliC* gene of *Salmonella typhimurium* was amplified through PCR using gene specific primers and cloned into the cloning vector pJET1.2/blunt and successfully subcloned into expression vector pET22b(+). Confirmation of cloning and subcloning of the *fliC* gene were confirmed by performing colony PCR, followed by double restriction enzymes analysis and visualized by performing gel electrophoresis. The results of this study demonstrated that the *fliC* gene in recombinant plasmid pET22b(+)-*fliC* can successfully expressed in non-pathogenic eukaryotic *E. coli* BL21 cells and produce flagellin protein, which can use as successful potent antigen for development of DNA vaccine against *Salmonella typhimurium.*