ABSTRACT

The present study deals with gene cloning, expression, and then purification of a thermostable pectinase from *Anoxybacillus rupensis*. Pectinase gene was extracted from thermophilic bacteria and successfully cloned in cloning vector pTZ57R/T. The 1004bps gene was then transformed in *E. coli* DH5α cells. Double restriction was conducted with *Nde*I and *Hin*dIII enzymes to confirm the pectinase gene cloning in pTZ57R/T. For sub-cloning and expression, significant expression vector pET-21a (+) and expression host *E. coli* BL21 were used. Sequence analysis assured the nucleotide sequence of cloned pectinase gene and homology amongst various organisms was revealed by phylogenetic analysis. The partially purified pectinase enzyme showed 36 kDa molecular weight on SDS-PAGE. Further, Fast protein liquid chromatography (FPLC) was used for the purification purpose of pectinase enzyme from cell lysate. The partially purified pectinase enzyme exhibited total specific activity of 116.1 U/mg. Further characterization and optimization are required for enhancing the advantages of thermostable enzyme that can be used to carry out prospective biotechnological prospects.