Abstract

In this work, cloning purification and characterization of xylanase was carried out from *Clostridium clariflavum* DSM 19732 into *E. coli*. During the course of study, several procedures have been followed including amplification of xylanase gene using a pair of forward and reverse primers under optimized PCR parameters. The PCR product was double restricted with *Nde*I and *Hind*III and ligated with double restricted expression vector pET-21a (+) by using T4 DNA ligase. Competent cells of *E. coli* BL21 were transformed with the recombinant pET-21a (+) plasmid. The colony PCR was performed. Then the expression and molecular weight of cloned xylanase enzyme was estimated on SDS-PAGE that was ~75kDa. Effect of temperature, pH, metal ions, inhibitors and organic solvents was analyzed on xylanase enzyme in which it was observed that xylanase was stable in broad pH range from 4 to 9 and demonstrated maximum activity at 6.5 pH. Xylanase was observed as a thermostable enzyme and showed maximum activity at 70°C after 3 hours of incubation. While there was no remarkable change in the activity of enzyme when incubated with organic solvents, inhibitors, and metal ions. The xylanase showed 2.5 U/ml/min at pH of 6.5 when incubated at 70°C for 10 min.