ABSTRACT

Pullulanase is a potential candidate for bioremediation. It has found potential applications in medical, dental, pharmaceutical, food, baking, dishwashing, laundry and textile industry. Pullulanase acts on α-1,6 glycosidic bonds and produces maltotriose as a major end product. The recombinant *Klebsiella pneumoniae* IIB *Pullulanase E* shows similarity with *Klebsiella pneumoniae strain* 1864 *Pullulanase.* The pullulanase from *Klebsiella Pneumoniae* was amplified using *PulE* primers, cloned into *E. coli* with pJET1.2 as a cloning vector, expressed into BL21 with pET21a (+) as an expression vector, purified using $(NH_4)_2SO_4$ precipitation 60% and dialysis, CM-Sepharose fast flow, Sephadex G-150. Around ~1.5Kb was the size of the amplified product. 1.49kB was the confirmed size of the gene by gene sequencing and multiple alignment. The total protein content of the crude enzyme solution was 54mg whereas the total protein content of purified protein was 2.24mg with 420.98U total enzyme activity, specific activity of 187.93U/mg having purification factor of 2.87fold with 11.91% enzyme recovery. The optimum temperature for *PulE* was 45°C and it was stable up to 40°C. It has an optimum pH of 6.5 with pH stability ranging from 6-7.5. The enzyme is a demanding candidate for diverse potential industrial applications due to its compatible features.