



ABSTRACT

The worldwide use of chemical pesticides in agricultural fields cause serious health problems to human beings. Therefore, the use of biological agents to treat agricultural problems of pest damage is preferred over biochemical pesticides. This study was aimed to isolate chitin degrading strains from soil of different sites in Lahore and Karachi, Pakistan. Bacterial isolation was carried out on LB agar medium amended with chitin as a sole source of carbon. Total of 120 isolates were studied from which 76 were found to be chitinolytic bacterial strain. These selected bacteria were screened out and inoculated in chitin medium for production of chitinase enzyme. Out of 76 isolates, CCS-12 chitinolytic isolate was most active as compared to others. After 16S rDNA sequencing it was confirmed that the potent chitinolytic strain has 99% similarity with *Acinetobacter indicus* (NR_117784.1). High yield of enzyme was observed in 3ZYB modified medium (pH 7) amended with 1% (w/v) colloidal chitin that was inoculated with 1% (v/v) inoculum volume followed by incubating at 45°C temperature for 48 hours under agitation at 200 rpm. The chitinase production was enhanced up to 1.29 fold (4.42 U/mL/min) under submerged fermentation. The preliminary characterization of crude enzyme showed that chitinase from *Acinetobacter indicus* CCS-12 strain was fairly stable over a broad range of pH and temperature. With these features this enzyme can be used as a biocontrol agent, food additives, for the recycling of chitin wastes, and various other industrial processes.