

It is well-recognized that a multiple of bacterial species produce chitinases with the aim of breaking down environmental chitin ultimately balancing the nitrogen and carbon in the ecosystem. Bacterial chitinases have been studied and are becoming increasingly prominent due to their applications across various sectors such as agricultural, medicine and environmental. This study was aimed to isolate a chitinase producing bacteria from different soil samples of Lahore, Pakistan. Total 82 bacterial strains were isolated and screened. The screening results indicated that among the 82 bacterial strains, 48 were found to be active chitinase producers. Among all the isolated strains, SFM-22 strain showed highest enzyme activity. The 16S rDNA gene sequencing of SFM-22 showed 98.5% similarity with *Enterobacter roggenskampii*. The chitinase produced by SFM-22 was optimized using several fermentation parameters. Maximum chitinase activity was achieved in 2NB modified medium (pH 6.5) amended with 1% (w/v) colloidal chitin, inoculated with 1.5% (v/v) SFM-22 inoculum followed by incubation at 30 °C for 72 hours at 150 rpm. Further improvement in chitinase activity was achieved by introducing 1% (w/v) urea as organic nitrogen source and 1% (w/v) sucrose as the carbon source into the 2NB medium. The overall chitinase activity was enhanced up to 1.31 fold (4.52 U/mL/min) through submerged fermentation. The chitinase enzyme has the capacity to degrade chitin renders it valuable in environmental bioremediation, aiding in the breakdown of waste materials containing chitin. The chitinase produced can also be used as biocontrol agent, in food industries, biomedical field and several other sectors.