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## **Production and partial characterization of thermal and surfactant stable extracellular keratinase from *Bacillus pumilus* NM03 and its potential in dehairing**

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**A** *Bacillus pumilus* NM03 newly isolated, feather-degrading bacterial strain was investigated for its ability to produce keratinase on feather keratin. Maximum keratinase production was achieved at pH 8.5 and 37°C after 72h of incubation. Optimum inoculum concentration and age of inoculum was 4% and 24h respectively. Addition of soymeal at 0.5% and glucose at 0.1% concentration to the growth medium affects the activity by means of increase in keratinase secretion. Keratinase was found to be an alkaline, serine protease with pH and temperature optima of 10 and 70°C, respectively and 80-85% stability. A 2.35 fold increase in keratinolytic activity was observed after precipitation and dialysis. Three bands of molecular weight 91.4, 57, 22.1kDa were determined by Native PAGE. It was thiol activated with 7.5 and 9.5 fold enhancement of activity by 1mM DTT and β-mercaptoethanol, respectively. In addition, its activity was stimulated in the presence of various surfactants, and oxidizing agents where a nearly 81 and 43% enhancement was

observed in presence of Triton X 100 and H<sub>2</sub>O<sub>2</sub> respectively. The enzyme activity was significantly inhibited by FeCl<sub>3</sub> and partly inhibited by EDTA and 1, 10 phenanthroline, whereas, Na<sub>2</sub>SO<sub>3</sub> enhance the enzyme activity by 89% more. In addition, native chicken feather was completely degraded at 48h of incubation. The results obtained showed that isolated strain *Bacillus pumilus* NM03 could be used as a potential source for removal of proteinacious stains from cloths and removal of hairs from hide for leather industries.

### **Biography**

Neetu Manglani is an experienced Principal Scientist with a demonstrated history of working in the Intas Pharmaceuticals Industry. Skilled in biotechnology, clone and upstream process development, scale-up, tech transfer, Process characterization of therapeutic molecule, Regulatory dealing, Cell bank and LCM support towards global filing with knowledge of analytical technique.

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