**Abstract**

Studies on process and nutritional parameters for the production of extracellular alkaline protease employing Thermoactinomyces thalpophilus PEE 14 was carried out. Different initial pH, incubation temperatures and time and inoculum levels and their age were studied. Effects of different nutritional parameters, trace elements and metabolic inhibitors on protease production were also studied. The maximum enzyme activity was obtained with incubation temperature of 55ºC, initial pH of 10, incubation time of 24 h, level of inoculum 10 per cent and age of the inoculum 72 h. Results of nutritional and trace element parameters showed that pyridoxin, L-cysteine and sodium molybdate showed best vitamin, amino acid and trace elements, respectively. Silver nitrate, antibiotic framycitine and surfactant cetrimide showed strong inhibitory effect on protease production.