

ABSTRACT

Trichoderma viride was used for the biodegradation of poultry waste such as chicken feathers and production of crude keratinase enzyme using surface culture fermentation process. The effect of the concentration levels of organic and inorganic salts for the maximum keratinase production was studied. The results indicated that 2g /100ml of chicken feathers, 15g of sucrose, 30g of yeast extract, 1.5g of KH_2PO_4 , 0.01g of ZnSO_4 , and $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$, 0.1g $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, 0.3g of CaCl_2 , and 50ml of fermentation volume were the optimized conditions to get the maximum production of keratinase enzyme and maximum bio-reduction of chicken keratinous waste. Sucrose and yeast extract were best source of carbon and nitrogen respectively.

Variuos process parameters were optimized such as the effect of temperature, pH and incubation time of fermentation medium were examined. It was found that 40°C, pH, 7.00 and 20 days of incubation period were suitable for the maximum production of keratinase enzyme.