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Efficacy of crude and immobilised enzymes from *Bacillus licheniformis* for production of biodegraded feather meal and their assessment on chickens

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Abstract

Keratinase enzymes are a special type of protease that has a bio-degradative potential for degrading keratin-containing substrates by the enzymes they produced during bioprocessing. The study was carried out to investigate the effect of microbial degraded feather meal on broiler chickens. The strain was previously isolated from a feather dumping site. The effects of crude and immobilised enzyme-degraded feather meal were investigated on growth performance, haematology and intestinal histology of broiler chickens. Maximum activity of the keratinolytic enzyme was at 45^{o}C, the maximum bio-degradative potential at 48 h of fermentation, while the pH 7 exhibited the maximum keratinolytic activity. The values obtained for feed conversion ratio for birds on feather meal were statistically similar to the value obtained for those on the control diet. The microbial biodegradation of feather wastes could be a better approach to overcome high feed cost and environmental pollution arising from solid waste disposal.

Keywords: *Bacillus licheniformis;* biotechnology; feather wastes, food security

1. *Introduction*

Poultry meat forms a major part of human diet most especially protein around the globe with a consumption rate of 14 kg person per year. The poultry feather wastes constitute a major part of the agricultural solid wastes generated after processing and utilization of the viscera. Therefore, management of poultry feather wastes has been a major problem over the years,