ABSTRACT

Tan, Steven Ryan Susanto (11320110008)

IDENTIFICATION AND EVALUATION OF PHYTASE PRODUCED BY BACTERIA Bacillus SP. FROM UNIVERSITAS PELITA HARAPAN CULTURE COLLECTION

( xiv + 78 pages: 6 figures; 5 tables; 9 appendixes)

Phytate in animal feedstuffs are not subjected to be digested by monogastrics, so the incorporation of phytase is needed to maximize feeding efficiency. Although a vast diversity of phytase-producing microorganisms resides in Indonesia, the demand for phytase fullfilment for livestock is still much dependent on other countries. The research aim is to evaluate the ability of Bacillus sp. from Universitas Pelita Harapan culture collection to produce phytase, using qualitative and quantitative tests as well as further characterization of the phytase produced, by observing the effect of temperature and pH against the enzyme activity, and identifying the molecular weight of the enzyme. From the results of this research, it is known that B. amyloliquefaciens, B. methylotrophicus and B. subtilis are able to produce phytase.

Further characterization is performed in the phytase produced by B. amyloliquefaciens N1. B amyloliquefaciens N1 phytase activity is relatively stable at temperatures 30 to 60 °C and at pH 4 to 8. Protein separation of crude enzyme extract using SDS-PAGE shows protein expression that is induced by phytate in synthetic minimal medium, and can be predicted as phytase with molecular weight 41 kDa or 44,5 kDa.

Keywords: identification, evaluation, phytase, Bacillus sp.