EFFECT OF pH AND TEMPERATURE OF INCUBATION ON ALKALINE PHOSPHATASE ACTIVITY IN DIFFERENT TEXTURED SOILS

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ABSTRACT

Enzymes are proteinic catalysts that promote the rate of reaction by reducing the energy of activation without itself altered by the ensuring reaction. Alkaline phosphatase (orthophosphoric monoester phosphohydrolase EC3.1.3.1) hydrolyses phosphomonoester bonds. The maximum alkaline phosphatase activity was observed at 40 °C in all the three different textured soils used in this study. The maximum activities at 40 °C for silty clay, sandy loam and sandy clay loam soils were 365.56, 331.80 and 273.00 µg p-nitrophenol g^{-1} soil h^{-1}, respectively. The activities were significantly and positively correlated with the temperature of incubation. The pH of buffer at which maximum activities were observed was 11. The activities at pH 11 were 493.21, 448.23 and 440.49 µg p-nitrophenol g^{-1} soil h^{-1} for silty clay, sandy loam and sandy clay loam soils, respectively with the coefficients of correlation (r) 0.56, 0.89 and 0.93, respectively.

Keywords: Alkaline Phosphatase, pH, temperature