

ISOLATION OF GEOBIOLOGICALLY IMPORTANT ENZYMES FROM THERMOPHILES

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Introduction: Thermophiles & their bio-molecules have always played some critical roles in the history of ancient earth ecology & environment. Considering the above facts, studies were carried out on isolation of thermophilic bacteria and their bio-molecule, especially enzymes of astrobiological importance from the soils of different parts of Yobe State, Nigeria. These bacteria showed a temperature range of 40°C - 80°C for their growth. All the thermophilic bacteria isolated from the above mentioned state of Nigeria showed good results for acid and alkaline phosphatase enzyme production & some with amylases. Phosphatases and amylases are some important enzymes utilized in geobiological research. Acid and alkaline phosphatase activity was observed in all soil samples during the experiment. Soil samples collected from Damaturu area of Yobe State showed the best result with respect to acid and alkaline phosphatase production. The acid phosphatase and alkaline phosphatase activity was $10.4 \times 10^{-5} \mu \text{mol PNP sec}^{-1} \text{g}^{-1}$ and $9.35 \times 10^{-5} \mu \text{mol PNP sec}^{-1} \text{g}^{-1}$ respectively for Damaturu soil samples. Further studies are going on characterization of mentioned enzymes and subjecting them to geobiological studies regarding detection of ancient earth ecology & environment of West Africa.

Key words: Thermophilic bacteria, Yobe State, Damaturu, Acid phosphatase, Alkaline phosphatase, Amylases.