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Q001

CHARACTERIZATION OF POLYHYDROXYALKANOATE (PHA) PRODUCED USING MANGO SEED KERNEL AS CARBON SOURCE.

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The enormous benefits of plastics to man cannot be over emphasized; however, the impact of its wastes in the environment is quite alarming. This has triggered the current research interest in polyhydroxyalkanoate (PHA), a biodegradable polymer. This study exploited polyhydroxyalkanoate (PHA) production using mango seed kernel as carbon source for maize rhizosphere-isolated Bacillus megaterium. PHA produced was extracted with chloroform and analyzed using Gas Chromatography-Mass Spectroscopy (GC-MS).The result of the GC-MS revealed nine biodegradable PHA compounds accounting for 7.79% of total unsaturated and 56.47% of total saturated hydrocarbons. The major saturated PHA compounds present were 4, 12, 12-trimethyl (27.67%) and Octadecane (19.70%).Unsaturated PHA components such as Hexadecenoic acid (1.19%) and Octadecanoic acid (2.66%) were also present in minute quantities. Thermo gravimetric analysis (TGA) revealed 279.95°C and 224.77°C as initial thermal decomposition temperatures; 401.15°C and 317.12°C as maximum thermal decomposition temperature for Polyhydroxyalkanoate extract and glucose (control) respectively. The result of this study shows that PHA extracted from mango seed kernel has thermal stability advantage over that of glucose-extracted PHA.

Key words: *Polyhydroxyalkanoate, Polyhydroxybutyrate, GC-MS, TGA, Bacillus megaterium.*

Q002

PRODUCTION OF AMYLASE AND KERATINASE FROM FUNGI ISOLATED FROM WASTE DUMP SITE IN BOSSO MINNA, NIGERIA.

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The production of amylase and keratinase by *Aspergillus niger* isolated from waste dumpsite soil in Bosso, Minna, Niger state, Nigeria was examined. The Optimum temperature for the enzyme activity of amylase produced by *Aspergillus niger* was 50°C with a concentration of 3.5mg/ml/sec and 45°C and a concentration of 6.5mg/ml/sec for keratinase. Results showed that *Aspergillus niger* exhibited the highest enzyme activity on the 4th day with a concentration of 4.2mg/ml/sec for amylase. The keratinase enzyme produced by *Aspergillus niger* degraded the feathers on the 15th day of incubation with a concentration of 5.9mg/ml/sec. The optimum pH for the enzyme activity of amylase produced by *Aspergillus niger* was at pH 5 with a concentration of 4.2mg/ml/sec. Whereas, that of keratinase was at pH 9 with a concentration of 6.4mg/ml/sec. Alkaline conditions are more prevalent in keratinolysis due to the high level of deamination involved. These results suggest potential biotechnological applications of *Aspergillus niger* in the production of amylase and keratinase.

Keywords: Amylase, keratinase, Keratinolysis, *Aspergillus niger,*

Q003

PARTIAL ISOLATION OF CYSTEINE PROTEASE FROM *PLASMODIUM BERGHEI* AND THE EVALUATION OF THE ENZYME'S PREFERENCE FOR PROTEIN SUBSTRATES

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This work was designed to reevaluate the success of two strategies for possible release and subsequent purification of soluble cysteine protease from *Plasmodium berghei.* Parasite isolates were prepared from the blood of 25 infected mice at high parasitemia (~ 24-29%) using saponin treatment, 0.1% (w/v). Release of the crude soluble enzyme from the parasite isolates obtained using freezing and thawing and Triton-X100 treatments methods were compared. Enzyme assay revealed higher enzyme activity in Triton-X100 fractions