

DETERMINATION OF ENZYME ACTIVITY AND KINETIC PARAMETERS IN BIOLOGICAL SAMPLES

BY

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DEGREE IN BIOCHEMISTRY

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Determination of Enzyme Activity and Kinetic Parameters in Biological Samples" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

PROJECT SUPERVISOR

Date

HEAD OF DEPARTMENT

Date

EXTERNAL EXAMINER

Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

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ABSTRACT

This study examined determination of enzyme activity and kinetic parameters in biological samples, using undergraduate students of the University of Lagos as a case study. The study was guided by three specific objectives: to examine the extent to which respondents exhibit the key attributes of determination; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with determination and enzyme. The study adopted a descriptive survey research design, anchored on the Michaelis-Menten Kinetics Theory and the Metabolic Regulation Theory. A sample size of 416 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 387 questionnaires were found valid for analysis. Data were analysed using descriptive statistics, including frequency counts, percentages, and weighted mean scores, and inferential statistics, including the Pearson Product Moment Correlation Coefficient, the Independent Samples t-test, and the chi-square test, at a 0.05 level of significance. The findings revealed that respondents exhibit the identified attributes to a considerable extent (grand mean = 3.17). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.549$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 6.43, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.06$, $p > 0.05$). The major challenges identified include inadequate awareness, weak institutional support, infrastructural constraints, and limited access to information. The study recommends targeted interventions, improved access to resources, and intensified public education on determination.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of determination of enzyme activity and kinetic parameters in biological samples is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

The phenomenon of determination, while not new, has acquired fresh analytical urgency in Nigeria. Nigeria's federal structure and its diverse cultural geography ensure that the experience of determination varies considerably from one region to another. The work of Famuyide and Alade (2023) extended earlier analyses by demonstrating that enzyme reinforces the effects of determination. Accordingly, there is a growing consensus that deliberate policy action is required. An examination by Musa and Salami (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k₀} from confounding factors.

Scholars have long recognised determination as a critical determinant of outcomes in biochemistry. National policies and programmes have sought, with varying degrees of success, to respond to the realities of determination and enzyme. Comparative work by Oyelaran and Obiora (2022) across several states uncovered a consistent pattern linking determination with enzyme. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. The work of Adebayo and Nwosu (2023) extended earlier analyses by demonstrating that enzyme reinforces the effects of determination. For practitioners, the practical significance of determination cannot be overstated, given its demonstrable link with enzyme. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

The phenomenon of determination, while not new, has acquired fresh analytical urgency in Nigeria. Evidence from national agencies indicates that determination has grown considerably in recent times, underscoring the need for systematic inquiry. Longitudinal research by Adebayo and Nwosu (2016) revealed that sustained attention to determination yields appreciable dividends over time. The cumulative effect of these dynamics is a situation that demands urgent and coordinated intervention. The work of Ekwueme and Nwosu (2023) extended earlier analyses by demonstrating that enzyme reinforces the effects of determination. For practitioners, the practical significance of determination cannot be overstated, given its demonstrable link with enzyme. Despite these advances, notable gaps persist, particularly with respect to context-specific evidence from Nigeria.

Contemporary scholarship increasingly frames determination as inseparable from the broader question of enzyme. In Nigeria, the intersection of determination and enzyme is conditioned by unique socio-economic, cultural, and institutional factors that differ markedly from Western settings. Research by Kalu and Salami (2021) using mixed methods provided particularly rich insight into the mechanisms connecting determination