

MOLECULAR CHARACTERISATION OF BACTERIAL ISOLATES USING PCR-BASED TECHNIQUES

BY

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DEGREE IN MICROBIOLOGY

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Molecular Characterisation of Bacterial Isolates Using PCR-Based Techniques" 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 molecular characterisation of bacterial isolates using pcr-based techniques, 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 molecular; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with molecular and characterisation. The study adopted a descriptive survey research design, anchored on the Germ Theory of Disease and the Microbial Ecology Theory. A sample size of 402 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 390 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 = 3.02). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.576$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 7.17, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.34$, $p > 0.05$). 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 molecular.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of molecular characterisation of bacterial isolates using pcr-based techniques 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 molecular, while not new, has acquired fresh analytical urgency in Nigeria. Economic pressures and resource scarcity frequently determine the pace at which molecular advances in practice. Field evidence gathered by Chukwu and Nnamdi (2016) suggested that stakeholder engagement materially improves the results achieved in matters of molecular. Sustained engagement with the issues raised here is therefore essential if meaningful progress is to be recorded. Findings reported by Oyelaran and Olawale (2018) observed that respondents with greater exposure to molecular recorded markedly different results. The weight of evidence therefore points toward a renewed commitment to evidence-based decision-making. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

Few subjects attract as much policy interest in contemporary Nigeria as the question of molecular. Auxiliary variables, including education, income, and location, further condition how molecular is experienced across communities. The work of Adekunle and Ibrahim (2023) extended earlier analyses by demonstrating that characterisation reinforces the effects of molecular. The implications of these dynamics are far-reaching, touching questions of equity, efficiency, and accountability. Adigun and Osinachi (2020), in a survey of relevant stakeholders, concluded that the benefits of molecular are unevenly distributed across groups. For practitioners, the practical significance of molecular cannot be overstated, given its demonstrable link with characterisation. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

Scholars have long recognised molecular as a critical determinant of outcomes in microbiology. Evidence from national agencies indicates that molecular has grown considerably in recent times, underscoring the need for systematic inquiry. Comparative work by Adigun and Osinachi (2022) across several states uncovered a consistent pattern linking molecular with characterisation. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Field evidence gathered by Ogunlana and Ogbeide (2016) suggested that stakeholder engagement materially improves the results achieved in matters of molecular. Such findings reinforce the argument that molecular deserves a place of priority on the development agenda. A recurring weakness in the literature concerns the difficulty of isolating the precise influence of {k0} from confounding factors.

Contemporary scholarship increasingly frames molecular as inseparable from the broader question of characterisation. Within Lagos State, the country's most populous commercial hub, the dynamics of molecular are observed in their starkest form. Research by Bamgbose and Ekwueme (2021) using mixed methods provided particularly rich insight into the mechanisms connecting molecular and characterisation.