ISSN: 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-50669 Date: 17-03-2025

Title: Evaluation of antagonistic activity of Chromobacterium violaceum isolated from the paddy fields of Edathua, Kerala

Recommendation:
Accept as it is……**YES……**
Accept after minor revision……
Accept after major revision ……
Do not accept (*Reasons below*) ……

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

Reviewer's Name: Mir Tanveer

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)
.

Reviewer's Comment / Report

Abstract: The study effectively presents an in-depth investigation into the isolation, identification, and antagonistic screening of rhizosphere bacteria from the rice-growing regions of Edathua, Kerala. The research highlights the significance of Chromobacterium violaceum, a species not commonly found in the paddy field rhizosphere, demonstrating its potential as a biocontrol agent. The methodology, including isolation on Kings B Agar and Nutrient Agar, Gram staining for pigmentation analysis, and 16S rDNA sequencing for identification, is well-structured and provides a clear understanding of the research process. The study also establishes the organism's ability to produce non-volatile antimicrobial compounds, effectively inhibiting Fusarium sp., a known plant pathogen. The findings contribute valuable knowledge to sustainable agriculture and eco-friendly disease management in rice cultivation.

Introduction: The introduction offers a comprehensive background on the role of agriculture in India, particularly in Kerala's rice production. The statistical data on the agricultural workforce and the significance of rice cultivation in Edathua provide context to the study's relevance. The discussion on rhizosphere microorganisms and their influence on plant health is well-articulated. The introduction effectively emphasizes the importance of Plant Growth-Promoting Rhizobacteria (PGPR) in enhancing plant health through disease suppression, nutrient solubilization, and antimicrobial activity. The literature

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

references support the rationale behind studying rhizosphere bacteria, and the research premise is logically structured.

Need for the Study: The justification for the study is well-founded, highlighting the challenges posed by soil-borne pathogens in rice production. The section effectively underscores the increasing threats to paddy cultivation due to pathogenic microorganisms and the need for eco-friendly biocontrol solutions. The mention of biological control as a sustainable alternative to chemical pesticides aligns with current agricultural trends. The study's focus on indigenous microbial strains with strong antagonistic properties is a timely and relevant approach to integrated disease management. The discussion on the role of rhizosphere microorganisms in pathogen suppression strengthens the study's practical significance.

Methodology: The methodological approach, including bacterial isolation from rhizosphere soil, use of differential media, morphological and molecular identification techniques, and antagonistic screening through the dual culture method, is well-defined. The application of 16S rDNA sequencing for accurate species identification enhances the study's reliability. The use of Kings B Agar and Nutrient Agar for isolation is appropriate, given the need for pigment production assessment. The dual culture method for antagonistic screening is a widely accepted technique, further reinforcing the validity of the study's findings.

Results and Discussion: The study successfully confirms the presence of Chromobacterium violaceum in the paddy field rhizosphere and demonstrates its antagonistic potential against Fusarium sp. The findings suggest that the isolate produces antimicrobial compounds capable of inhibiting plant pathogens, contributing to the growing body of research on PGPR. The discussion contextualizes the findings within existing literature, strengthening the study's scientific relevance. The potential of Chromobacterium violaceum as a natural biocontrol agent is an important discovery with implications for sustainable rice farming.

Conclusion: The conclusion succinctly summarizes the research findings and their significance in sustainable agriculture. The study's contribution to identifying an indigenous microbial strain with antagonistic properties supports its applicability in biological control strategies. The emphasis on eco-friendly disease management aligns with global efforts to reduce chemical pesticide use.

Final Remarks: The study presents a well-structured and scientifically sound investigation into the role of Chromobacterium violaceum in plant pathogen suppression. The methodology, findings, and discussion are clearly presented, and the study contributes valuable insights into sustainable agriculture. The research is relevant, timely, and methodologically rigorous, making it a significant addition to the field of microbial biocontrol in rice cultivation.