Home (http://ipindia.nic.in/index.htm) About Us (http://ipindia.nic.in/about-us.htm) Who's Who (http://ipindia.nic.in/whos-who-page.htm) Policy & Programs (http://ipindia.nic.in/policy-pages.htm) Achievements (http://ipindia.nic.in/achievements-page.htm) RTI (http://ipindia.nic.in/right-to-information.htm) Feedback (https://ipindiaonline.gov.in/feedback) Sitemap (shttp://ipindia.nic.in/itemap.htm) Contact Us (http://ipindia.nic.in/contact-us.htm) Help Line (http://ipindia.nic.in/helpline-page.htm)







Skip to Main Content

(http://ipindia.nic.in/index.htm) PATENTS | DESIGNS | TRADE / GEOGRAPHICAL INDICATIO

Patent Search					
Invention Title	EXPLORING THE MICROBIAL RESISTANCE TO TITANIUM OXIDE NANOPARTICLES				
Publication Number	16/2024				
Publication Date	19/04/2024				
Publication Type	INA				
Application Number	202441030062				
Application Filing Date	14/04/2024				
Priority Number					
Priority Country					
Priority Date					
Field Of Invention	BIOTECHNOLOGY				
Classification (IPC)	C12Q0001180000, A61K0009510000, A61P0031040000, A61P0031000000, A61K0033240000				
Inventor					
Name	Address	Country	Nationality		
Dr. K. A. Emmanuel	Professor in Chemistry, Department of Chemistry, Y.V.N.R Government Degree College, Kaikaluru, Andhra Pradesh, India, Pincode: 521333	India	India		
Dr. K. Manikandan	Professor in Chemistry, Department of Chemistry, Velalar College of Engineering and Technology (Autonomous), Thindal Post, Erode, Tamilnadu, India, Pincode: 638012	India	India		
Dr. Thirugnanasundar	Assistant Professor, Department of Chemistry, Erode Arts and Science College, (Autonomous), Erode, Tamilnadu, India, Pincode:638009	India	India		
Dr. M. Sridharan	Assistant Professor in Chemistry, Department of Chemistry, Velalar College of Engineering and Technology (Autonomous), Thindal Post, Erode, Tamilnadu, India, Pincode: 638012	India	India		
Dr. S. Devaraj	Assistant Professor, Department of Aeronautical Engineering, Institute of Aeronautical Engineering, Hyderabad, Telangana, India, 500043	India	India		
Dr. Kishore Gudipudi	Assistant Professor, Department of Biosciences and Biotechnology, University College of Arts and Science, Krishna University, Machilipatnam, Andhra Pradesh, India, Pincode: 521004	India	India		
Dr. Amaresh Chandra Pradhan	Associate Professor in Chemistry, Department of Basic Science and Humanities, Gandhi Institute of Excellent Technocrats, Ghangapatana, Bhubaneswar, Odisha, India, Pincode: 752054	India	India		
Dr. G. Nageswara Rao	Assistant Professor, Department of Chemistry, Telangana University, Dichpally, Nizamabad, Telangana, India, Pincode: 503322	India	India		
Dr. K. Manimekalai	Associate Professor, Department of Physics, St.Joseph's Institute of Technology, Chennai, Tamilnadu, India, Pincode: 600119	India	India		
Dr. V. Sandhya	Lecturer, Department of Zoology, YVNR Government Degree College, Kaikaluru, Andhra Pradesh, India, Pincode: 521333	India	India		
Dr. M. Esakkiammal	Assistant Professor, Department of Chemistry, National College (Autonomous), Tiruchirapalli, Tamilnadu, India, Pincode: 620001	India	India		
Applicant					

Name	Address	Country	Nationality
Dr. K. A. Emmanuel	Professor in Chemistry, Department of Chemistry, Y.V.N.R Government Degree College, Kaikaluru, Andhra Pradesh, India, Pincode: 521333	India	India
Dr. K. Manikandan	Professor in Chemistry, Department of Chemistry, Velalar College of Engineering and Technology (Autonomous), Thindal Post, Erode, Tamilnadu, India, Pincode: 638012	India	India
Dr. Thirugnanasundar	Assistant Professor, Department of Chemistry, Erode Arts and Science College, (Autonomous), Erode, Tamilnadu, India, Pincode:638009	India	India
Dr. M. Sridharan	Assistant Professor in Chemistry, Department of Chemistry, Velalar College of Engineering and Technology (Autonomous), Thindal Post, Erode, Tamilnadu, India, Pincode: 638012	India	India
Dr. S. Devaraj	Assistant Professor, Department of Aeronautical Engineering, Institute of Aeronautical Engineering, Hyderabad, Telangana, India, 500043	India	India
Dr. Kishore Gudipudi	Assistant Professor, Department of Biosciences and Biotechnology, University College of Arts and Science, Krishna University, Machilipatnam, Andhra Pradesh, India, Pincode: 521004	India	India
Dr. Amaresh Chandra Pradhan	Associate Professor in Chemistry, Department of Basic Science and Humanities, Gandhi Institute of Excellent Technocrats, Ghangapatana, Bhubaneswar, Odisha, India, Pincode: 752054	India	India
Dr. G. Nageswara Rao	Assistant Professor, Department of Chemistry, Telangana University, Dichpally, Nizamabad, Telangana, India, Pincode: 503322	India	India
Dr. K. Manimekalai	Associate Professor, Department of Physics, St.Joseph's Institute of Technology, Chennai, Tamilnadu, India, Pincode: 600119	India	India
Dr. V. Sandhya	Lecturer, Department of Zoology, YVNR Government Degree College, Kaikaluru, Andhra Pradesh, India, Pincode: 521333	India	India
Dr. M. Esakkiammal	Assistant Professor, Department of Chemistry, National College (Autonomous), Tiruchirapalli, Tamilnadu, India, Pincode: 620001	India	India

Abstract:

The proposed invention presents a comprehensive exploration of microbial resistance mechanisms to titanium oxide nanoparticles (TiO2 NPs) and endeavors to enhance the efficacy of TiO2 NPs as antimicrobial agents. Utilizing advanced genomics, proteomics, and nanotechnology, this innovative approach seeks to elucidate the molecular pathways underlying microbial resistance at the nanoscale. Environmental modulation of pH, temperature, and organic matter content is investigated to optimize TiO2 NP antimicrobial activity. Novel formulations of TiO2 NPs with tailored physicochemical properties are developed to improve stability and effectiveness across diverse applications. Targeted delivery systems are designed to minimize cytotoxicity and off-target effects, while ecosystem impact assessments guide sustainable antimicrobial intervention development. Screening methods for identifying microbial susceptibility and resistance inform selection of optimal candidates for therapy and surveillance. Real-time monitoring systems track resistance dynamics, guiding adaptive strategies. Automated high-throughput screening platforms accelerate nanoparticle formulation discovery. A centralized database facilitates collaboration and knowledge exchange in antimicrobial research. This invention promises transformative solutions for combatting microbial infections and advancing nanoparticle-based therapies.

Complete Specification

Description:The proposed system delves into the realm of microbiology and nanotechnology, focusing on the intricate interplay between microbial organisms and titanium oxide nanoparticles. This innovative field of invention seeks to understand the mechanisms underlying microbial resistance to these nanoparticles, offering insights crucial for biomedical, environmental, and industrial applications. By scrutinizing microbial responses at the nanoscale, the system aims to unlock strategies for enhancing the efficacy of titanium oxide nanoparticles as antimicrobial agents. Through interdisciplinary approaches merging microbiology, materials science, and nanotechnology, it endeavors to uncover novel pathways for combating microbial resistance and advancing the development of next-generation antimicrobial technologies. This pioneering endeavor holds promise for revolutionizing diverse sectors, from healthcare to water purification, by harnessing the power of nanomaterials in combating microbial threats.

Background of the proposed invention:

In the modern era, the proliferation of microbial infections poses a significant threat to human health, food security, and environmental sustainability. Despite the advancements in medical science and technology, microbial resistance to conventional antibiotics and antimicrobial agents continues to escalate, leading to grave consequences such as treatment failures, increased mortality rates, and economic burdens. In response to this pressing global challenge, scientists and researchers have been tirelessly exploring novel approaches to combat microbial infections and mitigate the emergence of resistance. One such avenue of investigation lies at the intersection of microbiology and nanotechnology, where the remarkable properties of nanoparticles offer unprecedented opportunities for developing innovative antimicrobial strategies. Among these nanoparticles, titanium oxide (TiQ2) has garnered considerable attention due to its inherent

View Application Status



Terms & conditions (http://ipindia.gov.in/terms-conditions.htm) Privacy Policy (http://ipindia.gov.in/privacy-policy.htm) Copyright (http://ipindia.gov.in/copyright.htm) Hyperlinking Policy (http://ipindia.gov.in/hyperlinking-policy.htm) Accessibility (http://ipindia.gov.in/accessibility.htm) Archive (http://ipindia.gov.in/archive.htm) Contact Us (http://ipindia.gov.in/contact-us.htm) Help (http://ipindia.gov.in/help.htm)

Content Owned, updated and maintained by Intellectual Property India, All Rights Reserved.

Page last updated on: 26/06/2019