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Patent Search

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Inventor

Name	Address	Country
Dr. M.S.N.A. Prasad	Assistant Professor, Department of Chemistry, Institute of Aeronautical Engineering (IARE), Dundigal, Hyderabad, Telangana, India, Pincode: 500043	India
Dr. Bipin Kumar Srivastava	Associate Professor, Department of Applied Sciences, Galgotias College of Engineering & Technology, Greater Noida, Uttar Pradesh, India, Pincode: 201310	India
Dr. SK. Fakruddin Babavali	Assistant Professor, Department of Physics, V.R. Siddhartha Engineering College, Vijayawada, Andhra Pradesh, India, Pincode: 520007	India
Dr. Aakash Singh	Assistant Professor, Department of Applied Sciences and Humanities, Institute of Engineering and Technology, Dr. Shakuntala Misra National Rehabilitation University, Lucknow, Uttar Pradesh, India, Pincode: 226017	India
Dr. Mayuri R Joshi	Associate Professor, Department of Chemistry, Maharashtra College of Arts Science and Commerce, Mumbai, Maharashtra, India, Pincode: 400008	India
Dr. S. Cynthia	Assistant Professor, Department of Physics, Loyola College, Chennai, Tamilnadu, India, Pincode: 600034	India
Dr. Nellore Manoj Kumar	Independent Researcher, Founder & CEO, Infinite Research, 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pincode: 524132	India
Dr. S. Dastagiri	Academic Consultant, Department of Physics, Sri Krishnadevaraya University, Ananthapuramu, Andhra Pradesh, India, Pincode: 515003	India
Dr. U. Nagababu	Assistant Professor, Department of Chemistry, S.R.K.R. Engineering College, Bhimavaram, Andhra Pradesh, India, Pincode: 534204	India
Dr. B. Radhakrishna	Associate Professor, Department of S & H (Physics), N.B.K.R. Institute of Science & Technology, Vidyanagar, Andhra Pradesh, India, Pincode: 524413	India

Applicant

Name	Address	Country
Dr. M.S.N.A. Prasad	Assistant Professor, Department of Chemistry, Institute of Aeronautical Engineering (IARE), Dundigal, Hyderabad, Telangana, India, Pincode: 500043	India
Dr. Bipin Kumar Srivastava	Associate Professor, Department of Applied Sciences, Galgotias College of Engineering & Technology, Greater Noida, Uttar Pradesh, India, Pincode: 201310	India
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Dr. Mayuri R Joshi	Associate Professor, Department of Chemistry, Maharashtra College of Arts Science and Commerce, Mumbai, Maharashtra, India, Pincode: 400008	India
Dr. S. Cynthia	Assistant Professor, Department of Physics, Loyola College, Chennai, Tamilnadu, India, Pincode: 600034	India
Dr. Nellore Manoj Kumar	Independent Researcher, Founder & CEO, Infinite Research, 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pincode: 524132	India
Dr. S. Dastagiri	Academic Consultant, Department of Physics, Sri Krishnadevaraya University, Ananthapuramu, Andhra Pradesh, India, Pincode: 515003	India
Dr. U. Nagababu	Assistant Professor, Department of Chemistry, S.R.K.R. Engineering College, Bhimavaram, Andhra Pradesh, India, Pincode: 534204	India
Dr. B. Radhakrishna	Associate Professor, Department of S & H (Physics), N.B.K.R. Institute of Science & Technology, Vidyanagar, Andhra Pradesh, India, Pincode: 524413	India

Abstract:

The present invention provides a composition of green nanomaterials synthesized using sustainable and renewable energy sources. The green nanomaterials are synthesized using plant extracts as reducing agents and green solvents, and the primary energy source for the process is solar energy. The green nanomaterials are stable, reproducible, and can be tailored for specific applications through functionalization with various molecules. The invention has several embodiments for various applications, including environmental, and energy.

Complete Specification

Description:The present invention pertains to the field of nanotechnology and green chemistry. More specifically, the invention relates to the synthesis of green nanomaterials using sustainable and renewable energy sources.

Background of the invention:

Nanotechnology has become an important area of research in recent years, with applications in fields such as biomedicine, electronics, energy, and environmental remediation. Nanomaterials, in particular, have gained significant attention due to their unique physicochemical properties, which differ from their bulk counterparts. Nanomaterials are typically defined as materials with at least one dimension in the nanoscale range (less than 100 nanometers), and they exhibit properties such as large surface area, unique surface chemistry, and enhanced catalytic activity.

The synthesis of nanomaterials typically involves a variety of methods, such as chemical reduction, sol-gel synthesis, and hydrothermal synthesis. However, these methods often require the use of hazardous chemicals, high temperatures, and high energy consumption, which can result in significant environmental impacts. Therefore, there is a need for more sustainable and environmentally-friendly methods for synthesizing nanomaterials.

Green chemistry has emerged as a promising approach to address these issues. Green chemistry seeks to minimize the environmental impact of chemical processes by using non-toxic and eco-friendly starting materials, reducing or eliminating the use of hazardous chemicals, and minimizing waste. Green chemistry has been applied to the synthesis of nanomaterials, resulting in the development of green nanomaterials with unique properties.

The present invention builds on the principles of green chemistry and seeks to provide a method for synthesizing green nanomaterials using sustainable and renewable energy sources.

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