Rayat Shikshan Sanstha's

Rajarshi Chhatrapati Shahu College, Kolhapur.

PATENT 2024-25

Sr. No.	Teacher Name	Patent Details	Remarks
1	1) Dr. Umesh Suresh Shelke 2) Prof. (Dr.) Pravina Baburao Piste 3) Dr. Shakil Dilawar Shaikh 4) Dr. Anisa Shakil Shaikh 5) Mr. Kishor Sheshrao Shelki	Application No.202421090426 A Publication Date : 13/12/2024 Silver-Bismuth Nanoparticle-Embedded Andrographolide System With Integrated Computing Technology For Precision Cancer Therapy And Enhanced Drug Delivery	**Indian Patent Published**
2	1) Prof. (Dr.) Pravina Baburao Piste 2) Dr. Umesh Suresh Shelke 3) Dr. Shakil Dilawar Shaikh 4) Mr. Shubham Dilip Shedge	Application No.202441102048 A Publication Date : 10/01/2025 Smart Waste Ml-Driven Classification For Efficient Organic And Non-Organic Management	**Indian Patent Published**
3	1)Ram ashish shrivastava,2) Preeti gajghate, 3) Umesh suresh shelke, 4) Mukund dhanaji Kadam, 5) Amit kumar pande, 6) Shubham kuriyal, 7) Shakil dilawar shaikh, 8) Prabhakaran C,9) S muthurajan,10) Sureshkumar M, 11) B Kavitha, 12) Sourabh Sanjay Doshi	Application Number: 202521001647A Publication Date :07/03/2025 Method and system for mitigating air pollution and its impact on Climate	**Indian Patent Published**

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :08/01/2025

(21) Application No.202521001647 A

(43) Publication Date : 07/03/2025

(54) Title of the invention : METHOD AND SYSTEM FOR MITIGATING AIR POLLUTION AND ITS IMPACT ON CLIMATE CHANGE

(51) International classification	:B01D0053620000, G01N0033000000, C25B0001040000, B01D0053840000, B60H0001000000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)Name of Applicant :
 1)Dr Ram Ashish Shrivastava
  Address of Applicant :Assistant Professor, Department of the Law, Govind Sarang Govt Law College, Bhatapara, Chhattisgarh- 493118, India. ――――― ―――――
 2)Dr Preeti Gajghate
 3)Dr Umesh Suresh Shelke
 4)Dr Mukund Dhanaji Kadam
 5)Amit Kumar Pandey
 6)Shubham Kuriyal
 7)Dr Shakil Dilawar Shaikh
 8)Prabakaran C
 9)S Muthurajan
 10)Suresh Kumar M
 11)Dr B. Kavitha
 12)Dr Saurabh Sanjay Joshi
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
 1)Dr Ram Ashish Shrivastava
Address of Applicant :Assistant Professor, Department of the Law, Govind Sarang Govt Law College, Bhatapara, Chhattisgarh- 493118, India. ――――― ―――――
 2)Dr Preeti Gajghate
Address of Applicant :Assistant Professor, Civil Engineering, JSPM's Rajarshi Shahu College of Engineering, Pune- 411033, Maharashtra, India. ――――― ―――――
 3)Dr Umesh Suresh Shelke
Address of Applicant :Associate Professor, Department of Chemistry, Rajarshi Chhatrapati Shahu College, Kolhapur- 416003, Maharashtra, India. ――――― ―――――
 4)Dr Mukund Dhanaji Kadam
Address of Applicant :Assistant Professor, Geography, Rajarshi Chhatrapati Shahu College, Kadamwadi Road, Kolhapur, Maharashtra, India. ――――― ―――――
 5)Amit Kumar Pandey
Address of Applicant :Assistant Professor, Cum Junior Scientist, Soil Science and Agricultural Chemistry, Mandan Bharti Agriculture College, Agwanpur, Saharsa- 852302, Bihar, India. ――――― ―――――
 6)Shubham Kuriyal
Address of Applicant :M.Sc.Final Semester Chemistry, Department of Chemistry, Doon University, Dehradun- 248001, Uttarakhand, India. ――――― ―――――
 7)Dr Shakil Dilawar Shaikh
Address of Applicant :Department of Botany, Associate Professor, Rajarashi Chhatrapati Shahu College, Kolhapur- 146003, Maharashtra, India. ――――― ―――――
 8)Prabakaran C
Address of Applicant :Assistant Professor (Environmental Sciences), ICAR-KVK, Tamilnadu Agricultural University, Needamangalam- 614404, Thiruvarur , Tamilnadu, India. ――――― ―――――
 9)S Muthurajan
Address of Applicant :Assistant Professor, Department of Electrical and Electronics Engineering, Agni College of Technology, Thalambur, Chennai- 600130, Tamilnadu, India. ――――― ―――――
 10)Suresh Kumar M
Address of Applicant :Associate Professor, Information Technology, Sri Ranganathar College of Engineering and Technology, Coimbatore- 641110, Tamilnadu, India. ――――― ―――――
 11)Dr B. Kavitha
Address of Applicant :Professor, Chemistry Department, Sri Ranganathar Institute of Engineering and Technology, Athipalayam, Coimbatore- 641110, Tamilnadu, India. ――――― ―――――
 12)Dr Saurabh Sanjay Joshi
Address of Applicant :Head and Associate Professor, Civil and Environmental Engineering Department, KIT's College of Engineering (Autonomous), Kolhapur- 416234, Maharashtra, India. ――――― ―――――

(57) Abstract :
METHOD AND SYSTEM FOR MITIGATING AIR POLLUTION AND ITS IMPACT ON CLIMATE CHANGE A Method and System for Mitigating Air Pollution and Its Impact on Climate Change, which provides an integrated, scalable, and efficient solution to address air quality and global warming challenges. The system combines advanced pollutant capture technologies, such as metal-organic frameworks (MOFs) and graphene-based filters, with carbon sequestration methods, including bioengineering solutions like algae-based systems for CO_2 absorption and utilization. It integrates IoT-enabled sensors and AI-driven algorithms for real-time monitoring and dynamic optimization of emissions across industrial, transportation, and urban sectors. The system also promotes renewable energy adoption and smart urban infrastructure to reduce reliance on fossil fuels and improve resource efficiency. Designed for adaptability and cost-effectiveness, it ensures applicability in diverse environmental and economic contexts, including resource-constrained regions.

No. of Pages : 13 No. of Claims : 1

PATENT APPLICATION PUBLICATION

(19) INDIA

(21) Application No.202421090426 A

(22) Date of filing of Application :21/11/2024

(43) Publication Date : 13/12/2024

(54) Title of the invention : SILVER-BISMUTH NANOPARTICLE-EMBEDDED ANDROGRAPHOLIDE SYSTEM WITH INTEGRATED COMPUTING TECHNOLOGY FOR PRECISION CANCER THERAPY AND ENHANCED DRUG DELIVERY

(51) International classification : B82Y30/00, B82Y40/00, A61K33/38, A61K33/245, A61K9/70	(71)Name of Applicant : 1)Dr. Umesh Suresh Shelke Address of Applicant :Associate Professor in Chemistry, Department of Chemistry, Rajarshi Chhatrapati Shahu College, Kadamwadi Road, Kolhapur -416003, Maharashtra, India. ——— ——— 2)Prof. (Dr.) Pravina Baburao Piste 3)Dr. Shakil Dilawar Shaikh 4)Dr. Anisa Shakil Shaikh 5)Mr. Kishor Sheshrao Shelki Name of Applicant : NA Address of Applicant : NA

(86) International Application No :NA
    Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to :NA
Application Number :NA
    Filing Date
(62) Divisional to Application :NA
Number :NA
    Filing Date
	(72)Name of Inventor :
	1)Dr. Umesh Suresh Shelke
	Address of Applicant :Associate Professor in Chemistry, Department of Chemistry, Rajarshi Chhatrapati Shahu College, Kadamwadi Road, Kolhapur -416003, Maharashtra, India. ——— ———
	2)Prof. (Dr.) Pravina Baburao Piste
	Address of Applicant :Professor in Chemistry, Department of Chemistry, Rajarshi Chhatrapati Shahu College, Kadamwadi Road, Kolhapur -416003, Maharashtra, India. ——— ———
	3)Dr. Shakil Dilawar Shaikh
	Address of Applicant :Assistant Professor in Botany, Department of Botany, Rajarshi Chhatrapati Shahu College, Kadamwadi Road, Kolhapur -416003, Maharashtra, India. ——— ———
	4)Dr. Anisa Shakil Shaikh
	Address of Applicant :Assistant Professor in Botany, Department of Botany, Sadguru Gadage Maharaj College, Karad, Dist. Satara-415124, Maharashtra, India. ——— ———
	5)Mr. Kishor Sheshrao Shelki
	Address of Applicant :Assistant Professor in Chemistry, Department of Chemistry, Mahatma Jyotiba Fule Commerce, Science and V.R. Art's College Bhatkuli Dist. Amravati. - 444601, Maharashtra, India. ——— ———

(57) Abstract :
The invention discloses a Silver-Bismuth nanoparticle-embedded Andrographolide system integrated with advanced computational technologies for precision cancer therapy and enhanced drug delivery. The system comprises biocompatible SilverBismuth nanoparticles synthesized via green chemistry, embedded within an Andrographolide matrix to achieve synergistic anticancer effects. The nanoparticles generate reactive oxygen species (ROS) and enable targeted therapy, while the Andrographolide matrix ensures controlled and sustained drug release. Biosensors integrated into the system monitor tumor microenvironment parameters in real time, including pH levels, oxygen saturation, and biomarkers. These sensors communicate with an AI-powered computational platform that analyzes patient-specific data and dynamically adjusts drug release patterns. The platform employs machine learning algorithms to recommend personalized treatment protocols, optimizing therapeutic efficacy while minimizing side effects. This invention provides a sustainable, precise, and adaptive approach to cancer treatment, with applications across various cancer types.

No. of Pages : 18 No. of Claims : 9

(54) Title of the invention : SMART WASTE ML-DRIVEN CLASSIFICATION FOR EFFICIENT ORGANIC AND NON-ORGANIC MANAGEMENT

(51) International classification	:G06N0020000000, G06Q0010300000, G06T0007000000, G06N0003044000, B65F0001140000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)Name of Applicant :
  1)Dr. Pravina Baburao Piste Professor, Dept. of Chemistry, RCSC
    Address of Applicant :Rajarshi Chhatrapati Shahu College, Kolhapur, Vichare Mal, Kadamwadi Road, Sadar bazar, Kolhapur -416003 India. ---------- ----------
  2)Dr. Umesh Suresh Shelke Associate Professor, Dept. of Chemistry, RCSC
  3)Dr. Shakil Dilawar Shaikh Asst. Professor, Dept. of Botany, RCSC
  4)Mr. Shubham Dilip Shedge Asst. Professor, Dept. of Mathematics, RCSC
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
  1)Dr. Pravina Baburao Piste Professor, Dept. of Chemistry, RCSC
Address of Applicant :Rajarshi Chhatrapati Shahu College, Kolhapur, Vichare Mal, Kadamwadi Road, Sadar bazar, Kolhapur -416003 India. --------- -------
  2)Dr. Umesh Suresh Shelke Associate Professor, Dept. of Chemistry, RCSC
Address of Applicant :Rajarshi Chhatrapati Shahu College, Kolhapur, Vichare Mal, Kadamwadi Road, Sadar bazar, Kolhapur -416003 India. --------- -------
  3)Dr. Shakil Dilawar Shaikh Asst. Professor, Dept. of Botany, RCSC
Address of Applicant :Rajarshi Chhatrapati Shahu College, Kolhapur, Vichare Mal, Kadamwadi Road, Sadar bazar, Kolhapur -416003 India. --------- ----------
  4)Mr. Shubham Dilip Shedge Asst. Professor, Dept. of Mathematics, RCSC
Address of Applicant :Rajarshi Chhatrapati Shahu College, Kolhapur, Vichare Mal, Kadamwadi Road, Sadar bazar, Kolhapur -416003 India. --------- ----------

(57) Abstract :
This invention introduces a machine learning (ML)-driven waste classification system that efficiently distinguishes between organic and non-organic waste materials to improve waste management processes. Leveraging a combination of sensors, cameras, and a deep learning model trained on extensive datasets, the system analyses waste items in real time, achieving high accuracy in classification. Waste materials are transported through the system on a conveyor where sensors, including infrared and spectral imaging, capture data on each item's composition and physical attributes. This data is then processed by the ML model, which has been trained to recognize patterns unique to organic and non-organic materials. The classification results direct each item to its respective bin or processing line, allowing organic waste to be channelled for composting and non-organic waste for recycling or disposal. By employing adaptive learning, the system continually improves its accuracy by adjusting to any changes in waste types and composition, making it suitable for diverse and variable environments. A feedback loop is incorporated, allowing the system to log misclassifications and adjust its algorithms for future processing, thus maintaining a high standard of sorting precision over time. Additionally, the modular nature of the system makes it compatible with both large, centralized facilities and smaller, decentralized setups, enabling localized waste sorting and reducing transportation requirements. This reduces carbon emissions associated with waste transport, supporting a more sustainable, circular economy model. The ML-driven system not only reduces manual labour and associated costs but also improves the purity of waste streams, enhancing the quality of recyclable and compostable outputs. This innovation represents a significant advancement in waste management technology, promoting environmental sustainability by increasing recycling rates, reducing landfill use, and lowering contamination in organic waste streams.

No. of Pages : 11 No. of Claims : 5