2025

NAAC A++

DEPARTMENT OF CHEMISTRY
Chaudhary Charan Singh University
Meerut-250004

60 Years of Legacy

DR. NAZIA TARANNUM

INNOVATIONS

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Phone Number : +91 97606 75360

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT, UTTAR PRASEH, INDIA, 250004
PRODUCT CODE: INSTANT ADHESIVE

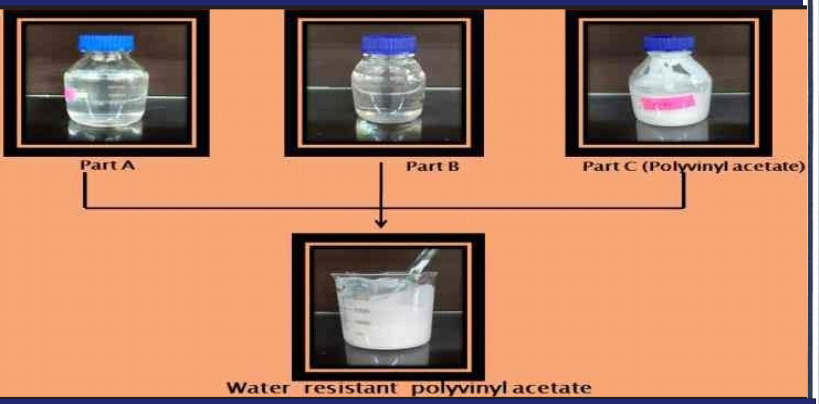
NAAC A++

ABOUT

- Instant adhesive enhance the excellent water resistance property of the low cost commercial polyvinyl acetate .
- It is a instant mix water proof adhesive which provide the water resistant property to polyvinyl acetate specially made for the furniture industry, wood industry, plies industry, construction industry etc.
- Cross linking polymer technology

PATENT NO: 3376739
PATENT APPLICATION NO: 201911007/21
PATENT PUBLISHED: 04/09/2020
PATENT GRANTED: 08/09/2021
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTORS: NAZIA TARANNUM, RIZWAN KHAN

SYNTHESIS PROTOCOL



TECHNICAL SPECIFICATIONS

- Good storage stability and shelf life.
- Potential water resistant property.
- Non toxic and non hazardous formulation.
- Good tensile shear strength.
- Appearance transparent liquid
- Two component type packaging

pH Value Range: 2.96-3.7
Viscosity in cPoise Range: 1.36-1.45 cp

NEED OF INVENTION

- Enhance water Resistance Property
- Improve Water Retention
- Enhances Durability
- Improves Mechanical Strength

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 Of The Patents Rules)

क्रमांक : 011138365
SL No :

पेटेंट सं. / Patent No.	:	376739
आवेदन सं. / Application No.	:	201911007321
फाइल करने की तारीख / Date of Filing	:	25/02/2019
पेटेंटी / Patentee	:	CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित AN INSTANT MIX WATER RESISTANT ADHESIVE AND A METHOD TO PREPARE THE SAME नामक आविष्कार के लिए, पेटेंट अधिनियम, १९७० के उपबंधों के अनुसार आज तारीख 25th day of February 2019 से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled AN INSTANT MIX WATER RESISTANT ADHESIVE AND A METHOD TO PREPARE THE SAME as disclosed in the above mentioned application for the term of 20 years from the 25th day of February 2019 in accordance with the provisions of the Patents Act,1970.

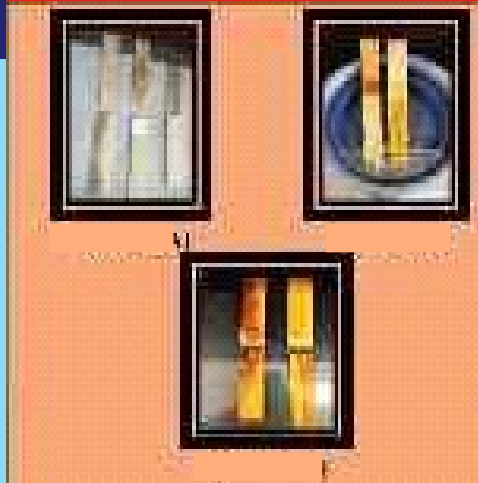
THE PATENT OFFICE GOVT OF INDIA

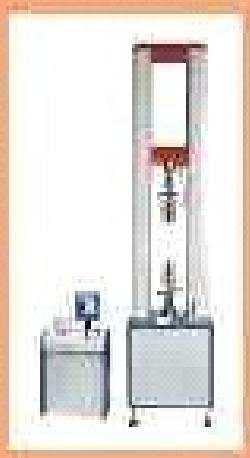
अनुदान की तारीख : 08/09/2021
Date of Grant :

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, **25th day of February 2021** को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।
Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 25th day of February 2021 and on the same day in every year thereafter.

WOODEN SAMPLE PREPARATION





UTM MACHINE

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT,UTTAR PRASEH, INDIA, 250004
PRODUCT CODE: MULTICOMPONENT POLYMERIC ANTI-TERMITE FORMULATION

NAAC A++

PATENT NO: 434315
PATENT APPLICATION NO: 202211035908
PATENT PUBLISHED: 02/09/2022
PATENT GRANTED: 09/06/2023
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTORS: NAZIA TARANNUM, KM. POOJA

NEED OF INVENTION

- Improves Water Retention
- Non- Toxic
- Non volatile
- Enhances Durability
- Improves Mechanical Strength
- Decorative effect
- Reduces Shrinkage and Cracking
- Enhances Chemical Resistance
- Facilitates Eco-friendly Construction

TECHNICAL SPECIFICATION

- Potential Anti termite formulation.
- Good Storage stability and shelf life.
- Potential water resistant property.
- Non- volatile and free from nauseous smell.
- Non toxic and non hazardous formulation.


INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

सत्यमेव जयते

पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र | (पेटेंट नियम का नियम 74)

The Patent Office, Government Of India
Patent Certificate (Rule 74 of The Patents Rules)

कम सं/SL No :011162033

पेटेंट सं. / Patent No.	:	434315
आवेदन सं. / Application No.	:	202211035908
फाइल करने की तारीख / Date of Filing	:	22/06/2022
पेटेंटी / Patentee	:	Chaudhary Charan Singh University, Meerut
आविष्कारकों का नाम /Name of Inventor(s)	:	1.Nazia Tarannum 2.Km. Pooja

एतद्वारा प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित *A MULTICOMPONENT POLYMERIC ANTI-TERMITE FORMULATION AND A METHOD TO PREPARE THE SAM* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख जून 2022 के बाईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *A MULTICOMPONENT POLYMERIC ANTI-TERMITE FORMULATION AND A METHOD TO PREPARE THE SAM* as disclosed in the above mentioned application for the term of 20 years from the 22nd day of June 2022 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 09/06/2023
Date of Grant :

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, जून 2024 के बाईसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।
Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 22nd day of June 2024 and on the same day in every year thereafter.

ABOUT

- Low Toxicity
- Environment Friendly Anti-Termite formulation has been developed using co-polymers of Higher acrylates, styrene-Methacrylic Acid and Polyvinyl Alcohol with added cross-linkers.
- It offers water Resistance, long self life, minimal odor or volatility and is suitable for moisture prone, termite affected areas like wooden surfaces, hospitals and play schools.

APPLICATIONS

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT,UTTAR PRASEH, INDIA, 250004
PRODUCT CODE: REDISPERSIBLE POWDER (RDP)

NAAC A++

TECHNICAL SPECIFICATIONS

- Good Storage stability and shelf life
- Very good redispersible property.
- Potential hydrophobic property.
- Easy to prepare.
- Eco-friendly

PATENT NO: 483499
PATENT APPLICATION NO: 202211057744
PATENT PUBLISHED: 21/10/2022
PATENT GRANTED: 15/12/2023
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTORS: NAZIA TARANNUM, KM. POOJA

ABOUT

- A hydrophobic redispersible polymer powder was developed using acrylate monomers via emulsion polymerization and spray drying.
- The process is simple, non-toxic, solvent-free, and yields a free- flowing, cement-compatible powder with good shelf life, ideal for moisture- prone construction applications.

NEED OF INVENTION

- Improves Adhesion
- Increases Flexibility
- Redispersible in cold water
- Improves Water Retention
- Enhances Durability
- Improves Mechanical Strength
- Reduces Shrinkage and Cracking
- Enhances Chemical Resistance
- Improves Cohesion
- Facilitates Eco-friendly Construction

INTELLECTUAL PROPERTY INDIA
पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र | (पेटेंट नियमावली का नियम 74)
The Patent Office, Government Of India
Patent Certificate
(Rule 74 of The Patents Rules)

क्रम सं/SL No :011185278

पेटेंट सं. / Patent No.	:	483499
आवेदन सं. / Application No.	:	202211057744
फाइल करने की तारीख / Date of Filing	:	10/10/2022
पेटेंटी / Patentee	:	Chaudhary Charan Singh University, Meerut
आविष्कारकों का नाम /Name of Inventor(s)	:	1.Nazia Tarannum 2.Km. Pooja

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *A METHOD OF PREPARING HYDROPHOBIC REDISPERSIBLE POLYMER POWDER AND PRODUCT THEREOF* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख अक्टूबर 2022 के दसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *A METHOD OF PREPARING HYDROPHOBIC REDISPERSIBLE POLYMER POWDER AND PRODUCT THEREOF* as disclosed in the above mentioned application for the term of 20 years from the 10th day of October 2022 in accordance with the provisions of the Patents Act,1970.

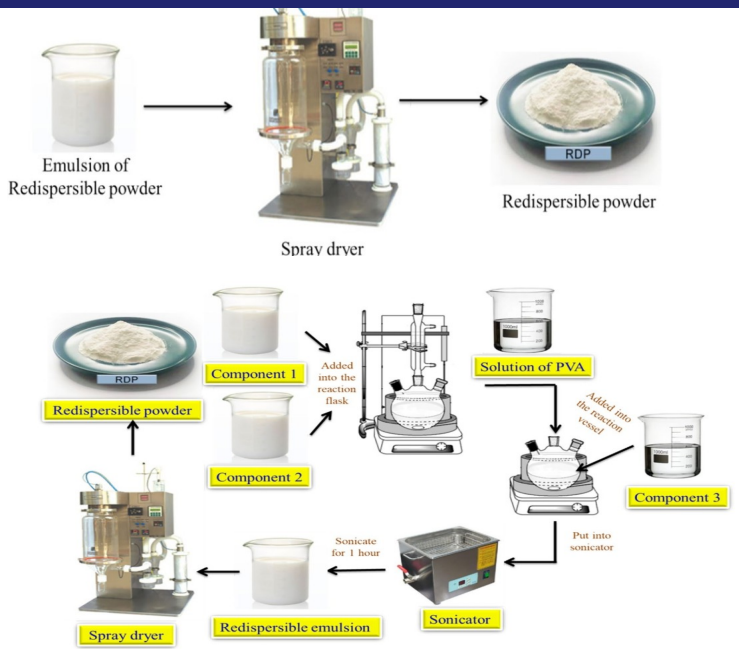
अनुदान की तारीख / Date of Grant : 15/12/2023

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, अक्टूबर 2024 के दसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 10th day of October 2024 and on the same day in every year thereafter.

SYNTHESIS PROTOCOL



CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT,UTTAR PRASEH, INDIA, 250004

NAAC A++

PRODUCT CODE: PAPER BASED BIOMARKER IMPRINTED SENSOR

ABOUT

Paper based biomarker sensor for specific sensing of ovarian cancer biomarker comprising modified paper encapsulated with silver nanoparticles exhibiting surface plasmon resonance for lysophosphatidic acid target biomarker.

PATENT NUMBER : 555560
PATENT APPLICATION NO: 2023 1065961
PATENT PUBLISHED: 24/01/2023
PATENT GRANTED: 29/11/2024
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTORS: NAZIA TARANNUM, DEEPAK KUMAR, AKANKSHA YADAV, ANIL YADAV

INTELLECTUAL PROPERTY INDIA

पेटेंट कार्यालय, भारत सरकार
पेटेंट प्रमाण पत्र
(पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate
(Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	555560
आवेदन सं. / Application No.	:	202311065961
फाइल करने की तारीख / Date of Filing	:	30/09/2023
पेटेंटी / Patentee	:	Chaudhary Charan Singh University, Meerut
आविष्कारकों का नाम /Name of Inventor(s)	:	1.Nazia Tarannum 2.Deepak Kumar 3.Akanksha Yadav 4.Anil Kumar Yadav

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *PAPER BASED BIOMARKER IMPRINTED SENSOR TO DETECT OVARIAN CANCER SPECIFIC BIOMARKER, POCT DEVICE AND FABRICATION PROCESS THEREOF* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख सितम्बर 2023 के तीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

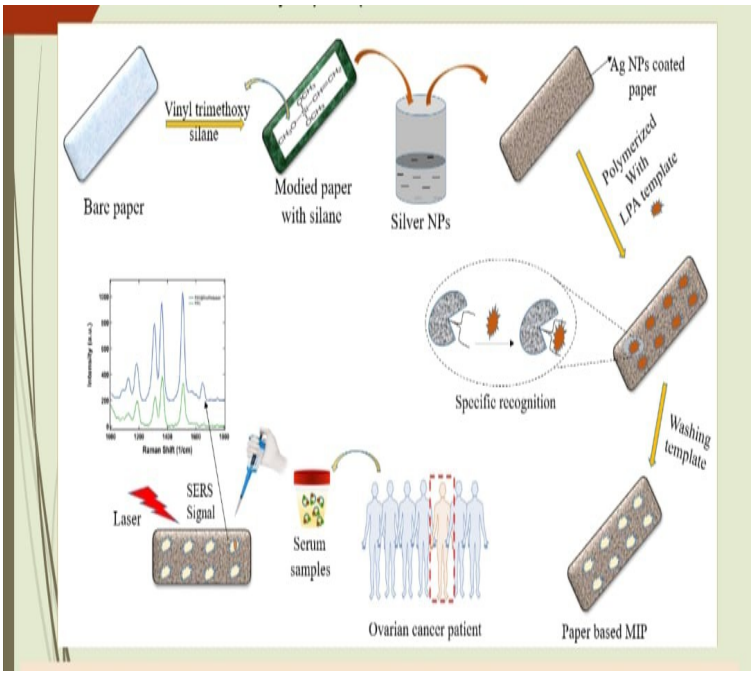
It is hereby certified that a patent has been granted to the patentee for an invention entitled *PAPER BASED BIOMARKER IMPRINTED SENSOR TO DETECT OVARIAN CANCER SPECIFIC BIOMARKER, POCT DEVICE AND FABRICATION PROCESS THEREOF* as disclosed in the above mentioned application for the term of 20 years from the 30th day of September 2023 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख / Date of Grant : 29/11/2024

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, सितम्बर 2025 के तीसवें दिन को और उसके पश्चात प्रत्येक वर्ष के उसी दिन देय होगी।
Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 30th day of September 2025 and on the same day in every year thereafter.

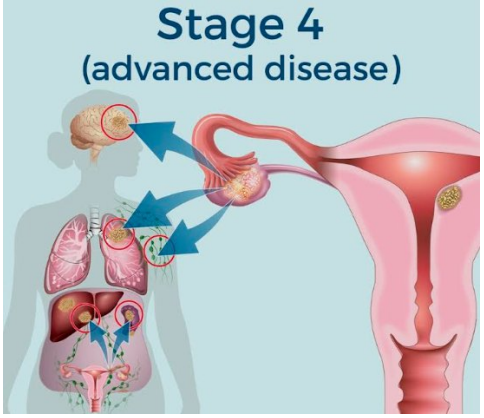
SYNTHESIS PROTOCOL



NEED OF INVENTION

- A highly specific and sensitive paper based biomarker detector.
- Early stage, facile, rapid and painless POCT diagnosis of ovarian cancer.
- Limit of detection of biomarker sensor is $8.5 * 10^{-6}$ M/L
- User friendly, cost effective, facile, reusable, highly sensitive and selective.

APPLICATION DETECTION OF OVARIAN CANCER



CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT,UTTAR PRASEH, INDIA, 250004
PRODUCT CODE: HYDROPHOBIC AND THERMO-RESISTANT POLYMERIC LAMINATION COATING FORMULATION

NAAC A++

PATENT APPLICATION NO: 202411075600

PATENT PUBLISHED: 18/10/2024

PATENT GRANTED: 12/09/2025

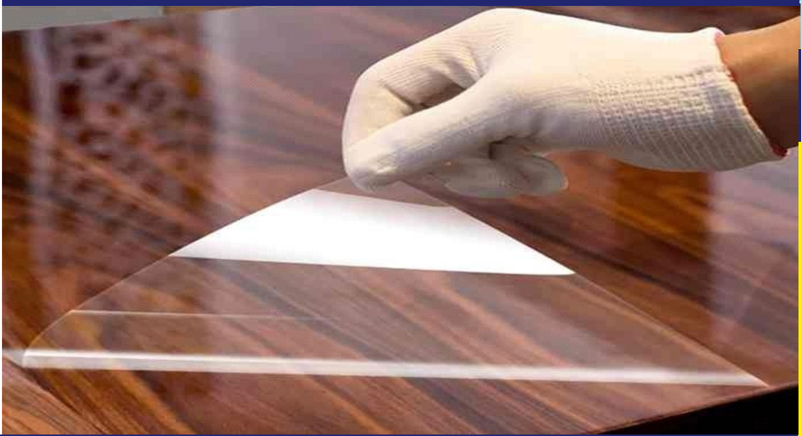
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT

INVENTORS: NAZIA TARANNUM, KM. POOJA

ABOUT

- This invention offers a hydrophobic, **thermo**-resistant polymeric lamination coating for wood/timber that is low in toxicity and volatility.
- It forms a durable, waterproof layer, lasts 2-3 years, and is ideal for furniture, wood, ply, and construction industries.

SYNTHESIS PROTOCOL



NEED OF INVENTION

- Improves Adhesive Performance
- Enhances Moisture Resistance
- Provides Flexibility and Crack Resistance
- Improves Durability
- Enhances Processing Properties
- Supports Eco-friendly Formulations
- Increases Thermal and Chemical Resistance
- Enhances Cost Efficiency

TECHNICAL SPECIFICATION

- Good Storage stability and shelf life.
- Moisture Resistance
- Flexibility and Crack Resistance
- Increases Thermal and Chemical Resistance
- Potential hydrophobic property.
- Easy to prepare.
- Eco-friendly
- Transparent

APPLICATIONS

- Sports ecosystem, wood industry, construction area

(12) PATENT APPLICATION PUBLICATION (21) Application No.202411075600 A

(19) INDIA

(22) Date of filing of Application [illegible] (43) Publication Date : [illegible]

(54) Title of the invention : A HYDROPHOBIC AND THERMO-RESISTANT POLYMERIC LAMINATION COATING FORMULATION AND A METHOD TO PREPARE THE SAME

(51) International classification	:C08F0220140000, C09J0175040000, C09D0007650000, B32B0021040000, C09D0007630000	(71)**Name of Applicant :** **1)Chaudhary Charan Singh University, Meerut** Address of Applicant :Meerut – 250004, Uttar Pradesh, India Meerut ---------------------- **Name of Applicant : NA** **Address of Applicant : NA** (72)**Name of Inventor :** **1)Nazia Tarannum** Address of Applicant :Department of Chemistry, Chaudhary Charan Singh University, Meerut (UP) -250004 Meerut ---------- ---------- **2)Km. Pooja** Address of Applicant :Department of Chemistry, Chaudhary Charan Singh University, Meerut (UP) -250004 Meerut ---------- ----------
(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	

(57) Abstract :

The present invention provides a hydrophobic and thermo-resistant polymeric lamination coating formulation and a method thereof. More particularly, the present [illegible] wood/timber lamination coating formulation forms a waterproof layer upon application site and is useful in the furniture industry, wood industry, plies industry, construction industries etc. The said polymeric lamination coating formulation has long shelf life of 2-3 years and high durability. Moreover, the formulation provides [illegible]

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT, UTTAR PRADESH, INDIA, 250004

PRODUCT CODE: CELLULOSE ACETATE BUTYRATE (CAB) DISPERSION BASED HYDROPHOBIC REDISPERSIBLE POWDER

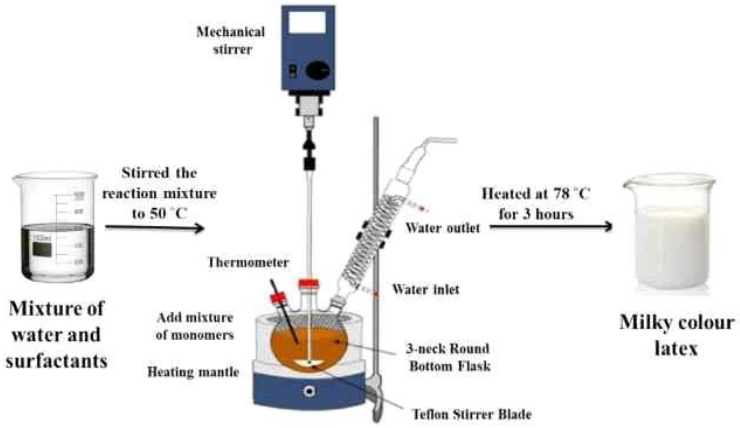
NAAC A++

ABOUT

- This invention presents a simple, efficient method to prepare a hydrophobic redispersible powder using cellulose acetate butyrate dispersion.
- The resulting free- flowing powder is cost-effective, water-resistant, and ideal for construction use, offering quick redispersion, improved durability, and long shelf life. **Redispersible in cold water.**

PATENT NUMBER: 570612
PATENT APPLICATION NO: 202411103948
PATENT PUBLISHED: 10/01/2025
PATENT GRANTED: 12/09/2025
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTORS: NAZIA TARANNUM, KM. POOJA, SHIV KANT BHARADWAJ, AJAY, SATYAM CHOUDHARY

SYNTHESIS PROTOCOL

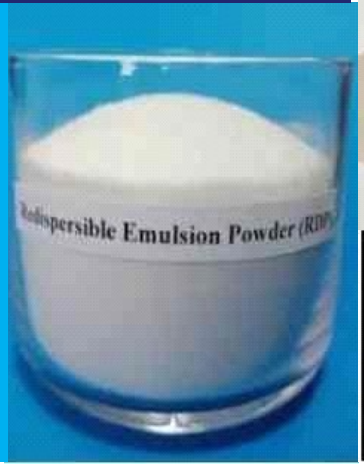


TECHNICAL SPECIFICATION

- Good storage stability and shelf life
- Very good redispersible property.
- Potential hydrophobic property
- Easy to prepare.
- Eco-friendly
- Appearance white colour powder

NEED OF INVENTION

- Improves Adhesion
- Increases Flexibility
- Enhances Workability
- Improves Water Retention
- Enhances Durability
- Improves Mechanical Strength
- Reduces Shrinkage and Cracking
- Enhances Chemical Resistance
- Improves Cohesion
- Facilitates Eco-friendly Construction



INTELLECTUAL PROPERTY INDIA

क्रम सं/SL No :011222653

पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र | (पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate (Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	570612
आवेदन सं. / Application No.	:	202411103948
फाइल करने की तारीख / Date of Filing	:	28/12/2024
पेटेंटी / Patentee	:	Chaudhary Charan Singh University, Meerut
आविष्कारकों का नाम /Name of Inventor(s)	:	1.Nazia Tarannum 2.Km. Pooja 3.Shiv Kant Bhardwaj 4.Ajay 5.Satyam Choudhary

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *A METHOD OF PREPARING CELLULOSE ACETATE BUTYRATE DISPERSION BASED HYDROPHOBIC REDISPERSIBLE POWDER AND PRODUCT THEREOF* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख दिसम्बर 2024 के अट्ठाईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *A METHOD OF PREPARING CELLULOSE ACETATE BUTYRATE DISPERSION BASED HYDROPHOBIC REDISPERSIBLE POWDER AND PRODUCT THEREOF* as disclosed in the above mentioned application for the term of 20 years from the 28th day of December 2024 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख / Date of Grant : 12/09/2025

पेटेंट नियंत्रक
Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, दिसम्बर 2026 के अट्ठाईसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।
Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 28th day of December 2026 and on the same day in every year thereafter.

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT, UTTAR PRADESH, INDIA, 250004

PRODUCT CODE: MACHINE LEARNING METHOD AND SYSTEM FOR DETECTION OF CANCER

NAAC A++

PATENT APPLICATION NO: 202511078459
PATENT FILING : 19/08/2025
PATENT PUBLISHED: 05/09/2025

APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTOR: NAZIA TARANNUM, SYED VILAYAT A. RIZVI, DEEPAK KUMAR, PRAVIN KUMAR, MUKESH K. SHARMA

ABOUT

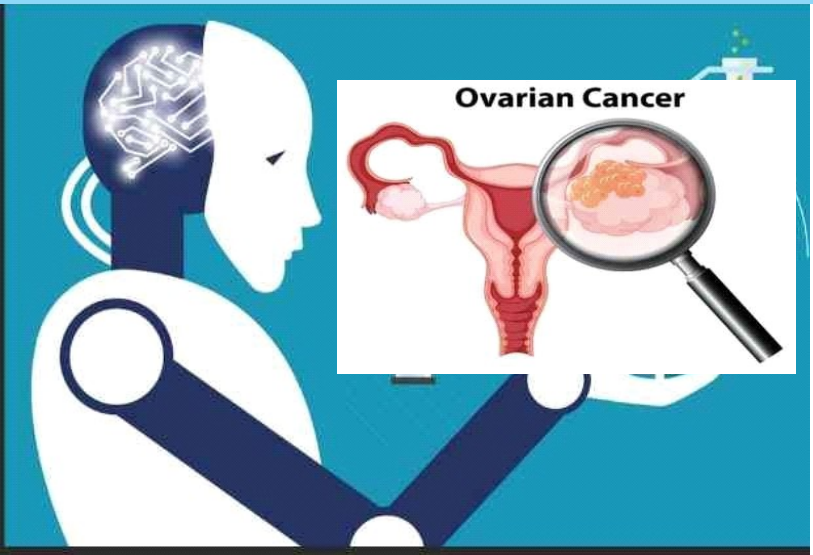
- Machine learning based method and system for determining selectivity and detection efficiency of molecularly imprinted polymers (MIPS) towards a target molecule by simulation of imprinted MIPs.

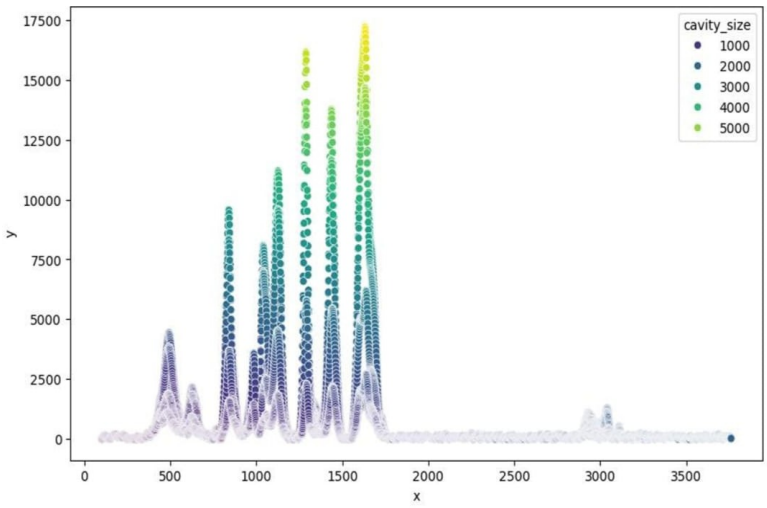
NEED OF INVENTION

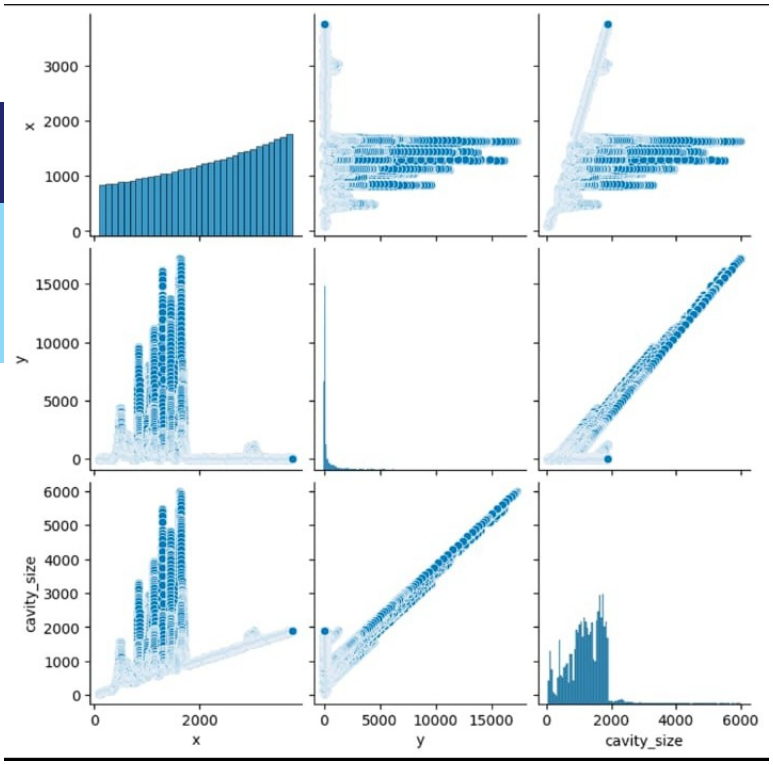
- Accurately determining selectivity and detection efficiency.
- Linear regression model predicted (97% accuracy).
- Can detect cancer with unprecedented accuracy and speed.
- Reduces diagnostic time from days to minutes.

APPLICATION

- Early stage detection of cancer by machine learning







- Machine Learning Model for Detection of Cancer

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT, UTTAR PRADESH, INDIA, 250004

PRODUCT CODE: ANTI-TERMITE SILICA NANOPARTICLE FROM *MUSA* (BANANA) LEAVES

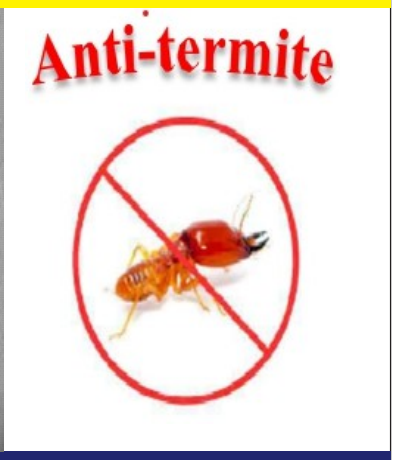
NAAC A++

PATENT APPLICATION NO: 202511060889

PATENT PUBLISHED: 11/07/2025

APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT

INVENTORS: NAZIA TARANNUM, MANVI SINGH, VIJAI MALIK, ASHISH KUMAR



TECHNICAL SPECIFICATIONS

- Biogenic silica nanoparticles (13-14 nm)
- Extracted from banana (Musa) leaves
- Green synthesis using acid–alkali and annealing at 750^{0}C
- Biodegradable, eco-friendly, non-toxic, highly stable
- Potential anti-termite formulation

NEED OF THE INVENTION

- Termites cause serious damage to crops, wood, and building structures.
- Conventional chemical termiticides are: expensive, short lived, toxic (soil & water contamination, ecosystem damage).
- Increasing demand for eco-friendly, safe, and sustainable termite control.
- Agricultural waste (banana leaves) can be converted into value added nanomaterials, reducing waste and providing a green solution.

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/06/2025

(21) Application No.202511060889 A
(43) Publication Date : 11/07/2025

(54) Title of the invention : ANTI-TERMITE SILICA NANOPARTICLE FROM MUSA (BANANA) LEAVES AND PREPARATION METHOD THEREOF

(51) International classification	:C08K0003360000, E04B0001720000, B82Y0030000000, A01M0001020000, A01N0059200000
(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 :**
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Name of Applicant : NA
Address of Applicant : NA
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2)Manvi Singh
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3)Vijai Malik
Address of Applicant :Department of Botany, Chaudhary Charan Singh University, Meerut (UP) -250004, India Meerut ---------- ----------
4)Ashish Kumar
Address of Applicant :Department of Botany, Chaudhary Charan Singh University, Meerut (UP) -250004, India Meerut ---------- ----------

(57) Abstract :
The present invention provides for a method of preparing anti-termite nanoparticles utilizing banana leaves and the anti-termite nanoparticles thereof. The said method of preparing anti-termite silica nanoparticles is simple, eco-friendly and does not utilize toxic/harmful chemicals. Further, the present invention provides for highly efficacious and stable silica nanoparticles effective against termites. The silica nanoparticles are biodegradable, non-toxic and have long shelf life. Field applications demonstrate their high efficacy in preventing termite infestations, making it suitable for use in construction and wood industry. The invention significantly advances green nanotechnology for termite control, promoting sustainable and cost-effective termite management solutions.

No. of Pages : 24 No. of Claims : 6

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT, UTTAR PRADESH, INDIA, 250004
PRODUCT CODE-: SUSTAINABLE MICROCAPSULE FOR SELF-HEALING OF CEMENTITIOUS MATERIALS

NAAC A++

Patent Application No: 202511095532

Applicant: Chaudhary Charan Singh University, Meerut

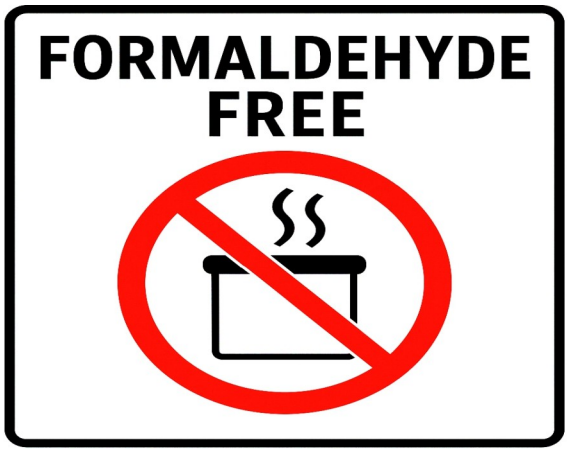
Inventors: Nazia Tarannum, Manvi Singh

ABOUT

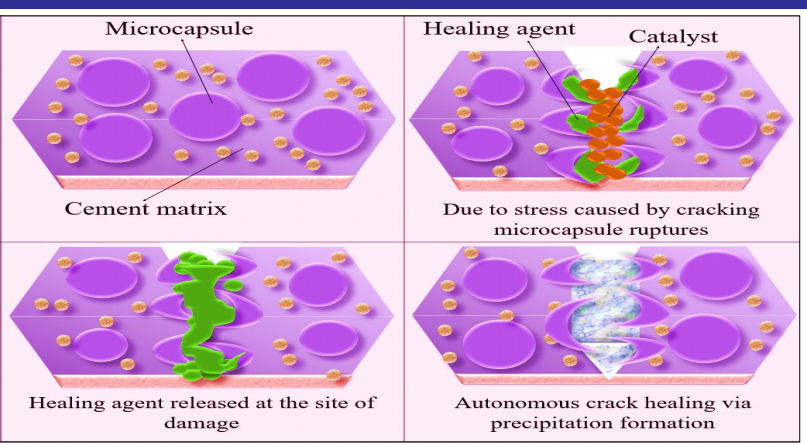
- A new eco-friendly microcapsule technology has been developed to make concrete self-heal cracks, improving strength and durability.
- These microcapsules are formaldehyde-free, long-lasting and cost-effective, offering 35-40% healing efficiency.
- The simple preparation method makes it scalable for real-world construction, supporting sustainable infrastructure.

AUTONOMOUS CRACK HEALING

- Non-toxic, eco-friendly formulation.
- Core: Sodium Silicate (healing agent).
- Shell: Melamine-Dimedone-Glutaraldehyde polymer. **Cross-linked polymeric shell**
- Average size: ~50 ± 20 µm.
- Stable >12 months under ambient conditions.
- Improves compressive strength recovery & self-healing efficiency (up to 36%).
- Chemically stable in alkaline cement environment.



MECHANISM



NEED OF THE INVENTION

- Concrete easily develops cracks, weakening structures.
- Repairs are costly and difficult in large infrastructures.
- Existing capsules use toxic formaldehyde.
- Need for a safe, eco-friendly and efficient self-healing solution.

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT, UTTAR PRADESH, INDIA, 250004
PRODUCT CODE: ALUMINUM FOIL BASED SERS SUBSTRATE FOR UTI DETECTION (POCT DEVICE)

NAAC A++

PATENT NO: 571781
PATENT APPLICATION NO.: 202411025738
PUBLISHED DATE: 03/05/2024
PATENT GRANTED: 09/10/2025
APPLICANT: CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT
INVENTORS: AKANKSHA YADAV, NAZIA TARANNUM, ANIL KUMAR YADAV

ABOUT THE PATENT

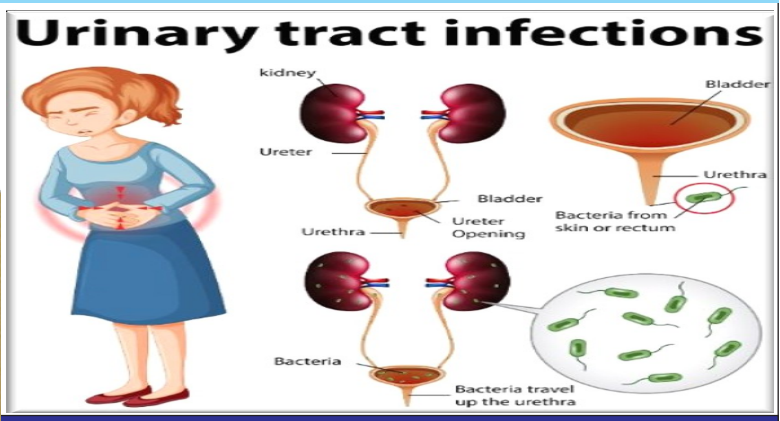
- A new eco-friendly microcapsule technology has been developed to make concrete self-heal cracks, improving strength and durability.
- These microcapsules are formaldehyde-free, long-lasting and cost-effective, offering 35-40% healing efficiency.
- The simple preparation method makes it scalable for real-world construction, supporting sustainable infrastructure.

TECHNICAL SPECIFICATIONS

- High sensitivity detection of urinary tract infection biomarkers.
- Portable and easy-to-use POCT (Point-of-Care Testing) device.
- Rapid, label-free, and non-invasive analysis.
- Cost-effective aluminum foil based SERS substrate.
- Reproducible fabrication process ensuring stability.
- Safe, non-toxic, and user-friendly diagnostic tool.

NEED OF INVENTION

- High prevalence of UTIs
- Delayed diagnosis
- Antibiotic misuse
- Limited access
- Point-of-Care demand
- SERS: enables ultra-sensitive, label-free detection.
- Existing substrates: are costly; Al-foil option available. **Unaffordable**




INTELLECTUAL PROPERTY INDIA

पेटेंट कार्यालय,भारत सरकार | The Patent Office, Government Of India
पेटेंट प्रमाण पत्र | Patent Certificate
(पेटेंट नियमावली का नियम 74) | (Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	571781
आवेदन सं. / Application No.	:	202411025738
फाइल करने की तारीख / Date of Filing	:	28/03/2024
पेटेंटी / Patentee	:	Chaudhary Charan Singh University, Meerut
आविष्कारकों का नाम /Name of Inventor(s)	:	1.Akanksha Yadav 2.Nazia Tarannum 3.Anil Kumar Yadav

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *ALUMINUM FOIL BASED SERS SUBSTRATE TO DETECT URINARY TRACT INFECTION, POCT DEVICE AND FABRICATION PROCESS THEREOF* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख मार्च 2024 के अट्ठाईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *ALUMINUM FOIL BASED SERS SUBSTRATE TO DETECT URINARY TRACT INFECTION, POCT DEVICE AND FABRICATION PROCESS THEREOF* as disclosed in the above mentioned application for the term of 20 years from the 28th day of March 2024 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख / Date of Grant : 09/10/2025

Controller of Patents

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 28th day of March 2026 and on the same day in every year thereafter.

APPLICATIONS

Clinical Diagnosis: Rapid screening of UTIs in hospitals/clinics.

POCT: On-site UTI testing in remote/low-resource settings.

Healthcare Monitoring: Early detection to prevent complications.

Forensic & Biomedical Analysis: Detection of pathogens and metabolites in biological fluids.

2025

NAAC A++

Chaudhary Charan Singh University Meerut-250004

(Formerly, Meerut University)

60 Years of Legacy

RESEARCH STATISTICS

- Overall h-index 102
- 68313 No. of Citations
- 3490 Documets
- h-index of last 5 years 51

UNIVERSITY SCHEMES FOR RESEARCH PROMOTION

- **URGS** (University Research Grants Scheme) 52 Research Proposals to Individual teachers
- **IDRC** (InterDepartmental Research Clusters) 10 Research Proposals
- **FUSIONCON** (Funding Support for International Conference) Max. Rs. 60,000/- to 05 students per year
- **SPACE** (Students' Programme for Academic Caliber and Excellence) Up to 50 scholarship every year for research scholars
- **ELP** (Experiential learning programme)

RECOGNITIONS & RANKINGS

- NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL A++
- Ranked 41th among top 50 universities under State Public University
  University category
  Rank band in 151-200
- 222th in Southern Asia
  701-750th Rank band in Asia
- 29th in India 2025
  1st in Uttar Pradesh
- 139th Country Rank
  908th Continental Rank
  2876th World Rank
- 17th Best University Ranking among top Government University of India - 2025
- 60th in India
  7th in Uttar Pradesh
  744th in Uttar Pradesh
- 86th in India
  1st in Uttar Pradesh State Universities
- 17th Rank in India
  1st Rank in Uttar Pradesh-2023

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- National Assessment and accreditation council
- Department of Higher Education Uttar Pradesh
- Member of Association of Indian Universities
- Pharmacy Council of India (PCI)
- CATEGORY 1 GRADED AUTONOMY UGC, GOVT. OF INDIA — University Grants Commission (UGC)
- Bar Council of India (BCI)
- All India Council for Technical Education
- National Medical Commission (NMC) Formally Medical Council of India (MCI)
- National Council for Teacher Education (NCTE)
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