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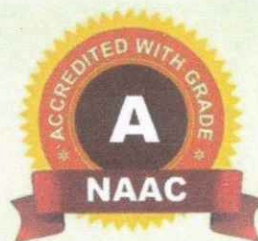
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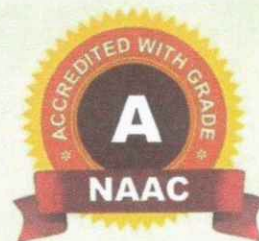
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3.2.1.1 Number of research papers in the Journals notified on UGC website during the Academic years 2023-24.

RESEARCH/REVIEW PUBLICATIONS

Following research papers published by faculty in indexed journals
(Academic Year 2023-24).

LIST OF RESEARCH PUBLICATIONS IN INDEXED JOURNALS

Sr. No	Title of paper	Name of the author/s	Department of the teacher	Name of Journal	Year of publication	ISSN number	Indexing UGC
1	Survey Based Assessment of Adverse Effect in Covid-19 Vaccination Breakthrough Infections	Jubershaha Fakir, Khemchand R. Surana, Dhananjay M Patil, Deepak D Sonawane	Pharmacology	Asian Journal of Research in Pharmaceutical Sciences	2023-24	2231-5659 2231-5640	Peer Reviewed
2	Development and Validation of Simple UV-Spectrophotometric Method for Estimation of Diclofenac Sodium	Chaitali A. Yeola, Vaishali N. Sonawane, Vijayraj N. Sonawane, Khemchand R. Surana, Dhananjay M. Patil, Deepak D. Sonawane	Pharmaceutical Chemistry	Asian Journal of Pharmaceutical Analysis	2023-24	2231-5675 (Online) 2231-5667 (Print)	Peer Reviewed




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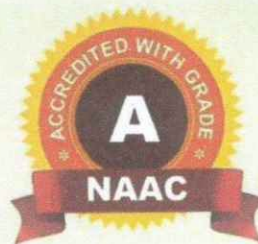
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3	Estimation of Paracetamol in various brands of Paracetamol Tablets and their Comparative Study	Vaishali N. Sonawane, Chaitali A. Yeola, Vijayraj N. Sonawane, Khemchand R. Surana, Dhananjay M. Patil, Deepak D. Sonawane	Pharmaceutical Chemistry	Asian Journal of Pharmaceutical Analysis	2023-24	2231-5675 (Online) 2231-5667 (Print)	Peer Reviewed
4	Possible Reactions on Coumarin Molecule	Suvarna S Bahiram, Santosh R. Tambe, Swati Hatagale, SK Mahajan, Khemchand R Surana	Pharmaceutical Chemistry	Journal of Advanced Scientific Research	2023-24	0976-9595	UGC
5	In vitro Antimicrobial and Antifungal Activity of Mentha piperita Active Phytoconstituents	SHITAL J. PATIL, KHEMCHAND R. SURANA and SUNIL K. MAHAJAN	Pharmaceutical Chemistry	Research Journal of Agricultural Sciences	2023-24	0976-1675	UGC
6	A Review On Computer-Aided Drug Design And Discovery	Sushant M. Ahire, Shivraj P. Jadhav, Vijay V. Shewale, Prerana S. Pawar, Aditi M. Kokande, Dhanashree P. Sonawane, Dhananjay M Patil	Pharmaceutical Chemistry	Journal for Research in Therapeutic and Developmental Diversities	2023-24	2589-7799	Scopus



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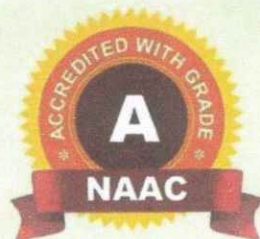
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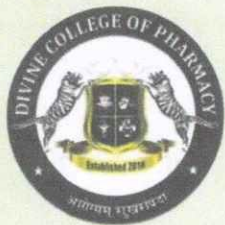
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7	Quantification of Active Phytoconstituents in Ethanolic Extract of Mentha piperita by Modern Analytical Tools	Shital J. Patil, Khemchand R. Surana and Sunil K. Mahajan	Pharmaceutical Chemistry	Research Journal of Agricultural Sciences	2023-24	0976-1675	UGC
8	Exploring The Therapeutic Potential of Rubia cordifolia: Extraction, Phytochemical Evaluation and Microbiological Perspectives	Vijayraj N. Sonawane, Amjadkhan Pathan, Deepak D. Sonawane	Pharmaceutical Chemistry	Advances in Bioresearch	2023-24	E-ISSN : 2277-1573 P-ISSN : 0976-4585	Web of Science
9	A Comprehensive Study on Zinc Oxide Nanoparticles: Synthesis, Characterization, Evaluation and Microbiological Insights	Vijayraj N. Sonawane, Amjadkhan Pathan, Deepak D. Sonawane	Pharmaceutical Chemistry	International Journal of Zoological Investigations	2023-24	2454-3055	Web of Science
10	A Systematic Review on Remdesivir for Preventing Covid 19	Indrakumar K. Sonawane, Khemchand R. Surana , Deepak D. Sonawane, Yogesh P. Sharma, Dhananjay M. Patil	Pharmaceutical Chemistry	Advances in Bioresearch	2023-24	2277-1573 0976-4585	January 2024 Web of Science




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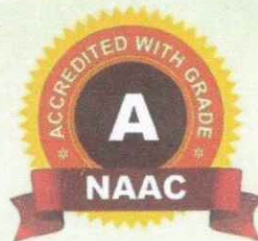
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Sample Paper published by faculty

International Journal of Zoological Investigations Vol. 10, No. 1, 647-655 (2024)



International Journal of Zoological Investigations

Contents available at Journals Home Page: www.ijzi.net

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ISSN: 2454-3055

A Comprehensive Study on Zinc Oxide Nanoparticles: Synthesis, Characterization, Evaluation and Microbiological Insights

Sonawane Vijayraj Narendra^{1*}, Pathan Amjadkhan² and Sonawane Deepak Devidas³

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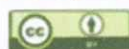
<https://doi.org/10.33745/ijzi.2024.v10i01.069>

Abstract: Over the past ten years, nanoscale science and technology have become revolutionary areas of study. Due to their ability to withstand challenging processing circumstances, inorganic materials like metal oxides and metals have received an attention in the past 10 years. Metal oxides like zinc oxide, calcium oxide, titanium dioxide, and magnesium oxide are important inorganic materials that are generally considered safe for use by humans and animals. Due to their antibacterial qualities, zinc oxide and silver nanoparticles have been used as an effective approach for preventing infectious infections. Shape, crystallinity, composition, and morphology are the primary determinants of the intrinsic properties of metal nanoparticles. In this research, sodium hydroxide, zinc nitrate and soluble starch were used as precursors and stabilising agents in the chemical creation of zinc oxide nanoparticles. Then zinc oxide nanoparticles were characterized for evaluation of their properties. The ZnO nanoparticle assay, TEM, UV-visible spectroscopy, SEM, EDX, antimicrobial test, and Malvern size distribution report were used to characterize the zinc oxide nanoparticles. The average particle size of zinc oxide nanoparticles was found to be 10-40 nm. The antibacterial activity of the zinc oxide nanoparticles was demonstrated against *Candida albicans* (CA), *Escherichia coli* (EC), *Staphylococcus aureus* (SA), and *Pseudomonas aeruginosa* (PA). During comparison of zone of inhibition it was observed that the zinc oxide nanoparticles show strong antimicrobial activity than zinc oxide powder.

Keywords: Metal Nanoparticles, Characterization, Skin diseases, Antibacterial activity, Nanosize, *Candida albicans*, *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*

Citation: Sonawane Vijayraj Narendra, Pathan Amjadkhan and Sonawane Deepak Devidas: A comprehensive study on zinc oxide nanoparticles: synthesis, characterization, evaluation and microbiological insights. Intern. J. Zool. Invest. 10(1): 647-655, 2024.

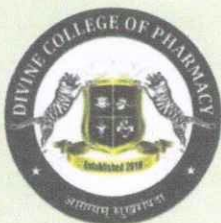
<https://doi.org/10.33745/ijzi.2024.v10i01.069>



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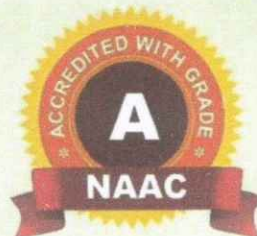
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Full Length Research Article

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Quantification of Active Phytoconstituents in Ethanolic Extract of *Mentha piperita* by Modern Analytical Tools

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Abstract

The present study investigates the qualitative and quantitative analysis of the bioactive constituents mostly preservative of medicinally important selected plant. The quantitative method for ethanolic extract of *Mentha Piperita* (Extract 3A) was developed using spectroscopic methods such as UV spectroscopy, IR spectroscopy, GCMS, also chromatographic methods such as TLC, HPTLC. The present active phytoconstituents in *Mentha piperita* that possess antimicrobial and antifungal activity are *Menthol* and *Pulegone*. The modern tools like gas chromatography and mass spectroscopy are excellently work to analyses phytoconstituents from natural herb extract. Using this technique, it is very easy to achieve separation of both active constituent with full m/z range. In GC method the experiment was done on thermofischer instrument using chromeleon software. The column DB-1 (25m×0.32mm×1.0µm) was used as stationary phase and mobile phase was helium is used with optimized flow rate. In GCMS method Stationary phase was Rxi-5ms, Restek (30 m x 0.25 mm x 0.25 µm) and mobile phase was helium with 1.4ml/minute flow rate. The validation key parameters were also performed. After quantification by modern analytical tool the Extract 3A shows presence of active phytochemical in ratio of 1:10 equivalency with that of standard drug.

Key words: Quantitative analysis, Chromatography, Spectroscopy, Analysis of phytoconstituents, Hyphenated techniques, Herbal formulation

Natural active ingredients or phytoconstituents are extracted nowadays using modern sophisticated extraction methods. These active phytoconstituents possess medicinal importance and need to be incorporated in formulation in food and pharmaceutical industry. The potential and acceptance of these formulation are gaining importance over chemically synthesized drug formulation [1]. The active chemical constituent which are having antimicrobial and antioxidant properties are utilized in herbal formulation as preservatives. Thus, utilization most of commonly used natural spices like clove (*Syzygium aromaticum*), cinnamon (*Cinnamomum zeylanicum* Nees), black pepper (*Piper nigrum* L.), garlic (*Allium sativum* L.), have been added in formulation as preservatives [2]. Preliminary examination of extract often furnishes important information, which simplifies further course of analysis. Although these tests are not conclusive but sometimes, they give quite important clues for the presence of phytoconstituents meant for formulation [3]. Gas chromatography technique is cost effective while GCMS is the hyphenated technique with chromatographic and spectroscopic application gives accurate quantification of present active chemical constituents [4]. To attain separation with all other impurities can be done with gas chromatography, thus this

technique also has application of qualitative analysis in herbal formulation industry [5-10].

Several commonly used natural spices like clove, cinnamon, black pepper, and garlic, known for their antimicrobial and antioxidant properties, are being added to formulations as preservatives. These natural additives offer potential benefits and are preferred over synthetic preservatives [11]. Preliminary examination of extracts provides valuable information for further analysis. While these tests may not be conclusive, they often offer important clues regarding the presence of phytoconstituents suitable for formulation [12]. Gas chromatography (GC) is a cost-effective technique used for separation, while gas chromatography-mass spectrometry (GC-MS) is a hyphenated technique combining chromatographic and spectroscopic applications, providing accurate quantification of active chemical constituents [13-15]. GC also finds application in qualitative analysis within the herbal formulation industry, aiding in separating active constituents from impurities [16-20]. Overall, these modern analytical techniques contribute to the development and quality assurance of natural formulations in the food and pharmaceutical sectors.

MATERIALS AND METHODS

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Citation: Patil S.J, Surana KR, Mahajan SK. 2024. Quantification of active phytoconstituents in ethanolic extract of *Mentha piperita* by modern analytical tools. Res. Jr. Agril. Sci. 15(3): 615-621.



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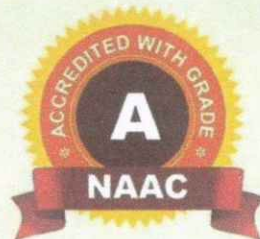
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Advances
in
Bioresearch

ORIGINAL ARTICLE

**Exploring The Therapeutic Potential of *Rubia cordifolia*:
Extraction, Phytochemical Evaluation and Microbiological
Perspectives**

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²Department of Pharmacy, Shri Jagdishprasad Jhabarmal Tibrewala University, Jhunjhunu, Rajasthan-333001

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ABSTRACT

Exploring plant extracts for their therapeutic effects is becoming more popular as people become more aware of and choose natural medicines. Indian madder, also known as *Rubia cordifolia*, has long been used in ayurvedic medicine to treat a variety of skin conditions. In this research work the extract of *Rubia cordifolia* is evaluated to know the active constituents present in crude drug. During the phytochemical screening of alcoholic extract of *Rubia cordifolia*, the tests for alkaloids, Tannins, Phenolic compounds and Flavonoids was found negative. In case of glycosides, the tests for anthraquinone glycosides was found positive. Thus from this, we can concluded that the tested alcoholic extract of *Rubia cordifolia* contains anthraquinone glycosides. The same extract is also evaluated for its antimicrobial activity and it found to be active against *pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans*. Thus this study reflects the potential antimicrobial activity of *Rubia cordifolia* present due to anthraquinone glycosides and it opens the opportunity for multiple formulation to use *Rubia cordifolia* extract as an active constitute to make effective antimicrobial effect.

Keywords: Traditional medicines, *Rubia cordifolia*, Extraction, phytochemical screening, antimicrobial activity.

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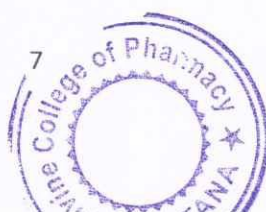
How to cite this article:

Vijayraj N. S, Amjadkhan P, Deepak D. S. Exploring The Therapeutic Potential of *Rubia cordifolia*: Extraction, Phytochemical Evaluation and Microbiological Perspectives. Adv. Bioresearch, Vol 15 (1) January 2024: 171-177

INTRODUCTION

The antibacterial and antifungal infection of the skin is common problem in whole world. These infections should treat by using systemic or topical antibiotics. The systemic treatment is more critical as it creates many severe adverse effects [1]. Thus, topical antibiotic treatment is one of the better options to treat the topical infections. However, the consistent use of antibiotics produces the resistance within the bacteria. In addition, this multi-drug resistant bacteria and fungus is the main problem in treating infectious diseases. The amount of multi drug resistant bacteria and fungus is increasing rapidly. Therefore, it is urgently necessary to create new, powerful antimicrobial drugs that can stop these bacteria and fungi that are resistant to a variety of medications [2].

As more infectious diseases develop resistance to synthetic medications, finding new antibiotics is a global problem facing the pharmaceutical and research sectors. The improper use of orthodox medicines has led to problems with resistance, pollution, and environmental degradation. As a result, there is a growing interest in nature as a source of safer and more effective alternatives for treating human



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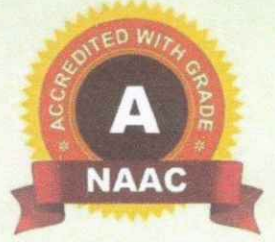
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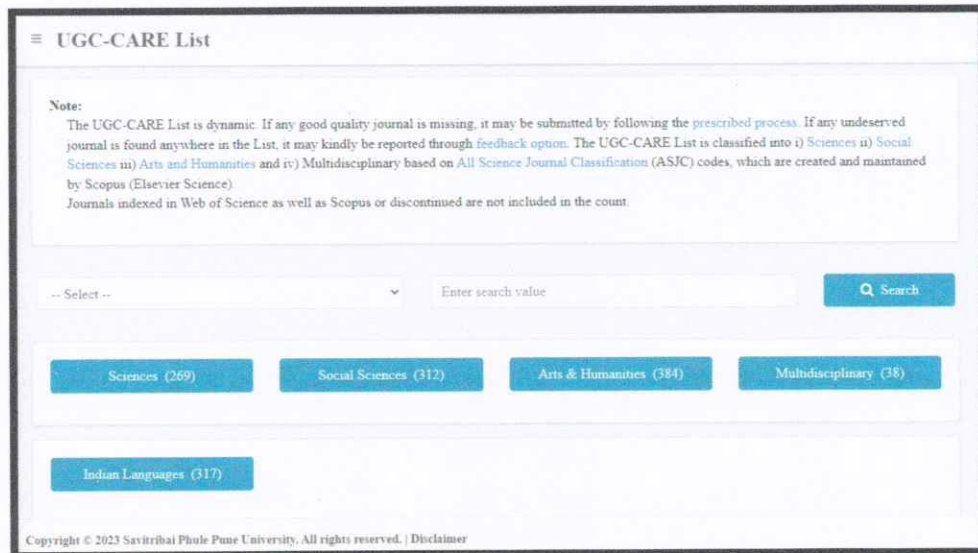
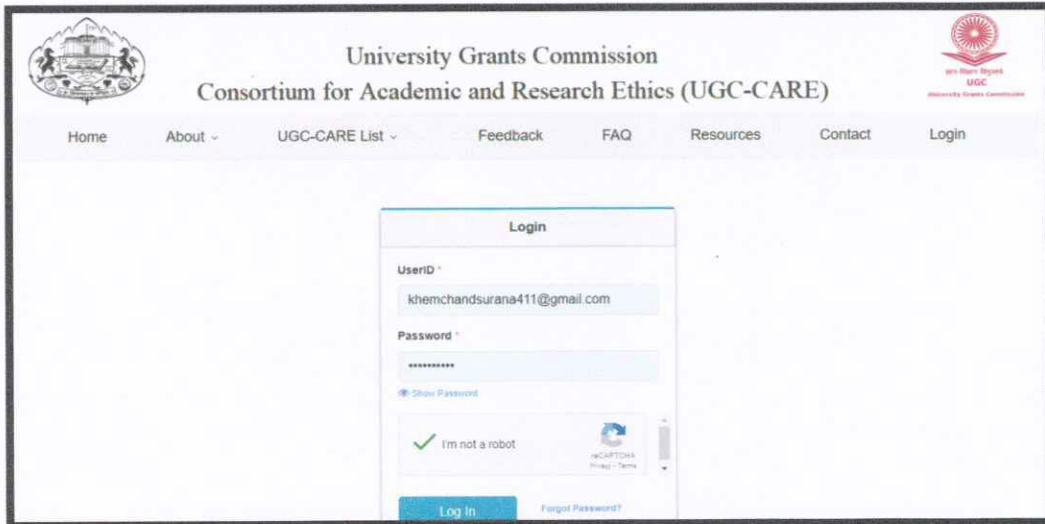


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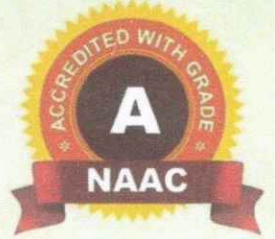
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The screenshot shows the Scopus 'Sources' page. At the top, there is a search bar with the text 'Title' and a 'Find sources' button. Below the search bar, there is a notification box titled 'Improved Citescore' with a close button (X). The main content area shows '44,034 results'. There are several filter and display options: 'Filter refine list' with 'Apply' and 'Clear filters' buttons; 'Display options' with a dropdown arrow; and a table of columns: 'Source title', 'CiteScore', 'Highest percentile', 'Citations 2018-21', 'Documents 2018-21', and '% Cited'. There are also links for 'Download Scopus Source List' and 'Learn more about Scopus Source List'. The 'View metrics for year' is set to '2021'.



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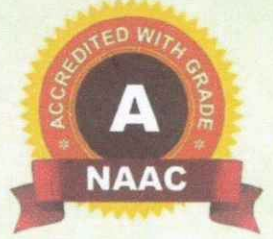
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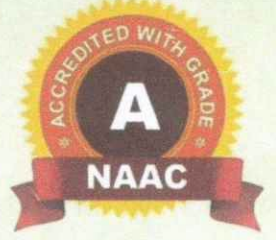
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PATENTS:

Sr. No	Name of the faculty	Date of Patent Granted/ Publication/ Submission	Application Number	Type of Patent	Title of Invention	Status
1.	Mr. Mustkim Sha Sabir Shaikh. Mr. Musab Mhommedali Saiyyed. Mr. Taufik Faruk Sayyed. Dr. Deepak Devidas Sonawane. Dr. Dhananjay Machhindra Patil. Mr. Vijayraj Narendra Sonawane	21/10/2022	372931-001	Indian Patent	Blood Group Detection Kit	Granted 30/01/2024
2.	Mr. Khemchand Rajendra Surana Mr. Vijayraj Narendra Sonawane	30/11/2022	374872-001	Indian Patent	Wearable personal health, Activity and lifestyle tracking device	Granted 18/04/2024
3.	Mr. Ganesh Bhaskar Sonawane	06/01/2023	202221073528	Indian Patent	The neural network method for the diabetic retinopathy detection	Published 06/01/2023
4.	Dr. Khemchand Rajendra Surana, Miss Leena Vijay Savale, Mr. Jayesh Sanjay Aher, Dr. Dhananjay Machhindra Patil, Dr. Deepak Devidas Sonawane, Mr. Shivraj Popat Jadhav	13/02/2024	407321-001	Indian Patent	Portable Melting Point Apparatus	Granted 31/05/2024
6.	Prof. Mr. Shivraj Popat	13/02/2024	407320-001	Indian	Portable tissue	Granted

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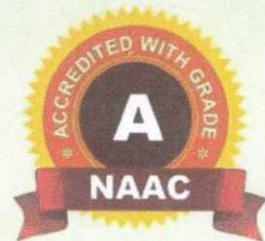
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	Jadhav, Dr. Dhananjay Machindra Patil, Dr. Deepak Devidas Sonawane, Prof. Khemchand Rajendra Surana			Patent	carrier	18/04/2024
7.	Dr. Chandrashekhar Dinkar Patil	10/01/2024	404158-001	Indian Patent	Derivatizing reagent dispenser for Thin layer chromatography	Granted 07/03/2024



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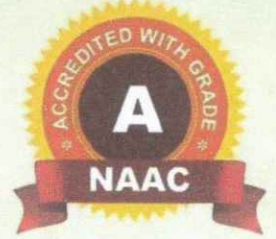
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डिजाइन सं. / Design No. : 372931-001
 तारीख / Date : 21/10/2022
 पारस्परिकता तारीख / Reciprocity Date* :
 देश / Country :

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो **BLOOD GROUP DETECTION KIT** से संबंधित है, का पंजीकरण, श्रेणी 24-01 में 1.Mr. Mustkim Sha Sabir Shaikh 2. Mr. Musab Mhomedali Saiyyed 3.Mr. Taufik Faruk Sayyed 4.Dr. Deepak Devidas Sonawane 5.Dr. Dhananjay Machhindra Patil 6.Mr. Vijayraj Narendra Sonawane के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 24-01 in respect of the application of such design to **BLOOD GROUP DETECTION KIT** in the name of 1.Mr. Mustkim Sha Sabir Shaikh 2. Mr. Musab Mhomedali Saiyyed 3.Mr. Taufik Faruk Sayyed 4.Dr. Deepak Devidas Sonawane 5.Dr. Dhananjay Machhindra Patil 6.Mr. Vijayraj Narendra Sonawane.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अध्याधीन प्रावधानों के अनुसरण में।
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जारी करने की तिथि : 30/01/2024
 Date of Issue

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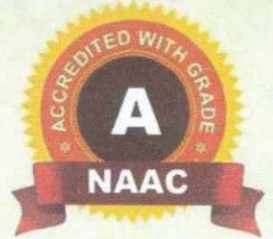
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डिजाइन सं. / Design No. : 374872-001

तारीख / Date : 30/11/2022

पारस्परिकता तारीख / Reciprocity Date* :

देश / Country :

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो **WEARABLE PERSONAL HEALTH, ACTIVITY AND LIFESTYLE TRACKING DEVICE** से संबंधित है, का पंजीकरण, श्रेणी 10-04 में 1.Dr. Raj Kumar Keservani 2. Mr. Eknath Damu Ahire 3.Mr. Abhishek Sharma 4.Dr. Bhushan Rajendra Rane 5.Dr. Amit Kishor Srivastava 6.Dr. Pratibha Pal 7.Mr. Khemchand Rajendra Surana 8.Mr. Vijayraj Narendra Sonawane 9.Dr. Garima Kapoor के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 10-04 in respect of the application of such design to **WEARABLE PERSONAL HEALTH, ACTIVITY AND LIFESTYLE TRACKING DEVICE** in the name of 1.Dr. Raj Kumar Keservani 2. Mr. Eknath Damu Ahire 3.Mr. Abhishek Sharma 4.Dr. Bhushan Rajendra Rane 5.Dr. Amit Kishor Srivastava 6.Dr. Pratibha Pal 7.Mr. Khemchand Rajendra Surana 8.Mr. Vijayraj Narendra Sonawane 9.Dr. Garima Kapoor.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अन्वयेन प्रावधानों के अनुसरण में।
In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

जारी करने की तिथि : 18/04/2024

सहायक पेटेंट, डिजाइन और व्यापार चिह्न
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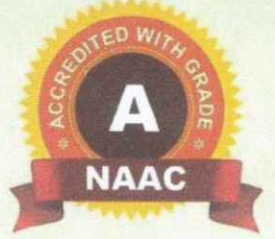
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क्रम सं. Serial No. : 171408

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डिजाइन के पंजीकरण का प्रमाण पत्र | Certificate of Registration of Design

डिजाइन सं. / Design No. : 407321-001

तारीख / Date : 13/02/2024

पारस्परिकता तारीख / Reciprocity Date* :

देश / Country :

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो **PORTABLE MELTING POINT APPARATUS** से संबंधित है, का पंजीकरण, श्रेणी 10-04 में 1.Prof. Khemchand Rajendra Surana 2. Miss Leena Vijay Savale 3.Mr. Jayesh Sanjay Aher 4.Dr. Dhananjay Machhindra Patil 5.Dr. Deepak Devidas Sonawane 6.Mr. Shivraj Popat Jadhav के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 10-04 in respect of the application of such design to **PORTABLE MELTING POINT APPARATUS** in the name of 1.Prof. Khemchand Rajendra Surana 2. Miss Leena Vijay Savale 3.Mr. Jayesh Sanjay Aher 4.Dr. Dhananjay Machhindra Patil 5.Dr. Deepak Devidas Sonawane 6.Mr. Shivraj Popat Jadhav.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अन्वये प्रारब्धता के अनुसरण में।
In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

जारी करने की तिथि : 30/05/2024

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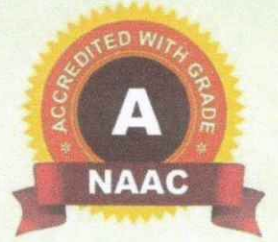
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इस का Serial No. : 159614

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डिजाइन के पंजीकरण का प्रमाण पत्र | Certificate of Registration of Design

डिजाइन सं. / Design No. : 404158-001
 तारीख / Date : 10/01/2024
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 देश / Country :

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो **DERIVATIZING REAGENT DISPENSER FOR THIN LAYER CHROMATOGRAPHY** से संबंधित है, का पंजीकरण, श्रेणी 24-02 में 1.Dr. Sandeep B Mundhe 2. Dr. Chandrashekhar Dinkar Patil 3.Dimple Sukhadev Shinde 4.Dr. Madhuri Murlidhar Deshmukh 5.Mr. Manoj Ravsaheb Kadam 6.Syeda Saher Naaz 7.Vishal Gokul Beldar के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

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