



Key Indicator - 7.3 Institutional Distinctiveness

Metric No: 7.3.1 Portray the performance of the Institution in one area distinctive to its priority and thrust

GREEN SYNTHESIZER

MICROWAVE ASSISTED SYNTHESIS: A GREEN CHEMISTRY APPROACH

Supporting Documents


| Sr. No | Particulars | Page No. |
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Certified Document from Page No. 2-6




Patent Certificate

ORIGINAL
मूल/No : 132315


सत्यमेव जयते
भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
डिजाइन के पंजीकरण का प्रमाणपत्र
CERTIFICATE OF REGISTRATION OF DESIGN


भारत सरकार
THE PATENT OFFICE
GOVT. OF INDIA
भारत सरकार

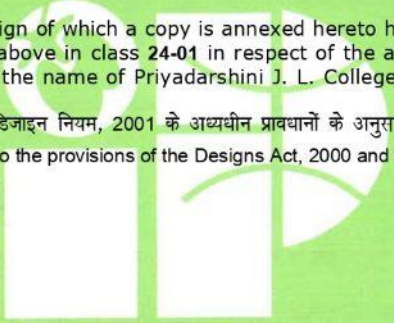


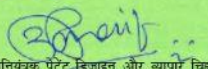
| | | |
|---------------------------------------|---|------------|
| डिजाइन सं. / Design No. | : | 335683-001 |
| तारीख / Date | : | 28/11/2020 |
| पारस्परिकता तारीख / Reciprocity Date* | : | |
| देश / Country | : | |

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो **GREEN SYNTHESIZER** से संबंधित है, का पंजीकरण, श्रेणी **24-01** में Priyadarshini J. L. College Of Pharmacy 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 **GREEN SYNTHESIZER** in the name of Priyadarshini J. L. College Of Pharmacy.

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


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Fabricated Green Synthesizer





Purchasing Bill of Oven

TAX INVOICE Original - Buyer's Copy

| | | |
|--|--|--|
| ICE-O-MATIC SERVICES (16-17) Shop No.6, Plot No.61, Laxmikeshav Apartment, Khamia Road, Pande Layout, Nagpur 440 025 E-Mail: jagmohanlohi@gmail.com | Invoice No. 176 Delivery Note 3336 Supplier's Ref. 3336 Buyer's Order No. | Dated 22-May-2017 Mode/Terms of Payment Other Reference(s) Dated Dated 16-May-2017 Destination Priyadarshini J.L. College Hingna |
| Consignee Lokmanya Tilak Jankalyan Shikshan Sanstha Laxmi Nagar, Nagpur Mob.9766353435 | Dispatch Document No. Despatched through Terms of Delivery | |
| Buyer (if other than consignee) Lokmanya Tilak Jankalyan Shikshan Sanstha Laxmi Nagar, Nagpur Mob.9766353435 | | |

| Sl. No. | Description of Goods | Quantity | Rate | per | Disc. % | Amount | |
|--|--|-----------|----------|------|---------|-----------|-------------|
| 1 | Samsung Microview <i>F-2 / 10pp, no.</i> | 2.00 Nos. | 7,900.00 | Nos. | | 15,800.00 | |
| | Output Vat@13.50% | | | | 13.50 % | 2,133.00 | |
| Passed for Payment of Rs. 17,933/- In words Rs. <i>Seventeen Thousand Nine Hundred Thirty Three only.</i> Accountant <i>(P.H. Gollan)</i> Principal/Director | | | | | | | |
| Total | | | | | | 2.00 Nos. | ₹ 17,933.00 |
| E & O.E | | | | | | | |

Amount Chargeable (in words)
 Indian Rupees Seventeen Thousand Nine Hundred Thirty Three Only

Company's VAT TIN : 27250566921V
 Company's CST No. : 27250566921C
 Company's Service Tax No. : AELPJ0062NST001
 Company's PAN : AELPJ0062N

Declaration
 We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

for ICE-O-MATIC SERVICES (16-17)
 Authorized Signatory

This is a Computer Generated Invoice

P.J.L.C.P., Nagpur
 In Word No. 142
 Date 16/06/2017



Paper Publications

GSC Biological and Pharmaceutical Sciences, 2020, 10(02), 111-119



Available online at GSC Online Press Directory

GSC Biological and Pharmaceutical Sciences

e-ISSN: 2581-3250, CODEN (USA): GBPSC2

Journal homepage: <https://www.gsonlinepress.com/journals/gscbps>



(REVIEW ARTICLE)



Green synthesis of pyranopyrazole using microwave assisted techniques

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Publication history: Received on 28 January 2020; revised on 12 February 2020; accepted on 14 February 2020

Article DOI: <https://doi.org/10.30574/gscbps.2020.10.2.0026>

Abstract

The process of drug discovery involves the identification of lead molecule, synthesis, characterization, screening, assay for therapeutic efficacy. The Pyrano[2,3-c] pyrazole are important roles in the field of pharmacological and medicinal chemistry. The pyranopyrazole are important class of heterocyclic ring prepared by a diverse range of synthetic procedure. The water as a green solvent is most environmentally friendly, safe and inexpensive choice to decrease pollution, toxicity and cost of reaction. The Microwave irradiation to eliminate the requirement of heat, enhance the rate of reaction and decreased total time is a widely applicable technique and has been used for the synthesis of pyranopyrazole. The synthesis prepared by pyrazolone, aldehyde and malononitrile are allowed to react together under different reaction condition to form a variety of pyranopyrazoles. The Pyranopyrazoles in general are biologically active and have remarkable antimicrobial, anticancer, anti-inflammatory, analgesic, antifungal etc.



**EUROPEAN JOURNAL OF BIOMEDICAL
AND PHARMACEUTICAL SCIENCES**

<http://www.ejbps.com>

ISSN 2349-8870
Volume: 6
Issue: 3
337-343
Year: 2019

**DEVELOPMENT OF NOVEL PROCESS FOR SYNTHESIS OF 2-PHENYL-4H-3,1-
BENZOXAZIN-4-ONE THROUGH MICROWAVE SYNTHESIZER**

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Article Received on 26/12/2018

Article Revised on 17/01/2019

Article Accepted on 08/02/2019

ABSTRACT

The microwave assisted synthesis approaches comply to all 12 principles of green chemistry. The enhanced penetration power of microwaves are supposed to be the main troubleshooter in field of synthetic chemistry. The Quality by Design (QbD) approach has been used by several formulation chemist but we implemented this approach in synthetic chemistry. The novel proposed method was firstly developed using Quality by Design approach and then the method was improvised for wet lab synthesis. The statistical validation of the method was and finally spectral analysis confirmed the structure of the synthetic compound. The validation of the proposed method was carried out and these validated batches were simultaneously compared with the conventional procedure for synthesis of 2-phenyl-4H-3,1-benzoxazin-4-one. The results of the spectral data, validation and comparison showed that the proposed method was more economical than that of conventional method and also followed green approaches.

KEYWORDS: Microwave assisted synthesis, Quality by Design (QbD), benzoxazinones.

INTRODUCTION

The microwave region of electromagnetic spectrum has been developed and improvised in several technologies since 1970's but these have been used in the field of

Development and optimization of process by Quality by Design (QbD)

The novel method was first developed using the QbD^[5] approach so that the optimization is possible. The 3 level