

❖ **Research Collaboration :-**

1. Mr. Gunwant Bhalerao Patil (**Research Student**)
2. Dr.J. U. Patil, (**Chemistry**), Uttamrao Patil College, Dahivel (**Research Guide**)
3. Dr. Nilesh S.Pawar (**Chemistry**), Pratap ASC College, Amalner, District- Jalgaon, (**Research Co-guide**)

➤ **MOU:-**



Navodaya Shaikshanik Sanstha, Dhule's

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## Uttamrao Patil Arts & Science College,

Dahiwel, Tal. - Sakri, Dist. - Dhule- 424 304 (M.S.)

Out ward No.- UPCD/

Date :

### RESEARCH COLLABORATION AGREEMENT

Prepared for

Prof.Nilesh S.Pawar

Pratap College Amalner Dist- Jalgaon (M. S.)

Prepared by

Dr. Jagadish U.Patil

NSS Dhule's Uttamrao Patil Arts and Science College, Dahiwel, Tal-  
Sakri, Dist-Dhule (M. S.)

June 2020

#### THE PARTIES

This RESEARCH COLLABORATION AGREEMENT is made and entered into by and between **Dr. Jagadish U.Patil** with an official address at Navoday Shaikshanik Sanstha Dhule's Uttamrao Patil Arts and Science College, Dahiwel, Tal-Sakri, Dist-Dhule (M. S.) and **Prof.Nilesh S.Pawar** with an official address at Pratap College Amalner Dist- Jalgaon (M. S.) effective as of **15<sup>th</sup> June 2020** (effective date)

The institute and the researcher are each referred to as a "Party" and collectively as "Parties"

#### NATURE OF AGREEMENT



Both Parties wish to collaborate and work on a research in the field of Humanities that requires both parties to transfer between laboratories and exchange research material and other required information necessary to commence and complete the stated research.

Nothing in this agreement shall be construed to limit the freedom of either Party to engage in similar research activities with the other Party.

#### DUTIES AND RESPONSIBILITIES:

- ❖ The researcher agrees to conduct the necessary experiments, extensive research, and collaborate with the institute to complete the Research.
- ❖ The institute agrees to provide the necessary resources, research material, equipment, and additional funds to assist the Research.

#### SCOPE OF WORK:

- ❖ The parties shall work and collaborate on the research to obtain vital information about the topic of the research.
- ❖ The Parties shall exchange all information, including the final results of the Research regularly by the means the Parties decide.

#### OWNERSHIP & RIGHTS:

Both Parties their respective proprietary rights on the research in the execution of their respective obligations under this agreement.

#### TERMS & CONDITIONS:

##### 6. Collection of data:

Both Parties agree to gather and exchange information and material on the research topic/project.

##### 7. Cost and Expenses:

The institutes/researchers cover any additional cost and expenses for the research.

##### 8. Term & Termination:

The agreement shall remain effective for five (5) commencing on the stated effective date

##### 9. Books & Records:

Both Parties agrees to keep a printed and digital copy of all information about the research for record purpose only.



## 10. Confidentiality:

Any information concerning the Parties' collaboration and Research shall remain in the strict confidence.

## GENERAL PROVISIONS:

All notices that are necessary shall be provided in writing and delivered through mail or email.

This Agreement shall constitute the entire agreement between the Parties and shall replace any other previous agreements.

## ACCEPTANCE:

IN WITNESS WHEREOF, each of the Parties has executed This Research collaboration Agreement as of the day and year set forth above.

Dr. J. U. Patil - Patil

Patil  
Prof. N. S. Pawar

Patil  
Signature  
प्राचार्य

उत्तमराव पाटील कला व विज्ञान  
महाविद्यालय दहिवेल, ता. साक्री, जि. धुळे



Patil  
Signature  
**Principal**  
Pratap College, Amalner



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## ➤ Research Center : Registration Letter of Ph.D. Student

7/30/23, 7:40 PM

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon - QAASIS (Online Ph.D Process 2021)



KAVAYITRI BAHINABAI CHAUDHARI NORTH MAHARASHTRA UNIVERSITY, JALGAON

KBCNMU/11/Ph.D./Conf.Letter/Online/ Chem. /2023

Date : 29-07-2023

To,

Mr. GUNAWANT BHALERAO PATIL

Subject:- Admission to Ph.D. Course in the Subject of Chemistry under the faculty of Science and Technology

Sir/Madam,

With reference to the above subject, this is to inform you that, you were provisionally registered for Ph.D. course in the subject Chemistry under the faculty of Science and Technology. Now, after successful completing of Pre-Ph.D. Course work and presentation of your Research Outline before RRC meeting, the University authorities have confirmed your admission to Ph.D. course in the above subject and faculty. The particulars of your admission are as below :-

Registration Details	
a) Name of Guide	Dr. JAGADISH UTTAMRAO PATIL
b) Name of Co-guide (if any)	Dr. Pawar Nilesh Shantaram
c) Place of Research Work	NAVODAYA SHAIKSHANIK SANSTHA S UTTAMRAO PATIL ARTS AND SCIENCE COLLEGE DAHIWEL
d) Date of Registration	14-10-2022
e) Date of Approval of Research Title (RRC)	20-06-2023
f) Application No.	PHD-2021-6WFEGH
g) Topic of Research	SYNTHESIS CHARACTERISATION AND BIOACTIVITY OF SOME NEW AZO-SCHIFF BASES OF OXADIAZOLE AND THIADIAZOLE

Paper	Paper I (Research Methodology & Research and Publication Ethics)	Paper - II (Subject Specific Course)	Paper - III (Guide Course)
Grade	C	D	O

Note: -

1. Rules and regulations regarding Ph.D. are as per UGC regulation, 2009 (Minimum Standards and Procedure for Awards of M.Phil/Ph.D. degree) and Ph.D. Guideline-2017 of Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon ammended from time to time and fees will be applicable as stated in provisional registration letter.
2. You are requested to apply for eligibility certificate to the Research section of this university within Six Months from the date of issue of this letter. The eligibility fee is Rs. 500/- and late fee of Rs. 1000/- will be charged if the candidate fails to apply for eligibility certificate within Six Months from the date of issue of this letter. To fulfill eligibility within one year from the date of issue of the letter is mandatory, otherwise your admission is liable to be cancelled.



॥ अंतरी पेटवु ज्ञानज्योत ॥

**Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon**  
Umavinagar, Jalgaon - 425 001. (M.S.) INDIA

जा.क्र.कचचौउमचि/११/पीएच.डी/रसायनशास्त्र/२२३/२०२३

दि.२३/१२/२०२३

२७

प्रति,

श्री. रविंद्र धर्मा लांडगे,  
द्वारा:- धर्मा झेंडा लांडगे  
एवन चौक, कुटे रोड, अमळनेर  
जि. जळगाव-४२५४०९

विषय:- सह-मार्गदर्शक (Co-Guid) मिळणेस संमती असणे बाबत.  
संदर्भ:- १) आपला दि.२३/११/२०२३ रोजीचा अर्ज.

महोदय,

उपरोक्त विषयान्वये व संदर्भिय पत्रान्वये, आपण Science & Technology विद्याशाखेतील रसायनशास्त्र विषयात पीएच.डी.साठी सह-मार्गदर्शक (Co-Guid) मिळणेबाबत केलेली विनंती, प्राप्त आदेशान्वये मान्य करण्यात येत असून, आपण यापुढे मार्गदर्शक डॉ. जगदिश उत्तमराव पाटील, दहिबेल तसेच सह-मार्गदर्शक (Co-Guid) डॉ. निलेश एस.पवार, अमळनेर यांच्या मार्गदर्शनाखाली संशोधनाचे कार्य करावे.

मार्गदर्शक	सह-मार्गदर्शक
डॉ. जगदिश उत्तमराव पाटील, नवोदय शैक्षणिक संस्था धुळेचे, उत्तमराव पाटील कला व विज्ञान महाविद्यालय दहिबेल ता.साक्री जि. धुळे.	डॉ. निलेश एस.पवार, खान्देश शिक्षण मंडळ संचलित, प्रताप महाविद्यालय, अमळनेर जि. जळगाव.

कळावे,

आपला विश्वासु,

डॉ. डी. एस. जगताप )  
उपकुलसचिव,(अ.का.)  
संशोधन विभाग

प्रत माहितीसाठी तथा कार्यवाहीसाठी:-

- १) डॉ. जगदिश उत्तमराव पाटील, नवोदय शैक्षणिक संस्था धुळेचे, उत्तमराव पाटील कला व विज्ञान महाविद्यालय, दहिबेल ता.साक्री जि. धुळे.  
२) डॉ. निलेश एस.पवार, खान्देश शिक्षण मंडळ संचलित, प्रताप महाविद्यालय, अमळनेर जि. जळगाव.

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➤ Research Paper published in collaboration with...(Snaps):-

# Synthesis and Antibacterial Activity of Thymyl Ethers <sup>†</sup>

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<sup>†</sup> Presented at the 25th International Electronic Conference on Synthetic Organic Chemistry, 15–30 November 2021; Available online: <https://eicos-25.sciforum.net/>.

**Abstract:** We have reported herein a simple and efficient synthesis method of thymyl ethers for structural modifications of natural products such as *monoterpenoids* and studies of ether derivatives of thymol in biological importance. The investigations showed that thymol reacts very smoothly with different types of substituted acetanilides. The synthesized compounds have been tested for their bacterial potency against four bacterial species. Such a structural modification will be beneficial in the field of pest management for designing the active molecules

**Keywords:** Thymol; Monoterpenoids; green chemistry; microwave irradiation and antibacterial activity

**Citation:** Patil, J.U.; Patil, P.N.; Pawar, N.S. Synthesis and Antibacterial Activity of Thymyl Ethers. *Chem. Proc.* **2021**, *3*, e. <https://doi.org/10.3390/xxxxx>

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## 1. Introduction

Thymol is an important phenolic monoterpenoid obtained from *Thymus Vulgare*. It exerts cool influenced on muscle. Like phenol it does not irritate the skin and may be taken internally. It is twenty times more antiseptic than phenol. Thymol resembles phenols in chemical properties, but its hydroxyl groups is more reactive than phenol [1,2]. Thymol is effective against gram positive, gram negative bacteria, fungi and *Candida albicans* yeast [3–8]. Thymus stimulates the appetite, aids in a sluggish digestion and improves liver function.

Structural modifications of phenolic monoterpenoids were obtained by reacting thymol with various substituted  $\alpha$ -chloro acetanilides, to improve biological activities which give the product with better yield and higher purity under mild reaction conditions with the help of microwave irradiation techniques [9,10].

We report herein a rapid, simple and efficient method for synthesis of thymyl ethers that could be useful to introduce new groups of pest management agents through bio rational design of the derivatives.

## 2. Material and Methods

Various aromatic amines (aniline, *p*-toluidine, *m*-nitro aniline, *m*-chloro aniline, *m,p*-dichloro aniline and  $\alpha$ -naphthyl amine), chloro acetyl chloride, thymol, potassium carbonate, sodium hydroxide and solvents were of analytical grade [s.d. fine chemicals, Qualigens, etc.] and distilled before use.

Melting points were determined using open capillary method in the paraffin liquid. I. R. spectra ( $\text{cm}^{-1}$ ) were recorded on a Perkin Elmer RX1 FTIR spectro photometer. <sup>1</sup>H NMR spectra were recorded on a Bruker DRX-300 MHz: FT NMR spectrometer (chemical shift in  $\delta$ , ppm). MS were recorded on a Jeol SX 102/Da mass spectrometer and elemental



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**ULTRASONIC VELOCITY, DENSITY MEASUREMENTS OF (E) -2- HYDROXY -3-  
(4 - HYDROXY -5- ISOPROPYL -2- METHYL PHENYL) DIAZENYL) NAPHTHALENE  
1-4-DIONE IN MIXED SOLVENT AT 303.15 K**

**J. U. Patil<sup>1,2\*</sup>, N. S. Pawar<sup>2</sup> and A. N. Sonar<sup>3</sup>**

<sup>1</sup>Department of Chemistry, U P Arts and Sciences, College, Dahivel Tal Sakri Dist Dhule(M.S).

<sup>2</sup>Department of Chemistry, Pratap College, Amalner Dist Jalgaon- 425 001 (M.S).

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**ABSTRACT**

The acoustical properties have been investigated from the ultrasonic velocity and density measurements of azo compound in 10% DMSO at 300.15K. The measurement have been perform to evaluate acoustical parameter such as adiabatic compressibility ( $\beta_s$ ), Partial molal volume ( $\beta_v$ ), intermolecular free length (Lf), apparent molal compressibility ( $\beta_k$ ), specific acoustic impedance (Z), relative association (RA), solvation number (Sn).

**KEYWORD:** *Ultrasonic velocity, viscosity, adiabatic compressibility, apparent molal volume.*