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# **A mini-Review on the Microwave assisted synthesis and Biological Evaluation of Thiazolidinone Derivatives**

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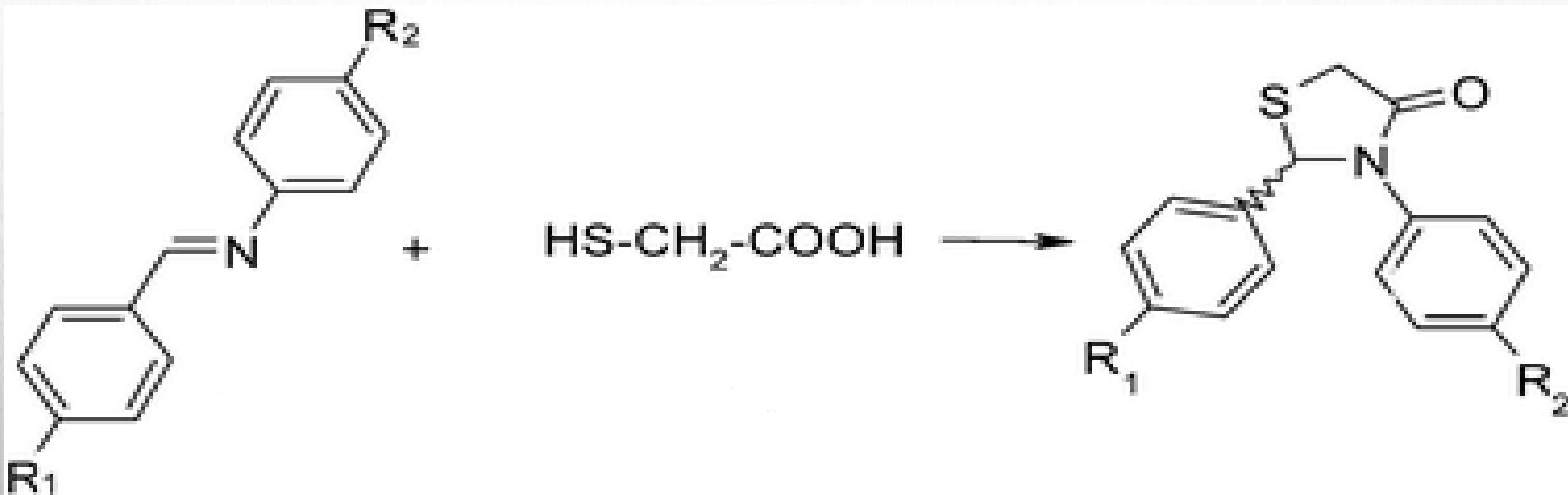
# Introduction

A heterocyclic compound is a cyclic compound that has atoms of at least two different element as members of its rings. [Bansal, R.K., 2020. ]

And also Thiazolidinone that is a heterocyclic compounds because it contain {S} and {N} beside carbon

Microwave irradiation speeds up organic synthesis by selectively absorbing energy, allowing for faster and more efficient reactions with higher yields under solvent-free conditions and ambient pressure.[Larhed, M. and Hallberg, A., 2001. ] , [Varma, R., 1999. ]

# Synthesis of Thiazolidinone by using a microwave



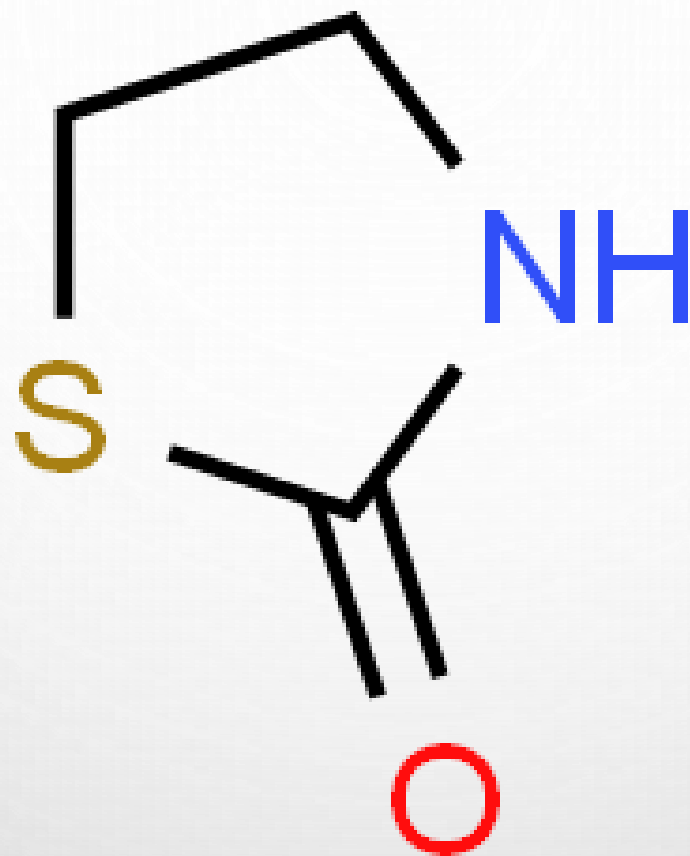
benzylidene-anilines

mercaptoacetic acid

1,3-thiazolidin-4-ones

[ Bolognese, A., Correale, G., Manfra, M., Lavecchia, A., Novellino, E. and Barone, V., 2004. ]

# STRUCTURE



[Jain, A.K., Vaidya, A., Ravichandran, V., Kashaw, S.K. and Agrawal, R.K., 2012.]

# Biological evaluation

are known to possess a variety of physiological properties; viz. analgesic, local and spiral anaesthetics, antibacterial , anti inflammatory antitubercular, anticancer, anti HIV and fungicidal activities .[Divyesh, P., Premlata, K. and Navin, P., 2010.]



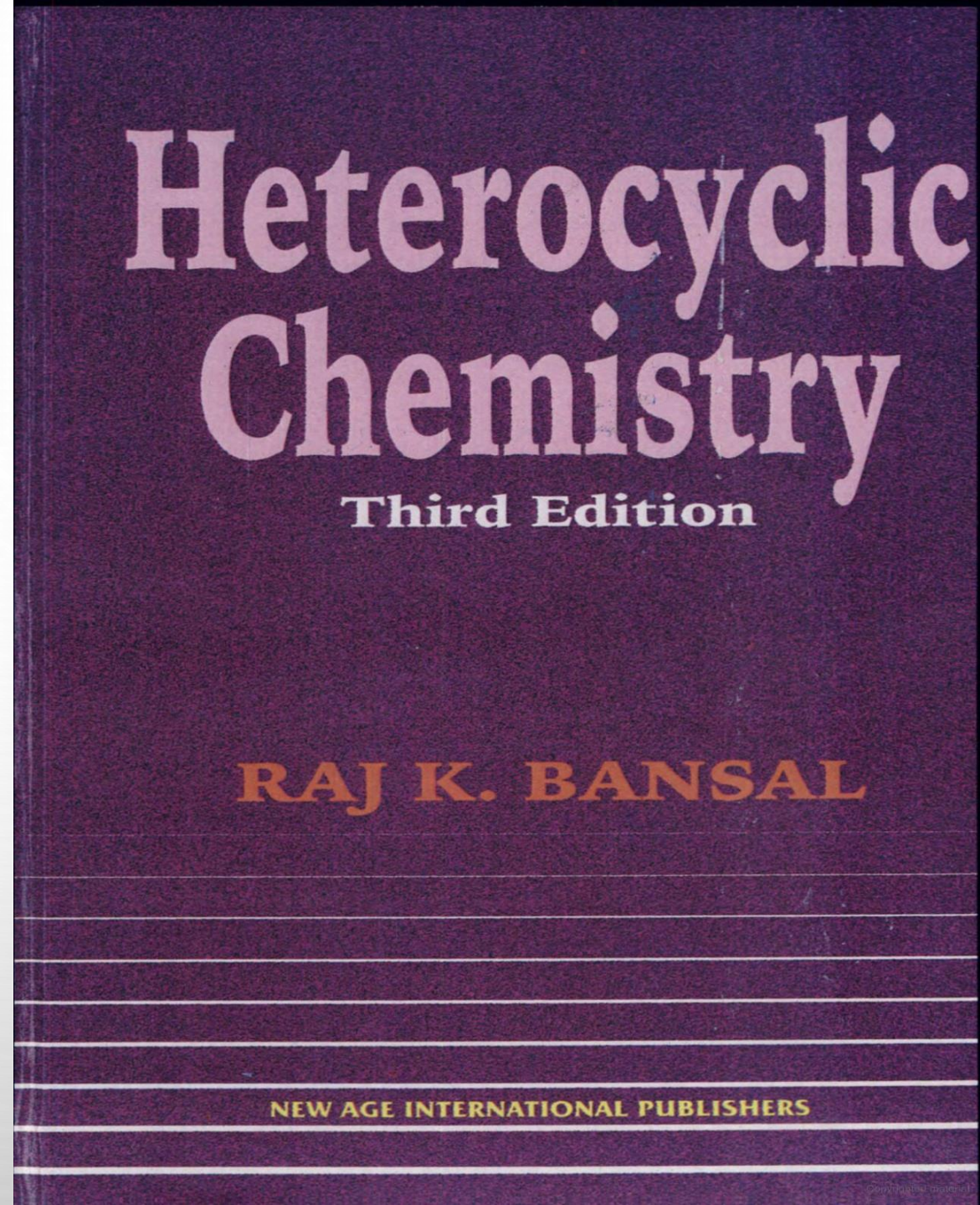
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**Thank You**



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# Book reference

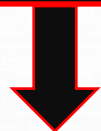
Author names  
and  
Editor

Date of  
publication of  
edition used

Title of  
book

Edition

location of the  
publisher's



[1]. Bansal, R.K., 2020. *Heterocyclic chemistry*. 3<sup>rd</sup> ed. New Delhi :  
New Age International, p.1



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Review

# Microwave-assisted high-speed chemistry: a new technique in drug discovery

Mats Larhed  , Anders HallbergShow more  Share  Cite[https://doi.org/10.1016/S1359-6446\(01\)01735-4](https://doi.org/10.1016/S1359-6446(01)01735-4) [Get rights and content](#) 

## Abstract

In both lead identification and lead optimization processes there is an acute need for new organic small molecules. Traditional methods of organic synthesis are orders of magnitude too slow to satisfy the demand for these compounds. The fields of combinatorial and automated medicinal chemistry have been developed to meet the increasing requirement of new compounds for drug discovery; within these fields, speed is of the essence. The efficiency of microwave flash-heating chemistry in dramatically reducing reaction times (reduced from days and hours to minutes and seconds) has recently been proven in several different fields of organic chemistry. We believe that the time saved by using focused microwaves is potentially important in traditional organic synthesis but could be of even greater importance in high-speed combinatorial and medicinal chemistry.

## Section snippets

### General microwave physics

The electric component of an electromagnetic field causes heating by two major mechanisms: dipolar polarization and conduction 3, 4, 5, 6, 7, 8. In polar organic-solvent systems at non-extreme temperatures, the dipolar polarization mechanism accounts for the majority of the microwave heating-effect. Thus, the heating rate is affected by the dielectric properties of a sample. The applied field interacts with the alignment of the molecular electric dipoles in a sample, and this interaction...

### Microwave equipment

To date, the majority of microwave-promoted organic synthesis has been performed in multi-mode domestic ovens. In these ovens, the power levels commonly fluctuate as a result of the patterns-of-switching of on-off cycles 3, 4. The microwaves are heterogeneously distributed within the cavity and, consequently, less-defined regions of high and low energy intensity are produced. The multi-mode domestic ovens are well suited for many robust classical organic reactions, provided adequate safety...

### Microwave-assisted intramolecular and two-component reactions

The decoration of aromatic scaffolds that possess various versatile functionalization handles is one of the most common strategies used by the medicinal chemist for library generation. The palladium-catalyzed C–C bond-forming reactions are examples of the most popular methods used to achieve this. It is, therefore, not surprising that numerous reports have described accelerated Heck 14, 15, 16, 17, 18, 19, 20, 21, Sonogashira <sup>22</sup>, Suzuki 14, 23 and Stille 14, 24, 25 reactions using microwave...

### Microwave-assisted multi-component reactions

The pyridine scaffold is an essential structural element of many drugs. Khmel'nitsky used microwave-assisted combinatorial synthesis for the fast generation of libraries of diverse substituted pyridines employing the three-component Hantzsch synthesis <sup>44</sup>. A solvent-free synthesis was performed in a 96-well format for the high-throughput automated production of diverse pyridines, which could be easily separated by HPLC. Each well of the glass-filled-polypropylene 96-well filter-plate reactors...

### Outlook and conclusions


A series of representative examples of the impact of flash-heating on some reactions commonly used by medicinal and combinatorial chemists has been presented herein. In addition to the transition metal-mediated C–C and C–N bond-forming procedures, various types of condensation reactions, alkylations and radical reactions were discussed. However, there are many other reaction types that have already proven suitable for microwave acceleration, but these have not, to date, been exploited in the...

### Acknowledgements

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# Journal reference

Author names  
And initials



Date of  
publication




Title of  
article



[2]. Larhed, M. and Hallberg, A., 2001. Microwave-assisted high-speed chemistry: a new technique in drug discovery. *Drug discovery today*, 6(8), pp.406-416.



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# LITERATURE SURVEY

