

This article was downloaded by: [Tulane University]

On: 30 September 2014, At: 00:16

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954

Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Synthetic Communications: An International Journal for Rapid Communication of Synthetic Organic Chemistry

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/lcyc20>

Synthesis of Quinazolin-4-(3h)-ones from O-Amidobenzonitriles Using Urea-hydrogen Peroxide¹

B. P. Bandgar ^a

^a Department of Chemistry , Post Graduate and Research Centre, R. B. N. B. College , Shrirampur, 413 709, Dist. Ahmednagar, Maharashtra, India

Published online: 22 Aug 2006.

To cite this article: B. P. Bandgar (1997) Synthesis of Quinazolin-4-(3h)-ones from O-Amidobenzonitriles Using Urea-hydrogen Peroxide¹ , Synthetic Communications: An International Journal for Rapid Communication of Synthetic Organic Chemistry, 27:12, 2065-2068, DOI: [10.1080/00397919708006811](https://doi.org/10.1080/00397919708006811)

To link to this article: <http://dx.doi.org/10.1080/00397919708006811>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the

Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

SYNTHESIS OF QUINAZOLIN-4-(3H)-ONES FROM o-AMIDOBENZONITRILES USING UREA-HYDROGEN PEROXIDE¹

B. P. Bandgar •

Department of Chemistry, Post Graduate and Research Centre,
R. B. N. B. College, Shrirampur - 413 709, Dist. Ahmednagar,
Maharashtra, India.

ABSTRACT : Synthesis of quinazolin-4-(3H)-ones from o-amido-benzonitriles has been carried out by using urea-hydrogen peroxide as a mild, stable and non-hazardous reagent.

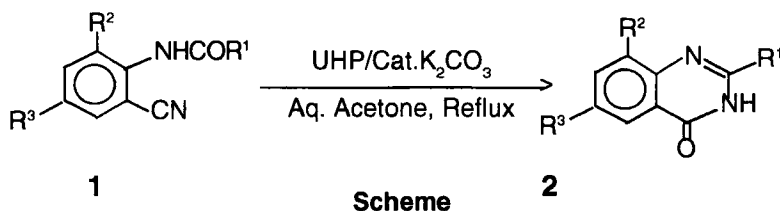
The peracids are relatively unstable and potentially explosive. Hydrogen peroxide is quite weak oxidising agent which often requires specific activation towards the functional group to be transformed.² Another important disadvantage is that concentrated hydrogen peroxide is not readily available and is furthermore, very dangerous to handle.³ Hence these reagents are now replaced by more stable and safe reagents. Urea-hydrogen peroxide (UHP)⁴ is a safe alternative to anhydrous hydrogen peroxide, relatively stable

*

To whom correspondence should be addressed.

and commercially available. Recently UHP has been used for selective, mild oxidation of N-heteroatomic compounds, tertiary amines⁵ and conversion of nitriles to amides.⁶

Quinazolin-4-(3H)-one systems are versatile and may be further modified in the construction of new pharmaceutical entities. Author now reports herein the use of UHP in the Radziszewski reaction⁷⁻⁸ as a mild, safe and non-hazardous oxidising agent for the synthesis of quinazolin-4-(3H)-ones from suitably functionalised o-amidobenzonitriles (scheme).



In summary mild method of oxidative hydration of o-amidobenzonitriles using UHP followed by cyclisation has been shown to allow access to a variety of functionalised quinazolin-4-(3H)-ones in one pot procedure. Excellent yields and short reaction time are important advantages of this methodology.

Experimental

Solvents were distilled before use. Urea-hydrogen peroxide (Aldrich) was used as obtained and suitably functionalised o-amidobenzonitriles were prepared by using standard synthetic methods.

General Procedure

To a mixture of o-amidobenzonitrile (3 mmol) in acetone: water, 1:1 (20 mL) and anhydrous potassium carbonate (50 mg), UHP (6 mmol) was added and the resulting mixture was refluxed for 2 h. Reaction was monitored by TLC. After cooling the reaction

Table : Synthesis of quinazolin-4-(3H)-ones using UHP

Entry	Substrate	Product	Yield (%)
1			97
2			95
3			94
4			96
5			86
6			98
7			88

mixture, acetone was removed under reduced pressure and the product crystallised out from the reaction mixture. The product was washed with water, air dried and then washed with cold ether to give a white solid in excellent yield. Product was characterised by their IR, ^1H NMR and by comparison with literature data.

Acknowledgement

Dr. B. P. Bandgar thanks Dr. Miss. Jyoti Mane (Vasantdada Sugar Institute, Pune) for the generous gift of UHP and Principal Vijay Kasbekar for his encouragement.

Reference and footnotes

1. Synthetic Methods part 5, for part 4 see, Bandgar, B. P. and Miss. Zirange S. M., communicated.
2. Mackillop, A. and Sanderson, W. R. *Tetrahedron* **1995**, *5*, (22), 6145.
3. Muzart, J. *Synthesis* **1995**, 1325.
4. Cooper, M. S.; Heaney, H; Newbold, A. J. and Sandeerson, W. R. *Synlett* **1990**, 533.
5. Kaczmarek, L.; Balicki, R. and Nantka- Namirski, P. *Chem. Ber.* **1992**, *125*, 1965.
6. Balicki, R. and Kaczmark, L. *Synth. Commun.* **1993**, *23* (22), 3149.
7. Radziszewski, B. *Ber.*, **1885**, *18*, 335.
8. Bogert, M. T., *J. Am. Chem. Soc.* **1902**, *24*, 1032.

(Received in The Netherlands 23 January 1997)