List of Publications

1. Expeditious synthesis of helicenes using an improved protocol of photocyclodehydrogenation of stilbenes
   Talele, H. R.; **Chaudhary, A. R**.; Patel, P. R.; Bedekar, A. V. *Arkivoc*, **2011**, ix, 15.

2. Application of 1-(α-aminobenzyl)-2-naphthols as air stable ligands for Pd-catalyzed Mizoroki-Heck coupling reaction
   Chaudhary, A. R.; Bedekar, A. V. *Synth. Commun*. **2011**, *41*, 1778.

3. 1-(α-aminobenzyl)-2-naphthol as phosphine-free ligand for Pd-catalyzed Suzuki & one-pot Wittig-Suzuki reaction
   Chaudhary, A. R.; Bedekar, A. V. *Appl. Organometallic Chem.* **2012**, *26*, 430.

4. Sunlight promoted palladium catalyzed Mizoroki-Heck, Suzuki-Miyaura and Sonogashira reactions
   Chaudhary, A. R.; Bedekar, A. V. *Tetrahedron lett.* **2012**, *53*, 6100.

5. Expeditious synthesis of fluorinated styrylbenzenes and polyaromatic hydrocarbons
   Bedekar, A. V.; **Chaudhary, A. R.;** M. Shyamsundar; M. Rajappa. *Tetrahedron lett.* **2013**, *54*, 392.

6. Application of optically active aminonaphthols as NMR solvating agents for chiral discrimination of mandelic acid
   Chaudhary, A. R.; Yadav, P.; Bedekar, A. V. *Tetrahedron: Asymmetry* **2014**, *25*, 767.

Publication Abstracts

General Issue ARKIVOC 2011 (ix) 15-37

Expeditious synthesis of helicenes using an improved protocol of photocyclodehydrogenation of stilbenes

Harish R. Talele, Anju R. Chaudhary, Parthiv R. Patel, and Ashutosh V. Bedekar*

Department of Chemistry, Faculty of Science
The Maharaja Sayajirao University of Baroda, Vadodara 390 002, India
E-mail: avbedekar@yahoo.co.in

Abstract

An improved procedure has been developed for photodehydrocyclization of stilbenes for the synthesis of phenanthrenes and helicenes. This procedure involves the use of THF as a scavenger of hydriodic acid produced during iodine mediated photodehydrocyclization. The use of THF is advantageous due to its higher boiling point, lower cost and easy availability as compared to propylene oxide. The method is applied to synthesize a number of phenanthrenes and helicenes.

Keywords: Helicenes, HI scavenger tetrahydrofuran, Mizoroki-Heck-reaction, Phenanthrenes, Stilbenes, Wittig-olefination

Synthetic Communications®, 42: 1778–1785, 2012

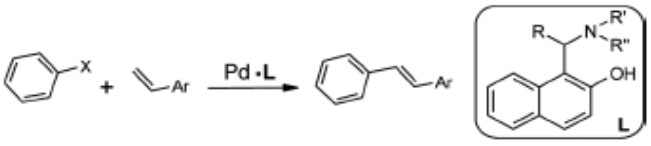
ISSN: 0039-7911 print/1532-2432 online
DOI: 10.1080/00397911.2010.544439

Taylor & Francis
Taylor & Francis Group

APPLICATION OF 1-(α-AMINOBENZYL)-2-NAPHTHOLS AS AIR-STABLE LIGANDS FOR Pd-CATALYZED MIZOROKI–HECK COUPLING REACTION

Anju R. Chaudhary and Ashutosh V. Bedekar
Faculty of Science, Department of Chemistry, Maharaja Sayajirao University of Baroda, Vadodara, India

GRAPHICAL ABSTRACT



Abstract *Air-stable, easily accessible Mannich bases, 1-(α-aminobenzyl)-2-naphthols, are used as ligands in palladium-catalyzed Mizoroki–Heck reaction on a variety of substrates. High turnover numbers are observed for both the reactions with aryl bromides and iodides, while aryl chlorides are inert.*

Keywords 1-(α-Aminobenzyl)-2-naphthols; Mizoroki–Heck; phosphine-free ligands

Full Paper

Applied Organometallic Chemistry

Received: 21 January 2012 Revised: 3 April 2012 Accepted: 3 April 2012 Published online in Wiley Online Library: 2 July 2012

(wileyonlinelibrary.com) DOI 10.1002/aoc.2877

1-(α-Aminobenzyl)-2-naphthol as phosphine-free ligand for Pd-catalyzed Suzuki and one-pot Wittig-Suzuki reaction

A. R. Chaudhary and A. V. Bedekar*

Air stable and easily accessible, 1-(α-aminobenzyl)-2-naphthols are used as efficient phosphine-free ligands in palladium-catalyzed Suzuki reaction for a variety of substrates under conventional heating as well as ultrasonic conditions. Multi-brominated aromatic substrates were successfully converted to corresponding arylated moieties with good conversion and selectivity. A novel one-pot two-step cascade reaction strategy involving Wittig and Suzuki reactions is developed for efficient synthesis of 4-styryl biphenyls (C_6-C_2-C_6-C_6 unit).

Keywords: 1-(α-aminobenzyl)-2-naphthols; phosphine-free Suzuki reaction; homogeneous palladium catalysis; one-pot Wittig–Suzuki reaction

Tetrahedron Letters 53 (2012) 6100–6103

Contents lists available at SciVerse ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

Sunlight promoted palladium catalysed Mizoroki–Heck, Suzuki–Miyaura and Sonogashira reactions

Anju R. Chaudhary, Ashutosh V. Bedekar *

Department of Chemistry, Faculty of Science, M.S. University of Baroda, Vadodara 390 002, India

ARTICLE INFO

Article history:
Received 8 August 2012
Revised 28 August 2012
Accepted 30 August 2012
Available online 7 September 2012

Keywords:
Sunlight
Renewable energy
Green chemistry
Coupling reactions
Homogeneous catalysis

ABSTRACT

The palladium catalysed Mizoroki–Heck, Suzuki–Miyaura and Sonogashira reactions were successfully carried out under irradiation with sunlight. The Heck reaction gives considerable amount of *Z* product due to photochemical isomerization of initially formed *E* alkenes. Reaction of methyl 2-iodobenzoate with acrylamide under solar condition furnished 2*H*-2-benzazepine-1,3-dione rather than the expected derivative of cinnamate while the same reaction with ethyl 2-iodobenzoate gave the desired cinnamide.

Tetrahedron Letters 54 (2013) 392–396

Contents lists available at SciVerse ScienceDirect

Tetrahedron Letters

journal homepage: www.elsevier.com/locate/tetlet

Expeditious synthesis of fluorinated styrylbenzenes and polyaromatic hydrocarbons

Ashutosh V. Bedekar [a,*], Anju R. Chaudhary [a], M. Shyam Sundar [a], Murali Rajappa [b]

[a] Department of Chemistry, Faculty of Science, M.S. University of Baroda, Vadodara, Gujarat 390 002, India
[b] Navin Fluorine International Limited, Udhna-Navsari Road, Bhestan, Surat, Gujarat 395 023, India

ARTICLE INFO

Article history:
Received 8 October 2012
Revised 4 November 2012
Accepted 5 November 2012
Available online 21 November 2012

Keywords:
Mizoroki–Heck
One-pot Reactions
Photocyclization
Fluorinated styrylbenzenes
Fluorinated polyaromatic hydrocarbons

ABSTRACT

A series of fluorinated styrylbenzene derivatives were synthesized by the Mizoroki–Heck reaction using phosphine-free catalytic conditions or by adopting the one-pot Wittig–Heck reaction sequence. The fluorinated styrylbenzenes were converted into polyaromatic hydrocarbons such as phenanthrenes, [4]helicenes, and benzo[*ghi*]perylene by a modified photocyclization procedure involving I_2-THF condition.

Tetrahedron: *Asymmetry* 25 (2014) 767–774

Contents lists available at ScienceDirect

Tetrahedron: *Asymmetry*

journal homepage: www.elsevier.com/locate/tetasy

Application of optically active aminonaphthols as NMR solvating agents for chiral discrimination of mandelic acid

Anju R. Chaudhary, Priyanka Yadav, Ashutosh V. Bedekar *

Department of Chemistry, Faculty of Science, M. S. University of Baroda, Vadodara 390 002, India

ARTICLE INFO

Article history:
Received 15 February 2014
Accepted 4 April 2014

ABSTRACT

A series of optically active aminonaphthol derivatives were prepared and screened as chiral solvating agents to discriminate the $C^{-2}H$ of racemic mandelic acid by ^1H NMR analysis. An effort was made to establish a correlation of the structure of aminonaphthol derivatives and the selectivity in this non-covalent interaction. A linear relationship between the experimental and calculated enantiomeric purity was established by indicating the potential use of the system to determine the ee for the samples of mandelic acid of unknown enantiomeric purity.

Participation in Conferences/Seminars

1. Participated in "National Seminar on Emerging Trends in Chemical Science Research (NSETCSR-2009)" held at Dept. of Chemistry, Sardar Patel University, Vallabh Vidhyanagar, Gujarat on 20th – 21st Jan, 2009.
2. Participated in the national seminar on "Nuclear Magnetic Resonance: Advances & Applications" held at Dept. of Chemistry, M. S. University of Baroda on 21st - 22nd Feb. 2009.
3. Participated in National Symposium on "Emerging Horizons in Catalysis" (CATSYMP-2009) held at Dept. of Chemistry, M. S. University of Baroda on 25th – 26th Sep, 2009.
4. Poster presentation at 12th CRSI National Symposium in Chemistry & 4th CRSI-RSC Symposium in Chemistry at IICT, Hyderabad & NIPER, Hyderabad on 4th – 7th Feb, 2010.
5. Poster presentation in National Conference on "Recent Trends in Organic Synthesis-2011" held at Bharathidasan University, Tiruchirappalli, Tamilnadu on 24th – 26th Feb, 2011.
6. Participated in "Special Practical Demonstration Session for School Students" Organized at Sayaji Boys High School on 14th September 2011 by Dept. of Chemistry, M. S. University of Baroda under the auspices of "International Year of Chemistry-2011".
7. Paper presentation in the "Western India research Scholars' Meet (WIRSM-2011)" held on 17th September 2011 in the Dept. of Chemistry, M. S. University of Baroda.
8. Participated in the "National Conference on Chirality – 2011 (NCC-2011)" held during 02-03, Dec. 2011 in the Dept. of Chemistry, M. S. University of Baroda.
9. Oral presentation in "International Conference on Synthetic Structural Chemistry, ICSSC-2011" held during December 8-10, 2011 in the Dept. of Studies in Chemistry, Mangalore University, Mangalagangothri, Mangalore.
10. Poster presentation in the "National Seminar on Catalysis for Sustainable Development" organized under the auspices of CSI – Baroda Chapter, in association with Indian Institute of Chemical engineers, Baroda regional

Centre and Dept. of Chemistry, The M. S. University of Baroda, held on 27th – 28th Jan, 2012 at I. G. Patel Seminar Hall, M. S. University of Baroda.

11. Participation in "Open House Science fair" on the Birth Anniversary – 150th year Celebration of Maharaja Sayajirao Gaekwad III, held on 11th & 12th March 2012, M. S. University of Baroda.
12. Won 1st prize in Oral Competition in Chemical Sciences section at Regional Science Congress on "Science for shaping the future of India" jointly organized by M. S. University of Baroda and Indian Science Congress Association (Baroda Chapter) held on September 15- 16, 2012.
13. Paper presentation in National Conference on "Global Challenges: New Frontiers in Chemical Sciences (GC: NFCS-2012)" held on September 22 & 23, 2012 at Kurukshetra University, Kurukshetra.
14. Participation in "Innovations in Science and Technology: Open House and Science Exhibition'' organized by Faculty of Science, M. S. University of Baroda, Vadodara in association with Indian Science Congress Association, Baroda Chapter on 27 – 28th January – 2014.