

Science of Synthesis

Quick Start Guide



The monitor displays the Science of Synthesis search results page. The search query is 'Hydroquinone + Benzene, 97%'. The results show a hit for '28.7.1.1.2.2.1 Method 1: Fremy's Salt Oxidation'.

28.7.1.1.2.2.1 Method 1: Fremy's Salt Oxidation

Pindur, U.; Lember, T., *Science of Synthesis*, [2005] 28, 269.

The first chemical preparation of the anti-tetrolidic marine alkaloids of the cistostin series 132 accomplished by modified Knoevenagel-Stobbe pyridine-ring formation and a photochemical nitro-into a C-H bond as key steps (Scheme 39).^[4-6] A total synthesis has been developed on the basis of retrosynthetic analysis. In the last part of this total synthesis the 4-(2-azidophenyl)quinoline-7,8-dione formed as a stable intermediate product from quinolin-9-ol 133 by Fremy's salt oxidation (Scheme 39).

Scheme 39 Formation of a 4-(2-azidophenyl)quinoline-7,8-dione by Oxidation of a Quinolin-9-ol with Fremy's Salt [64]

132 cystostin A: R¹ = CH₂OMe
 cystostin B: R¹ = CH₂OCMe₂
 cystostin C: R¹ = CH₂COMe

Reaction scheme showing the conversion of a quinolin-9-ol derivative (133) to a 4-(2-azidophenyl)quinoline-7,8-dione derivative using Fremy's salt ((KSO₅)₂NO) in phosphate buffer/MeOH, yielding 58%.

Best methods. Best results.

hydroquinone
benzene, 97%
75%; dr



Navigation

Home: General information and news

Query: Search SoS

Results: Hitlist of search results

Full text: Descriptions of transformations with experimental procedures

Explore contents: Overview of all transformations by functional group

Start a search

The screenshot shows the Science of Synthesis website home page. At the top, there is a navigation bar with links for Home, Query, Results, Full text, and Explore contents. A 'MySoS' login button is located in the top right corner. The main content area is divided into several sections: 'IMPORTANT INFORMATION' with links to Technical Requirements, Getting Started Manual, Series Preface, Editorial Guidelines, and Abbreviation List; a 'Welcome to Science of Synthesis' section with introductory text and a 'Start here' button; a 'NEWS' section with three news items: 'Science of Synthesis Knowledge Updates now available online!', '2010 Nobel Prize in Chemistry for Professor Negishi', and 'NEW! Stereoselective Synthesis: Workbench Edition Now Available!'. A 'Return to Top' link is at the bottom right. The footer contains the Thieme logo and copyright information for Georg Thieme Verlag KG.

Login to MySoS

Within Science of Synthesis you can register for a MySoS personal account. This allows you to save and load queries as well as manually revise search results and change your personal settings.

News

To start a search, please go to

sos.thieme.com

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Home Query Results Full text Explore contents MySOS

FUNCTIONS

- Use ChemDraw
- Use ISIS/Draw
- Upload Molfile...
- Reset query

Enter your Query

Full text

Drawing

Clear Drawing Submit

Return to Top

Structure search with external drawing tools

Upload Molfile

Reset query

Full-text search

Structure search with Java Applet

Structure search available with

- ChemDraw
- ISIS/Draw (IE only)
- Java Applet

and combined with a text search.

How to do an advanced search

| Enter prefixes for a search by: | Prefix: |
|---------------------------------|---------------|
| Section | section: |
| Page | page: |
| Volume | volume: |
| SOS Contributor | manuscript: |
| Author | author: |
| Journal | journal: |
| Year | year: |
| Title | title: |
| CAS Registry Number | cas-m: |
| Yield | yield: |
| Temperature | temperature: |
| Catalyst | catalyst: |
| Solvent | solvent: |
| Name Reactions | namereaction: |



Results

Thieme Science of Synthesis

Home Query Results Full text Explore contents MySOS

FILTER/SORT RESULTS

FILTER BY:

- Reaction Product (4)
- Reaction Reactant (4)
- Molecule (1)
- Substructure (7)

SORT HITLIST:

- By relevance
- By publication date

FUNCTIONS

- Select all hits
- Deselect all hits
- Reset all hits

Results

Page: 1 of 5

- Heterocyclic Analogues of Phenanthrene-9,10-diones
28.6.2.1.1.4 Variation 4: Oxidation of Hydroxy- and/or Alkoxy-Substituted Heterenes with Mild Oxidants
Echavarren, A. M.; Porcel, S., *Science of Synthesis*, (2006) 28, 531.
[Show Reaction](#) [Show Full text](#) [Show TOC](#) [Show Single Step Reactions](#)
- Heterocyclic Analogues of Phenanthrene-9,10-diones
28.6.2.1.2.1 Variation 1: N-C Bond-Forming Reactions
Echavarren, A. M.; Porcel, S., *Science of Synthesis*, (2006) 28, 537.
[Show Reaction](#) [Show Full text](#) [Show TOC](#) [Show Single Step Reactions](#)
- Nitrogen-Containing Heterene Quinones
28.7.1.1.2.2.1 Method 1: Fremy's Salt Oxidation
Pindur, U.; Lemster, T., *Science of Synthesis*, (2005) 28, 589.
[Show Reaction](#) [Show Full text](#) [Show TOC](#) [Show Single Step Reactions](#)
- Heterocyclic Analogues of Phenanthrene-9,10-diones
28.6.2.2.1 Method 1: Oxidation of Functional Groups
Echavarren, A. M.; Porcel, S., *Science of Synthesis*, (2006) 28, 539.
[Show Reaction](#) [Show Full text](#) [Show TOC](#) [Show Single Step Reactions](#)
- Heterocyclic Analogues of Phenanthrene-9,10-diones
28.6.2 Product Subclass 2: Heterocyclic Analogues of Phenanthrene-9,10-diones

Reaction scheme:

Reaction Reactant

98 → 99

Filter hitlist

Sort hitlist

Select/deselect all hits

Reset all hits

Select/deselect a hit

Ranked search results

Navigate within hitlist pages

Show reaction scheme

Show full-text review

Show context of method

Show single-step reactions

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Home Query Results Full text Explore contents

Hitarene-F... Nitrogen-C... Synthesis... Nitrogen-C... e-Quinone...

NAVIGATION
Hit 3 of 5
Next / Previous

28.7.1.1.2.2.1 Method 1: Fremy's Salt Oxidation

Pindur, U.; Lemster, T. *Science of Synthesis*, (2006) **28**, 589.

The first chemical preparation of the antineoplastic marine alkaloids of the cystodytin series **132** has been accomplished by modified Knoevenagel-Stobbe pyridine-ring formation and a photochemical nitrene insertion into a C—H bond as key steps (Scheme 39).^[64] A total synthesis has been developed on the basis of retrosynthetic analysis. In the last part of this total synthesis the 4-(2-azidophenyl)quinoline-7,8-dione **134** is formed as a stable intermediate product from quinolin-8-ol **133** by Fremy's salt oxidation (Scheme 39).

Scheme 39 Formation of a 4-(2-Azidophenyl)quinoline-7,8-dione by Oxidation of a Quinolin-8-ol with Fremy's Salt^[64]

6-(2-Acetoxyethyl)-4-(2-azidophenyl)quinoline-7,8-dione (134); Typical Procedure:^[64]

A soln of potassium nitrosodisulfonate (5.12 g, 19.1 mmol) in 0.5 M KH₂PO₄ buffer (275 mL) was added to a well-stirred soln of **133** (1.10 g, 2.86 mmol) in MeOH (260 mL), and the resulting mixture was stirred at rt for 3.5 h. The solvents were evaporated, and the residue was diluted with H₂O (300 mL) and extracted with CH₂Cl₂. The combined extracts were dried (Na₂SO₄) and the solvents were evaporated to yield an orange-yellow solid; yield: 579 mg (56%); mp 174–177°C.

References

[64] Ciuffolini, M. A.; Byrne, N. E., *J. Am. Chem. Soc.*, (1991) **113**, 8016.

Related Information

1. Houben-Weyl, (1977) **7/3a**, 590.

Print page or chapter

Cite this article

Navigation within book

Navigation within hitlist

Show context of method in breadcrumb navigation

References

Related information in the archive



Explore contents

Thieme Science of Synthesis

Home Query Results Full text **Explore contents** MySOS

FUNCTIONS
Collapse tree

Explore contents

- Science of Synthesis
 - Organometallics
 - Heterarenes
 - Compounds with Four and Three Carbon-Heteroatom Bonds
 - Compounds with Two Carbon-Heteroatom Bonds
 - Aldehydes
 - Ketones
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 - Quinones and Heteroatom Analogues
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 - Benzo-1,2-quinones
 - Naphtho-1,4-quinones
 - Naphtho-1,2-, Naphtho-1,5-, Naphtho-1,7-, Naphtho-2,3-, and Naphtho-2,6-quinones
 - Anthra-9,10-quinones, Anthra-1,2-quinones, Anthra-1,4-quinones, Anthra-2,9-quinones, and Theli
 - Phenanthrene-9,10-diones, Stilbenequinones, Diphenquinones, and Related Ring Assemblies
 - Heterarene-Fused Quinones
 - Nitrogen-Containing Heterarene Quinones
 - Synthesis of Product Subclass 1
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 - Nitrogen-Containing Heterarene o-Quinones
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 - Fremy's Salt Oxidation
 - Oxygen- and Sulfur-Containing Heterarene Quinones
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 - Anthraquinone and Phenanthredione Imines and Diimines
 - Quinone Diazides
 - Quinomethanes
 - Acetals: Hal/X and O/O, S, Se, Te
 - Acetals: O/N, S/S, S/N, and N/N and Higher Heteroatom Analogues
 - Arene-X (X = Hal, O, S, Se, Te, N, P)
 - X-Ene-X (X = F, Cl, Br, I, O, S, Se, Te, N, P), Ene-Hal, and Ene-O Compounds
 - Ene-X Compounds (X = S, Se, Te, N, P)
- Compounds with One Carbon-Heteroatom Bond
- Compounds with All-Carbon Functions
- Electronic Backfile
 - Houben-Weyl
 - Science of Synthesis Backfile
- Reference Library

Logical organiza-
tion of content

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Compound class
introduction

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the context of
a chapter

Houben-Weyl
methods

Archive (these
methods have
been updated)

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- Water in Organic Synthesis
- ...

Science of Synthesis provides a critical review of synthetic methodology developed to-date in the fields of organic and organometallic chemistry.

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Mac: OS X, Version 10.5 and higher, Safari 2.0 and higher

Adobe Reader, Java Runtime environment

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