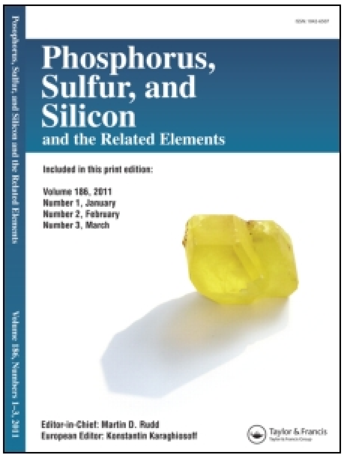


Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

Toward the Synthesis of ( )-Pericosine B

José L. García Ruano[a]; Jesús López-Cantarero[a]; Carlos Alemparte[a]
[a] Departamento de Química Orgánica, Universidad Autónoma de Madrid, Madrid, Spain

To cite this Article Ruano, José L. García , López-Cantarero, Jesús and Alemparte, Carlos(2005) 'Toward the Synthesis of ( )-Pericosine B', Phosphorus, Sulfur, and Silicon and the Related Elements, 180: 5, 1493 — 1494

To link to this Article: DOI: 10.1080/10426500590913339

URL: http://dx.doi.org/10.1080/10426500590913339

Phosphorus, Sulfur, and Silicon, 180:1493–1494, 2005
Copyright © Taylor & Francis Inc.
ISSN: 1042-6507 print / 1563-5325 online
DOI: 10.1080/10426500590913339

Taylor & Francis
Taylor & Francis Group

Toward the Synthesis of (+)-Pericosine B

José L. García Ruano
Jesús López-Cantarero
Carlos Alemparte
Departamento de Química Orgánica, Universidad Autónoma de Madrid,
Madrid, Spain

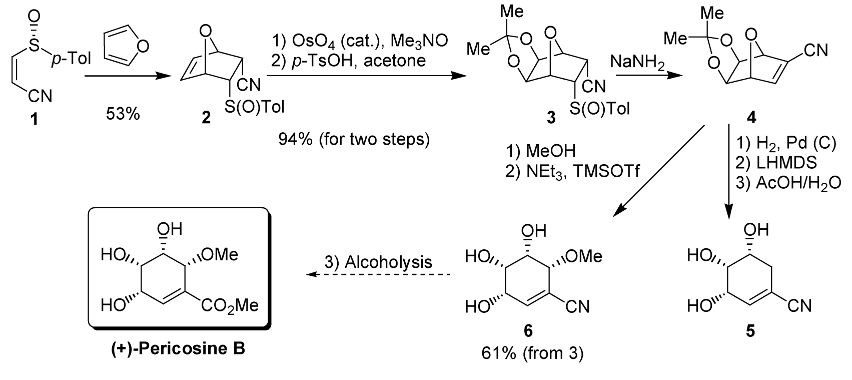
Keywords Asymmetric synthesis; Diels–Alder reaction; natural products; sulfoxides

INTRODUCTION

(+)-Pericosine B, a marine natural product isolated from a strain of *Periconia byssoides*,[1] is an attractive synthetic target because of its significant activity in the P388 lymphocytic leukemia test system. The only reported synthesis of this compound[2] involves the use, as a crucial step, of a poorly stereoselective dihydroxylation (de = 38%) with stoichiometric amounts of highly toxic and expensive OsO_4.

RESULTS

In this communication, we describe a new enantioselective synthesis of (+)-Pericosine B based on the Diels–Alder reaction of 3-sulfinylacrylonitrile (**1**) with furan[3] as the key step.



Received July 9, 2004; accepted October 5, 2004.

Address correspondence to Jesús López Cantarero, Departamento de Química Orgánica, Universidad Autónoma de Madrid, Cantoblanco, 28049 Madrid, Spain. E-mail: jesus.cantarero@uam.es

Dihydroxylation and protection of cycloadduct **2** afforded compound **3**, which easily evolved into the α,β-unsaturated nitrile **4** upon basic treatment. This interesting chiral synthon allows the introduction of nucleophiles at C-6 in a stereoselective manner. Thus, its reaction with MeOH, followed by concomitant oxabridge-opening and deprotection, gave nitrile **6**, the immediate precursor of (+)-Pericosine B. Compound **4** also provided access to Shikimic acid derivatives such as **5**.

It must be pointed out that the role of the sulfinyl group in this synthesis is double, as a chiral auxiliary in the key Diels–Alder reaction and as a precursor of the double bond required for the conjugate addition of methanol.

REFERENCES

[1] A. Numata, M. Iritani, T. Yamada, K. Minoura, E. Matsumura, T. Yamori, and T. Tsuruo, *Tetrahedron Lett.*, **38,** 8215 (1997).

[2] T. J. Donohoe, K. Blades, M. Helliwell, M. J. Waring, and N. J. Newcombe, *Tetrahedron Lett.*, **39,** 8755 (1998).

[3] J. L. García Ruano, C. Alemparte, A. M. Martín Castro, H. Adams, and J. H. Rodríguez Ramos, *J. Org. Chem.*, **65,** 7938 (2000).