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Toward the Synthesis of ()-Pericosine B

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Toward the Synthesis of (+)-Pericosine B

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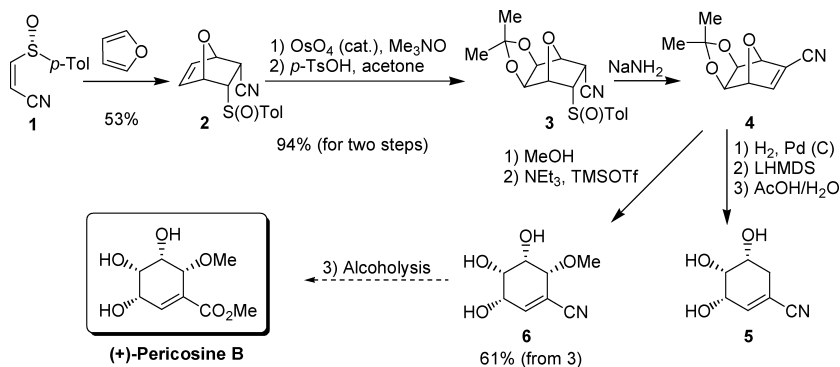
Keywords Asymmetric synthesis; Diels–Alder reaction; natural products; sulfoxides

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 compound² involves the use, as a crucial step, of a poorly stereoselective dihydroxylation (de = 38%) with stoichiometric amounts of highly toxic and expensive OsO₄.

RESULTS

In this communication, we describe a new enantioselective synthesis of (+)-Pericosine B based on the Diels–Alder reaction of 3-sulfinylacrylonitrile (**1**) with furan³ as the key step.



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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.

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