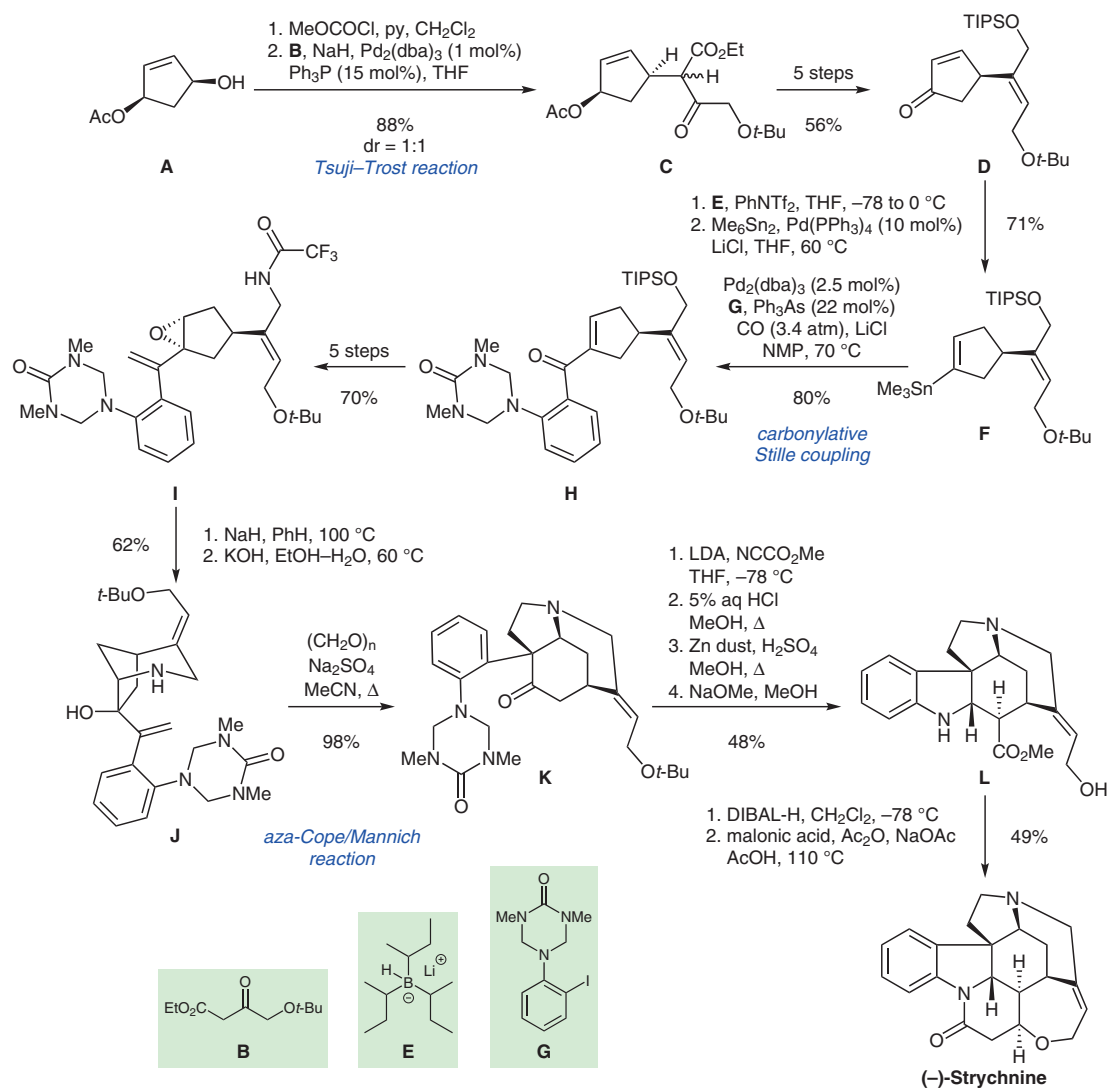


S. D. KNIGHT, L. E. OVERMAN\*, G. PAIRAUDEAU (UNIVERSITY OF CALIFORNIA, IRVINE, USA)

Enantioselective Total Synthesis of (–)-Strychnine

*J. Am. Chem. Soc.* **1993**, *115*, 9293–9294, DOI: 10.1021/ja00073a057.

## Total Synthesis of (–)-Strychnine



**Significance:** (–)-Strychnine is a highly neurotoxic plant alkaloid first isolated in 1818 from *Strychnos ignatii*. Due to the complex structure, it has played a pivotal role in the development of classical structural chemistry and chemical synthesis. The herein highlighted work by Overman and co-workers constitutes the first asymmetric total synthesis of (–)-strychnine.

**Comment:** One-pot conjugate reduction/triflylation and Pd-catalyzed stannylation furnished organostannane **F** which served as a key fragment in the ensuing carbonylative Stille coupling with iodide **G**. A clever solution was devised to deal with the bowl-shaped geometry of tertiary amine **K**. Aza-Cope/Mannich cascade readily forged the corresponding tricycle in a single step and excellent yield. Further elaboration to (–)-strychnine was achieved via the known Wieland–Gumlich aldehyde.

**SYNFACTS Contributors:** Erick M. Carreira, Sven M. Papidocha  
Synfacts 2023, 19(04), 0329 Published online: 17.03.2023  
DOI: 10.1055/s-0042-1753436; Reg-No.: C02823SF

© 2023, Thieme. All rights reserved.  
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

Category

Synthesis of Natural Products

Key words

(–)-strychnine

alkaloid

neurotoxin

Tsuji–Trost reaction

carbonylative Stille coupling

aza-Cope/Mannich reaction

Wieland–Gumlich aldehyde

Synfact Classic

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.