www.thieme.com

SYNFACTS Highlights in Current Synthetic Organic Chemistry

Publishing House and Copyright:
© 2015 by
Georg Thieme Verlag KG
Rüdigerstraße 14
70469 Stuttgart
ISSN 1861-1958

Thieme

Category

Synthesis of Natural Products and Potential Drugs

Key words

assembly-line synthesis

iterative homologation

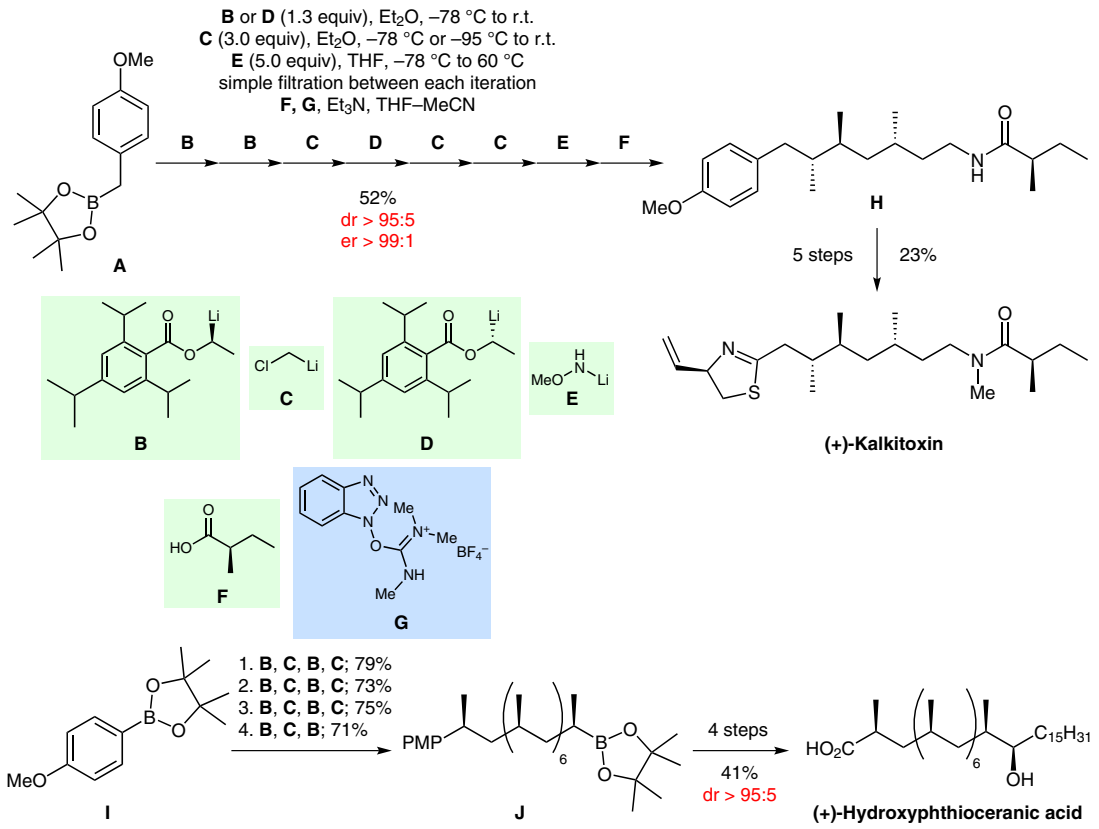
(+)-kalkitoxin

(+)-hydroxyph-thioceranic acid

S. BALIEU, G. E. HALLETT, M. BURNS, T. BOOTWICHA, J. STUDLEY, V. K. AGGARWAL*
(UNIVERSITY OF BRISTOL AND VERTEX PHARMACEUTICALS LIMITED, ABINGDON, UK)

Toward Ideality: The Synthesis of (+)-Kalkitoxin and (+)-Hydroxyphthioceranic Acid by Assembly-Line Synthesis
J. Am. Chem. Soc. **2015**, DOI: 10.1021/ja512875g.

Assembly-Line Synthesis of (+)-Kalkitoxin and (+)-Hydroxyphthioceranic Acid



Significance: The stepwise construction of carbon scaffolds following an iterative strategy with no functional group interconversions or purifications is very attractive. Aggarwal and co-workers showcase the power of boronic ester homologation with up to seven iterations in two enantioselective syntheses of (+)-kalkitoxin and (+)-hydrophthioceranic acid.

Comment: The chiral lithiated species **B** and **D** were derived from the respective enantiopure stannanes by treatment with *s*-BuLi. (Chloromethyl)lithium (**C**) was generated by lithium–halogen exchange of $BrCH_2Cl$ or ICH_2Cl in the presence of the crude boronic esters. The yield of **H** corresponds to an impressive yield of 91% per iteration with excellent diastereo- and enantiocontrol.

SYNFACTS Contributors: Erick M. Carreira, Matthias Westphal
Synfacts 2015, 11(4), 0352 Published online: 18.03.2015
DOI: 10.1055/s-0034-1380341; **Reg-No.:** C01215SF