

benzyl ether (HCO<sub>2</sub>NH<sub>4</sub>, THF/H<sub>2</sub>O 4:1, 10% Pd/C, 23 °C, 30 min, 100%) and the *t*-BOC protecting groups (3 N anhydrous HCl-EtOAc, 23 °C, 30 min) of (-)-1S-15 and (+)-1R-15 afforded the unstable indoline hydrochlorides **16**, which were coupled directly with synthetic PDE-I dimer (**5**)<sup>10</sup> in the presence of EDCI (3 equiv, DMF, NaHCO<sub>3</sub>, 23 °C, 24 h) to provide 1S-17 and 1R-17, respectively. Final spirocyclization (Wierenga-Kelly Winstein Ar-3' alkylation)<sup>7</sup> was effected by treatment of 1S-17 and 1R-17 with 1:1:1 Et<sub>3</sub>N/H<sub>2</sub>O/CH<sub>3</sub>CN (23 °C, 30 min) and afforded (+)-CC-1065 (**1**, [ $\alpha$ ]<sub>578</sub><sup>23</sup> = +90° (c 0.062, DMF)) and *ent*-(-)-CC-1065 (**2**, [ $\alpha$ ]<sub>578</sub><sup>23</sup> = -92° (c 0.075, DMF)),<sup>15</sup> respectively.<sup>17</sup>

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Upjohn Company for providing a comparison sample of naturally occurring (+)-CC-1065, for preprints of their work (ref 5 and 7), and for many helpful discussions.

**Supplementary Material Available:** Full physical and spectral characterizations of **3-17**, **1**, and **2** are provided (8 pages). Ordering information is given on any current masthead page.

(17) Synthetic CC-1065 prepared in this manner was shown to be identical by SiO<sub>2</sub> TLC (20% DMF-toluene), [ $\alpha$ ]<sub>578</sub><sup>23</sup>, <sup>1</sup>H NMR (DMSO-*d*<sub>6</sub>, 300 MHz), IR (KBr), and FABMS with an authentic sample of natural (+)-CC-1065. The [ $\alpha$ ]<sub>578</sub><sup>25</sup> for natural (+)-, semisynthetic (+)-, and semisynthetic *ent*-(-)-CC-1065 have been reported to be +97°, +98°, and -96° (c 0.2, DMF),<sup>7</sup> respectively. In the present investigation, [ $\alpha$ ]<sub>578</sub><sup>23</sup> for natural (+)-CC-1065 was determined to be +93° (c 0.067, DMF). In the present investigation, the *in vitro* cytotoxic activity of natural (+)-, synthetic (+)-, and synthetic *ent*-(-)-CC-1065, respectively, were determined to be the following: 1.1, 1.2, and 1.3 × 10<sup>-5</sup> μg/mL (L1210); 1.4, 1.8, 1.3 × 10<sup>-5</sup> μg/mL (B16).

## Additions and Corrections

**Remarkable Effects of Lone Pair-Lone Pair Interactions on the Extremely Stereoselective [2 + 2] Cycloaddition of Azidoketene to Chiral 3-Imino-β-lactams** [*J. Am. Chem. Soc.* **1987**, *109*, 1798]. IWAO OJIMA,\* KAZUAKI NAKAHASHI, STEPHAN M. BRANDSTADTER, and NAOTO HATANAKA

Page 1801: In Scheme V, the compound designations for IIA and IIB should be reversed.

## Book Reviews\*

**Advances in Heterocyclic Chemistry. Volume 41.** Edited by A. R. Katritzky. Academic Press: Orlando. 1987. vii + 376 pp. \$85.00. ISBN 0-12-020641-2

The six chapters in this volume treat subjects new to the series. Synthesis of Heterocycles from Hydrogen Cyanide Derivatives, by D. S. Donald and O. W. Webster, deals with the elaborate chemistry built upon the dimers and oligomers of HCN, important industrially and in the search for insight into the paleological origin of organic compounds. T. S. Gilchrist reviews the anions of 5-membered heteroaromatic rings with attention to ring-opening reactions. F. Taddei and colleagues present a critical discussion of the barriers to free rotation in the *C*-acyl and *N*-acyl heterocycles. The Basicity and Acidity of Azoles is the subject of a chapter by J. Catalan, J. L. M. Abbond, and J. Elguero. Oxidative Transformations of Heteroaromatic Iminium Salts, exemplified by pyridinium salts, have been the subject of much recent attention and are reviewed by H. Weber. A ring system not reviewed before, the pyrazolopyrimidines, is the subject of the final chapter, by M. H. El Nagadi, M. R. H. El Moghayar, and G. E. H. El Gemeie. The high quality of content and production that characterizes this series is maintained.

**High-Energy Processes in Organometallic Chemistry. ACS Symposium Series. No. 333.** Edited by Kenneth S. Suslick (University of Illinois at Urbana-Champaign). American Chemical Society: Washington, DC. 1987. vii + 336 pp. \$69.95. ISBN 0-8412-1018-7

This book, which was developed from a symposium sponsored by the division of inorganic chemistry at the 192nd meeting of the American chemical society, Anaheim, Ca, is composed of 19 chapters and author and subject indexes. It is written by academic and industrial researchers who are currently very active in high-energy processes in organometallic chemistry.

The first chapter gives a historical background to the development of high-energy processes, which started as early as 1929, by F. A. Paneth. Some of the chapters discuss different aspects of high-energy processes, from current studies in the gas phase of the organometallic chemistry to the study of photochemical reactions and the investigation of some highly reactive intermediates and metal powders. The remaining chapters discuss some techniques and applications in high-energy processes involving infrared spectroscopy for examining the structure and behavior of intermediates involved in organometallic chemistry, electron spin resonance spectroscopy in the study of radiolysis of transition-metal compounds, ultrasonic waves for heterogeneous reactions, electrochemiluminescence of organometallics and finally plasma, and ion and electron beams for synthesis and modification of inorganic systems.

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**Formulas, Facts and Constants, For Students and Professionals in Engineering, Chemistry and Physics. Second Edition.** By Harold J. Fischbeck (University of Oklahoma) and Kurt H. Fischbeck (University of Heidelberg). Springer-Verlag: Berlin, Heidelberg, and New York. 1987. xv + 260 pp. \$23.00. ISBN 3-540-17610-1

Although the title identifies chemists as one of the groups for whom this book is intended, only those whose work is very close to engineering will find it useful. The first section (108 pages) is essentially mathematical and includes trigonometric functions, vectors, etc. The second part is headed "Units, conversion factors, and constants" and is arranged according to kind of property: mass, pressure, energy, etc. This is a useful arrangement. Section 3, "Spectroscopy and atomic structure", considers only the spectroscopy of atoms and totally ignores molecular spectroscopy. The fourth section is on wave mechanics and includes a range of equations. The last section is called "Facts, figures, and data useful in the laboratory". It is concerned with vacuum phenomena, flow, electronic properties, and radiation (especially γ), for the most part. Some physical-chemistry laboratories would find it useful; those who

\*Unsigned book reviews are by the Book Review Editor.