

Preface

Natural product chemistry very often stimulates the development of novel pharmaceutical drugs. In fact, the vast majority of new lead structures in medicinal chemistry are derived from frameworks of naturally occurring compounds. In this respect alkaloids lead the way and consequently a breathtaking progress in the chemistry of alkaloids has taken place over the last century. Especially over the past decades, we can follow the evolution of numerous novel synthetic methodologies for the total synthesis of biologically active alkaloids. Due to space limitation, of course only a few aspects of some recent developments in “Alkaloid Synthesis” could be highlighted in the present volume of *Topics in Current Chemistry*. In six contributions, different research teams from Austria, Australia, Canada, Japan and Germany have summarized important achievements of the past decade.

In the first chapter, Mariko Kitajima and Hiromitsu Takayama from the Graduate School of Pharmaceutical Sciences at Chiba University in Japan describe the isolation and asymmetric synthesis of *Lycopodium* alkaloids. The following chapter is a joint contribution by Uwe Rinner from the Institute of Organic Chemistry at the University of Vienna in Austria and Tomas Hudlicky from the Department of Chemistry and Centre of Biotechnology at Brock University in St. Catharines, Canada. They discuss recent developments in the synthesis of morphine alkaloids and derivatives. Thomas Lindel, Nils Marsch and Santosh Kumar Adla from the Institute of Organic Chemistry at the Technical University of Braunschweig describe important aspects of indole prenylation in alkaloid synthesis. Yasuyuki Kita from the College of Pharmaceutical Sciences at Ritsumeikan University in Shiga, Japan, and Hiromichi Fujioka from the Graduate School of Pharmaceutical Sciences at Osaka University in Japan compiled in their joint chapter the synthesis of marine pyrroloiminoquinone alkaloids. The penultimate chapter by Martin G. Banwell, Nadia Gao, Brett D. Schwarz and Lorenzo V. White from the Research School of Chemistry and Institute of Advanced Studies at The Australian National University in Canberra, Australia, report on *Amaryllidaceae* and other terrestrially-derived alkaloids. Finally, an article with Ingmar Bauer as co-author from our own laboratories of the Department of Chemistry at the Technical University of Dresden

in Germany outlines recent developments in the synthesis of pyrrole and carbazole alkaloids.

I am very grateful to all authors and co-authors of this special volume of *Topics in Current Chemistry* for their contributions and for their efforts to meet the time-lines. I am convinced that the present compilation of recent developments in “Alkaloid Synthesis” represents a useful and stimulating reference source not only for researchers active in this field but also for young scientists and students.

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Alkaloid Synthesis

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