

Organic Reactions in Water: Principles, Strategies and Applications; edited by U. M. Lindström; Blackwell: Oxford, 2007, hardcover, 416 pp., £ 99.50 / US\$ 199.99, ISBN 978-1-4051-3890-1

Mother Nature, the best chemist on earth, has known for billions of years that water is a fantastic solvent for organic synthesis. With some considerable delay, organic chemists are now starting to discover the huge potential of water as a reaction medium in organic synthesis. U. M. Lindström has invited the most eminent researchers of this discipline to write the authoritative textbook about organic reactions in water. Among other authors, Breslow, Engberts, Kobayashi, Li, Sheldon, Rajanbabu, Sinou, Sharpless, and Cornils have contributed insightful chapters about specific topics for this book.

Water is inexpensive, ubiquitous and readily available, odorless, nonflammable, has a high solubility for gases, has a polarity that may influence reactivity, and exhibits amphoteric behaviour as an acid and a base. The book, which is divided into twelve chapters, starts with a personal recollection by Ronald Breslow about his work in enzyme mimics and the promotion of reactions in water by hydrophobic binding of small molecules. Then Engberts gives a concise and highly contemporary view of the structure and properties of water. The subsequent chapters review the use of water as a reaction medium for all major classes of organic reactions. All of these chapters are very

good, but I enjoyed the treatments by Rajanbabu (Catalyzed Reactions in Aqueous Media), Sheldon (Oxidations) and Nakamura (Biocatalysis in Water) most. Sharpless and Fokin continue with an excellent and very inspiring article about their recent work in the area 'chemistry on water'. The final chapter of the book, by Cornils, is a very well researched reflection of water as a reaction solvent in industry with a special emphasis on the Ruhrchemie/Rhone Poulenc hydroformylation process.

The only thing missing, based on my own list of expected subjects from the book's title, is a treatment of the hot topic of ligation reactions between probe molecules and biopolymers, and the efforts of performing organic synthesis in living cells. This omission, however, does not affect the excellent overall impression of this book. All chapters are referenced very well, and the literature is covered up to early 2006. At the end of the book, a highly useful index of organic reactions in water is given, in which recent literature references are given for more than 130 reactions.

In conclusion, Marcus Lindström can be congratulated for having edited the authoritative textbook of organic synthesis water – a book which should be made available in every chemistry library.

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