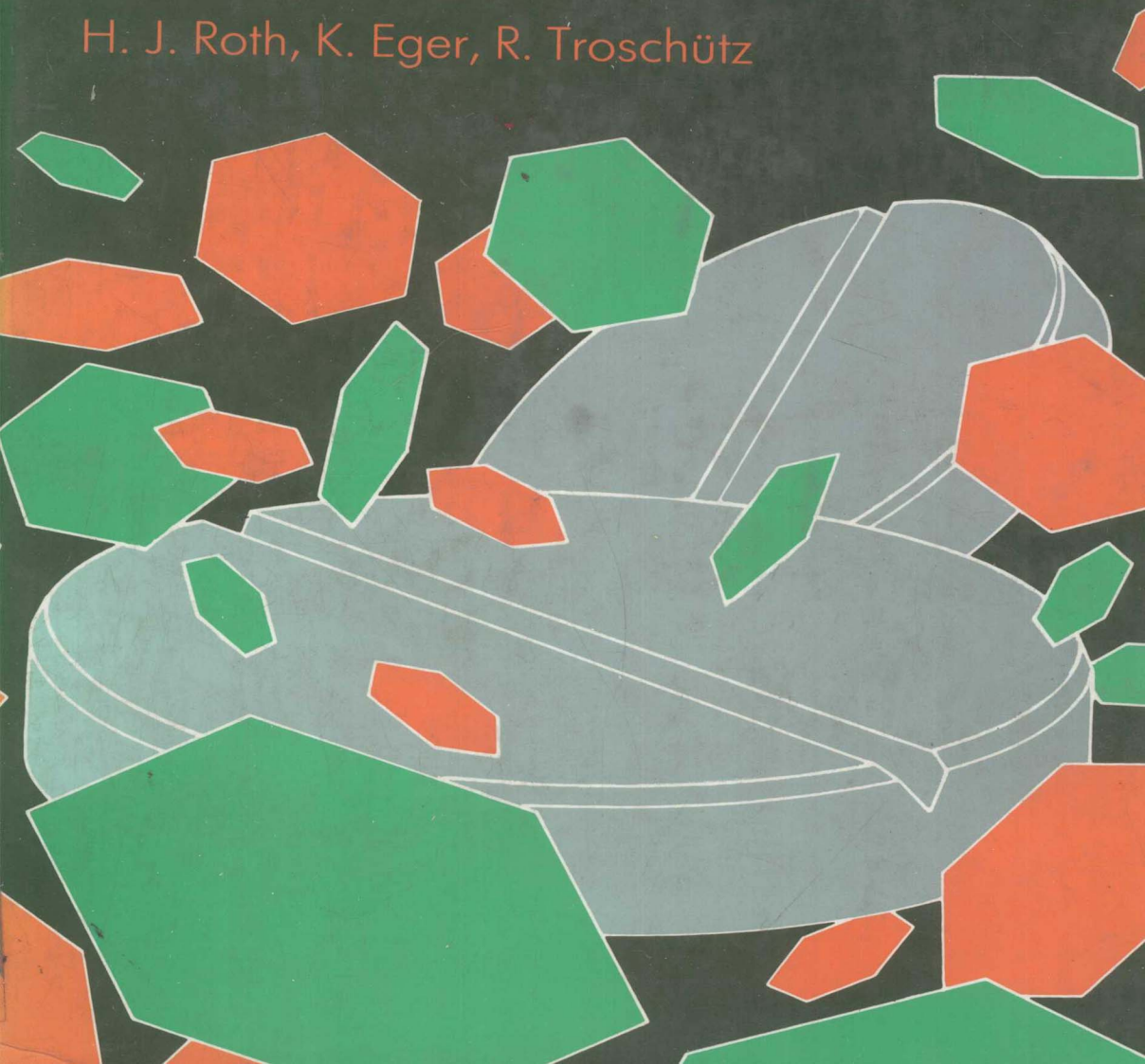
ELLIS HORWOOD SERIES IN PHARMACEUTICAL TECHNOLOGY

PHARMACEUTICAL CHEMISTRY

Volume 2
drug analysis

H. J. Roth, K. Eger, R. Troschütz



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PHARMACEUTICAL CHEMISTRY

Volume 2: Drug Analysis

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ELLIS HORWOOD
NEW YORK LONDON TORONTO SYDNEY TOKYO SINGAPORE

This English edition first published in 1991 by
ELLIS HORWOOD LIMITED
Market Cross House, Cooper Street,
Chichester, West Sussex, PO19 1EB, England

A division of
Simon & Schuster International Group
A Paramount Communications Company

This English edition is translated from the original German edition *Pharmazeutische Chemie II — Arzneistoffanalyse*, published in 1990 by Georg Thieme Verlag, Stuttgart, © the copyright holders

Typeset in Times by Ellis Horwood Limited
Printed and bound in Great Britain
by Hartnolls, Bodmin, Cornwall

British Library Cataloguing in Publication Data

Roth, H. J. (Hermann J.)
Pharmaceutical chemistry.
Vol. 2: Drug analysis
1. Pharmaceutics
I. Title II. Eger, Kurt III. Troschutz, Reinhard
IV. [Arzneistoffanalyse. *English*]
615.19
ISBN 0–13–663360–9

Library of Congress Cataloging-in-Publication Data

Roth, Hermann J.
Pharmaceutical chemistry.
(Ellis Horwood books in biological sciences. Series in pharmaceutical technology)
Translation of: Pharmazeutische Chemie.
Includes bibliography and index.
Contents: v. 1. Drug synthesis — v. 2. Drug analysis.
1. Pharmaceutical chemistry. 2. Drugs — Synthesis.
I. Eger, Kurt. II. Troschutz, Reinhard.
[DNLM: 1. Chemistry, Pharmaceutical. QV 744 R845a]
ISBN 0–13–663360–9
RS403.R83513 1988 615′.19 88–1963

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Foreword to the third (German) edition

There is a valid correlation in time between the need for a third edition (of this book) and DAB 9 coming into force. It was not possible for us to produce this book a year earlier, for which the reader must thank the inclusion of the first supplement to DAB 9† by which from January 1990 the pharmacopoeia is greatly expanded. DAB 9 and the supplemen have also led us to include new products, delete former products, and to introduce new chapters. Following suggestions from many quarters we have included a chapter on carbohydrates, even though these do not represent any drugs in the strictest sense. There is also a new treatment of peptides and all important amino acids. The previous chapters and monographs have updated and aligned on the current literature.

The Austrian and Swiss pharmacopoeia are integrated with the European Pharmacopoeia and thus also with DAB. Many of the monographs of the DDR Pharmacopoeia are taken up by DAB and covered through incorporation in DAC, so that it was no longer necessary and, on grounds of space, was also no longer possible to include these pharmacopoeia again.

Where formulae seem to have been turned around compared to how they appeared in the second edition, this is due to adherence to the IUPAC rules.

The suggestion will surely be made that so many of the colour reactions have diminished in importance compared to instrumental analytical procedures. Against this may we note at this point that colour and fluorescence reactions are frequently employed for detection in thin-layer chromatography. The increasing significance of thin-layer chromatography will not let colour reactions 'fade away'.

Thanks are again due to several colleagues and students and we nominate Frau Ulrike Barts, Regensburg, to represent them all, who gave so much effort. Further we have to thank Frau Dr Jutta Troschütz and Frau Sigrid Roth for the proof reading, who also produced the index by EDP.

We offer our gratitude for suggestions and constructive criticism.

Tübingen and Erlangen
November 1989

H. J. Roth
K. Eger
R. Troschütz

†Deutsche.

Foreword to the first edition

The following book is one of the trilogy:

Pharmaceutical chemistry I — Drug synthesis
Pharmaceutical chemistry II — Drug analysis
Pharmaceutical chemistry III — Drug bioreactivity

Pharmaceutical chemistry was formerly taken to be a conglomerate of drug synthesis, drug analysis, pharmacopoeia data, data on pharmaceutical chemistry or physico-chemical properties, some pharmacodynamics and aspects of biotransformation, the whole arranged, as far as possible, according to pharmacological viewpoints, whereby the different compound types were pressed into a system which did not follow a rational chemical-principles-based structure.

The steady growth in pharmaceutical products forces authors of relevant textbooks to get ever more information into the same space at a reasonable price. This inevitably leads to a restricted presentation of the facts. The user, chiefly the student, is thereby tempted to simply cram in this material without understanding it, since whole reaction sequences, important intermediate stages or details of the principles involved are lacking.

It is timely to attempt a better differentiation of the whole field of pharmaceutical chemistry, without encouraging the production of a new catalogue of individual subjects thereby.

Drug synthesis is to that end arranged and presented on a basis of the types of organic compounds.

Drug analysis, which was understood more as the analysis of individual organic products, is here extensively directed towards functional groups.

Drug bioreactivity, deals with the correlation between pharmaceutical chemical properties and pharmacokinetic behaviour and pharmacodynamic effects and is arranged according to a phamacological standpoint.

In this book examples are so selected as to illustrate and clarify to the student that he can understand and follow the reaction sequence however complex and see it as self explanatory.

The illustration of the chemical properties is particularly valuable, since knowing these is a prerequisite for the understanding of the *in vitro* and *in vivo* reactive behaviour.

Drug analysis, which we would wish to be understood as the presentation of the reactivity and stability of organic pharmaceuticals and meaningful analysis derived from both those aspects, is an essential field of activity of the drug expert. In the textbooks and handbooks of the scientific *fundamental principles* little or no specific details are given unless in individual cases.

This book also presents in a certain sense a *theoretical pharmaceutical chemistry* and ought to suggest the reflection on the reactive behaviour of the products, which can be seen as the prerequisite for the evaluation of pharmacokinetics, partly also of pharmacodynamics, chemical incompatibility which may arise, stability and the technological formulation.

In brief:

Pharmaceutical chemistry II is the inherent field of the drug specialist, which describes the drug proper in the narrow and also wider senses, whereby the greater compass of parts I and III can be explained.

We thank Dr R. Jäger of Frankfurt am Main, Professor R. Matusch and Professor K. Rehse of Berlin, and also Professor W. Ried of Frankfurt am Main for valuable contributions through discussions.

We owe special thanks to Professor H. J. Kallmayer of Saarbrücken for critical inspection of the manuscript, and likewise to Frau Dr J. Troschütz, Dr G. Folkers, and Dr W. Zimmermann of Bonn, who also undertook to read the proofs.

The index was produced with the aid of EDP concepts, for which we are greatly indebted to Professor F. Müller and Dr G. Folkers of Bonn.

We confirm the publication to be an understanding and gratifying collaboration.

Bonn, July 1981

H. J. Roth
K. Eger
R. Troschütz