# ANALYTICAL METHODS IN HUMAN TOXICOLOGY

# ANALYTICAL METHODS IN HUMAN TOXICOLOGY

## Part 1

*Edited by*

**A. S. CURRY**

MACMILLAN

Softcover reprint of the hardcover 1st edition 1984



First published 1984 by
Scientific and Medical Division
THE MACMILLAN PRESS LTD
London and Basingstoke
Companies and representatives throughout the world

British Library Cataloguing in Publication Data
Analytical methods in human toxicology.
Part 1.
1. Toxicology—Technique
I. Curry, A. S.
615.9'0028 RA1211

ISBN 978-1-349-06717-6 ISBN 978-1-349-06715-2 (eBook)
DOI 10.1007/978-1-349-06715-2

# Contents

# The contributors

E. Bailey
MRC Toxicology Unit
Carshalton
Surrey SM5 4EF

R. J. Flanagan
Consultant Biochemist
Poisons Unit
Guy's Hospital
St Thomas's Street
London SE1 9RT

D. J. Harvey
University Department of Pharmacology
South Parks Road
Oxford OX1 3QT

L. V. Jones
Forensic Science Laboratory
Washington Hall
Euxton
Chorley
Lancs PR7 6HJ

A. V. Kovatsis
Department of Toxicology
University of Thessalonika
Thessalonika
Greece

M. S. Lennard
Wellcome Lecturer in Pharmacology
and Therapeutics
University Department of Therapeutics
Royal Hallamshire Hospital
Sheffield S10 2JF

R. F. Metcalfe
Biology Division
CDE, Porton Down
Salisbury
Wiltshire SP4 0JQ

M. Morley
Department of Forensic Medicine
Clinical Sciences Building
St James's Hospital
Beckett Street
Leeds LS9 7TF

J. S. Oliver
Lecturer in Forensic Medicine
(Toxicology)
Department of Forensic Medicine
and Science
University of Glasgow
Glasgow G12 8QQ

B. S. Thomas
Department of Clinical Endocrinology
Imperial Cancer Research Fund Laboratories
P.O. Box 123
Lincoln's Inn Fields
London WC2A 3PX

G. T. Tucker
Reader in Clinical Pharmacology
and Therapeutics
University Department of Therapeutics
Royal Hallamshire Hospital
Sheffield S10 2JF

R. Whelpton
Department of Pharmacology and Therapeutics
The London Hospital Medical College
Turner Street
London E1 2AD

B. Widdop
Consultant Biochemist
Poisons Unit
Guy's Hospital
St Thomas's Street
London SE1 9RT

# Introduction

Analytical toxicology encompasses a vast range of techniques. There will therefore be two types of readers who use these volumes: those who wish to find out the methods that are being used to solve a problem that has occurred in a particular area and those who need to see which technique is most pertinent to their area of research. The volumes reflect both approaches.

One theme is common, and this is the astonishingly small quantities of foreign materials that can be localised, identified and measured in the human body. One picogram is to one gram what one gram is to two hundred thousand five-ton elephants, and this analogy emphasises that the purity of all handling preparations in analytical toxicology must be ensured at all stages. So often a researcher may spend months, even years, tracking down a material that turns out to be a plasticiser, a wax or even a contaminant from the operator, possibly diurnal or sex-related. There is no easy way to overcome such problems except to read in depth the work of experts who have the greatest experience and it is the intention of these volumes to present such work.

Analytical toxicology does not stop when a particular compound has been traced and its metabolism followed in the body. The way in which it affects the normal action of the body can lead to dramatic consequences in medicine and some of the most modern advances concern toxicology at the cellular level. Indeed the entry of drugs into genetic pathways is being tracked by the analytical techniques that are described in these volumes.

Both the generalist and the specialist are concerned with the living and the dead, as are those who wish to produce better drugs to treat disease. Every life-saving or post-mortem analysis is a step towards understanding the very nature of life itself. The techniques now available cover the whole spectrum from the disintegration of molecules in mass spectroscopy to the immunological properties

of the body and the effect of light and radiation to reveal compounds within a cell.

The subject is fascinating in that there are so many ways to tackle a new problem. This, coupled with the high cost of 'black box' instruments, means that all of us need periodically to review the latest state of the art to help us decide which way to go.

It is the hope of the editor that the reader will find much of interest and of help in these volumes.

*Reading, 1984* A. S. C.