

Preface

The porphyrins, chlorophylls, bilins and related tetrapyrroles are referred to as the pigments of life, colours of life and rainbow of life by various groups. They are vital for all living cells and are present in all living organisms. Natural and synthetic tetrapyrroles also have applications in foods, cosmetics, biotechnology, pharmaceuticals, diagnostics and medicine. Methods for their separation and characterisation therefore have a very wide area of applications. High-performance liquid chromatography (HPLC) with fluorescence detection or detection with a variable wavelength uv-visible detector is commonly used for their analysis. More recently, HPLC coupled with mass spectrometry (MS) has significantly improved the sensitivity, accuracy and specificity of tetrapyrrole analysis. At present, HPLC and HPLC/MS techniques have reached a stage for taking stock of their status and books devoted towards this end are lacking. The aim of this monograph is to provide practical HPLC and HPLC/MS protocols, and chromatographic and mass spectrometric reference data for the analysis, identification and characterisation of porphyrins, chlorophylls, bilins and related compounds.

Much of the methods described for porphyrins and bile pigments are based on work from our own laboratory. I thank James Rideout, Dennis Wright, Famei Li, Jinli Luo, Rong Guo, Qiang Wang, Hong Cai, Aquib Razzaque, Russell Jones, Abel Gorchein, Francesco de Matteis, Gwyn Lord and Malcolm Danton for their contributions. Methods for chlorophylls and phycobilins are adopted, with suggestions for modifications where necessary, from literature sources described by experts in their particular areas of research.

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