CONTENTS

Acknowledgements **i**

Abstract **ii**

Chapter – I Introduction **1**

1.1. The Proterozoic Eon 1

1.2. The Proterozoics of India – The Purana Basins 2

1.3. Aim and objectives 3

1.4. Methods and approach 4

1.5. Outline of the thesis 7

Chapter – II Methodologies **8**

2.1. Field studies 8

2.2. Preparation of samples 8

2.3. Stable carbon and oxygen isotope analyses 9

2.4. Major and trace element analyses 10

2.5. Analyses of Sr and Nd isotopic ratios 11

Chapter – III Geochemical evolution of the Neoproterozoic – early Cambrian Marwar Basin **13**

3.1. Introduction 13

3.2. Objectives 14

3.3. Geological setting 14

3.4. Samples and methods 20

3.5. Results 20

3.6. Discussion 29

3.7. Conclusions 45

Chapter – IV Geochemical evolution of the Mesoproterozoic Chhattisgarh Basin **64**

4.1. Introduction 64

4.2. Objectives 64

4.3. Geological Setting 65
4.4. Samples and methods 71
4.5. Results 71
4.6. Discussion 76
4.7. Conclusions 89

Chapter – V Summary and Conclusions 99
5.1. General conclusions 99
5.2. Basin specific conclusions 101
5.3. Looking to the future 102

References 104
List of Publications 117