CONTENTS

Declaration i
Certificate ii
Acknowledgements iii

CHAPTER-I
INTRODUCTION 1-19
Previous work 4
Scope of present investigation 7
Methodology and Instrumentation 8

CHAPTER-II
REGIONAL GEOLOGY AND STRATIGRAPHY 20-47
Introduction 20
Regional geological setting 21
Regional correlation and age of Chhattisgarh Supergroup 36
Stratigraphy of the study area 40

CHAPTER-III
PETROGRAPHY OF CHANDARPUR SANDSTONES 48-62
Section-A : Petrography 48
Section-B : Textural analysis 52
Provenance and tectonic settings 56
Depositional environments 60

CHAPTER-IV
PETROGRAPHY OF LIMESTONES AND PHOSPHORITES 63-91
Lithofacies-A 64
Lithofacies-B and D 66
Microfacies in Limestones 69
Lithofacies-C 71
Microfacies in Phosphorites 83
Diagenetic sequence 85
Depositional environments 86
<table>
<thead>
<tr>
<th>CHAPTER-V</th>
<th>MINERALOGY OF PHOSPHORITES</th>
<th>92-122</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td></td>
<td>92</td>
</tr>
<tr>
<td>Previous work</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td>Mineralogical characters of Lohara Phosphorites</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Discussion</td>
<td></td>
<td>116</td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
<td>121</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER-VI</th>
<th>GEOCHEMISTRY</th>
<th>123-188</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td></td>
<td>123</td>
</tr>
<tr>
<td>Part-I: Major Element Geochemistry</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Discussion</td>
<td></td>
<td>142</td>
</tr>
<tr>
<td>Part-II: Trace Element Geochemistry</td>
<td>156</td>
<td></td>
</tr>
<tr>
<td>Discussion</td>
<td></td>
<td>175</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER-VII</th>
<th>GENESIS OF PHOSPHORITES</th>
<th>189-208</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical development</td>
<td></td>
<td>189</td>
</tr>
<tr>
<td>Genesis of Lohara phosphorites</td>
<td>199</td>
<td></td>
</tr>
<tr>
<td>Evaluation of proposed model in context of Indian Proterozoic phosphorites</td>
<td>207</td>
<td></td>
</tr>
</tbody>
</table>

| SUMMARY AND CONCLUSION | 209-214 |
| REFERENCES | 215-241 |
| List of Publication of A. Mukherjee | 242 |