## CONTENTS

List of Tables
List of Figures
List of Abbreviations
List of Equipment and their make
List of Raw materials and their source

### 1 INTRODUCTION 1-9

### 2 LITERATURE REVIEW 10-92

2.1 Contraception 11-26
2.2 Nasal Drug Delivery 27-39
2.3 Chitosan 40-41
2.4 Carbopol 41-42
2.5 Pulmonary Drug Delivery 42-54
2.6 Dry Powder Inhalers 54-60
2.7 Liposomes 60-65
2.8 Analytical Profiles of Drugs 66-70
2.9 References 71-92

### 3 ANALYTICAL METHODS 93-114

3.1 Estimation of Phosphatidyl choline 94-95
3.2 Estimation of Cholesterol 95-97
3.3 Estimation of Phosphatidyl choline and Cholesterol in liposomes 97
3.4 Estimation of Levonorgestrel 99-106
3.5 Estimation of Leuprolide acetate 108-112
3.6 Results and Discussion 112-113
3.7 References 114

### 4 PREPARATION & CHARACTERIZATION OF LIPOSOMES 115-154

4.1 Reagents 117
4.2 Preparation of Levonorgestrel Liposomes 117-123
4.3 Characterization of Levonorgestrel Liposomes 123-124
4.4 Preparation of Leuprolide acetate Liposomes 124-125
4.5 Characterization of Leuprolide acetate Liposomes 125-126
4.6 Statistical Analysis 126
4.7 Results and Discussion 127-151
4.8 References 152-155

5 PREPARATION, CHARACTERIZATION AND EVALUATION OF FORMULATIONS FOR NASAL DELIVERY
5.1 Reagents 158
5.2 Preparation of Formulations 158-160
5.3 Characterization of Formulations 160-161
5.4 Drug Retention Studies 161-162
5.5 In vitro Diffusion Studies 162-165
5.6 In vivo Studies 165-169
5.7 Statistical Analysis 169-173
5.8 Results and Discussion 173-198
5.9 References 199-201

6 PREPARATION, CHARACTERIZATION AND EVALUATION OF FORMULATIONS FOR PULMONARY DELIVERY
6.1 Reagents 204
6.2 Preparation of Dry Powder Inhaler Formulations 205
6.3 Characterization of Dry Powder Inhaler Formulations 205-208
6.4 Drug Retention Studies 208-209
6.5 In vitro Diffusion Studies 209-210
6.6 In vivo Studies 210-213
6.7 Statistical Analysis 213-216
6.8 Results and Discussion 217-247
6.9 References 247-250

7 SUMMARY & CONCLUSION 251-275

RESEARCH PUBLICATIONS & PRESENTATIONS