CONTENTS

		······································		F	age No.
ACKNOWLEDGEMENTS		••••	••••	****	I - II
TABLE OF CONTENTS		••••	••••	••••	III-V
LIST OF TABLES		••••	••••	V	T-VIII
LIST OF FIGURES		••••	••••	••••	IX-XI
	СНАРТЕ	<u>R 1</u>			
INTRODUCTION		****	••••	••••	1-13
	CHAPTE	<u>R 2</u>			
LITERATURE REVIEW		••••	••••	••••	14-68
2.1 PULMONARY DR	UG DELIV	ERY	****	••••	15
2.2 LUNG MORPHOI	LOGY AND	PHSIOLO	GY	••••	16
2.3 POTENTIAL ADV	ANTAGES	OF PULM	IONARY		
DRUG DELIVER	Y	****	****	••••	21
2.4 CRITICAL ISSUE	S IN LUNG	DELIVER	RY OF		
THERAPEUTIC P	EPTIDES	AND PRO	TEINS	••••	22
2.5 REGULATION O	F PULMON	ARY ABS	ORPTION	••••	24
2.6 DRY POWDER IN	HALER DI	ELIVERY	TO LUNGS		26
2.7 PROFILE OF INS	ULIN	****	****	••••	36
2.8 PROFILE OF CAI	LCITONIN	****	****	••••	41
2.9 AN OVERVIEW O	ON ADVAN	CES IN			
PULMONARY DE	LIVERY O	F DRUGS	••••	••••	47
2.10 REFERENCES		****	••••	••••	57
	<u>CHAPTE</u>	ER 3			
ANALYTICAL METHODS	<u> </u>	••••	••••		69-100
3.1 ESTIMATION OF	INSULIN I	N BLOOD		••••	77
3.2 ESTIMATION OF	INSULIN	N DIFFUS	SION		
STUDIES BY BCA	METHOD		••••	• • • •	79
3.3 ESTIMATION OF	INSULIN	N FORM	ULATIONS	BY	
HIGH PRESSURE	E LIQUID C	HROMOT	OGRAPHY	,	. 82
3.4 ESTIMATION OF	CALCITO	NIN IN BI	COOD		83

3.5 ESTIMATION OF CALCITON	NIN IN DI	FFUSION		
STUDIES BY BCA METHOD	****	****	••••	85
3.6 ESTIMATION OF CALCITON	IIN IN			
FORMULATIONS BY HIGH P	RESSURI	E		
LIQUID CHROMOTOGRAPH	Y	****	••••	88
3.7 RESULTS AND DISCUSSION	• • • •	••••	••••	89
3.8 REFERENCES	••••	••••	****	100
. СНАР	TER 4			
IN VIVO PULMONARY ABSORPTION S		FOR		
SELECTION OF ABSORPTION PROMO		****	1	01-145
4.1 PREPARATION OF FORMUL	LATIONS			
FOR IN VIVO STUDIES	••••	••••	••••	104
4.1.1 MATERIALS	****	••••	••••	104
4.1.2 EQIUPMENTS	••••	••••	••••	105
4.1.3 REAGENTS	••••	••••	••••	105
4.1.4 METHOD	****	****	••••	106
4.2 SELECTION OF ANIMALS A	ND EXP	ERIMENTA	L	
DESIGN	••••	****	••••	108
4.3 SUBCUTANEOUS ADMINIS	TRATION	····	••••	108
4.4 INTRATRACHEAL SOLUTION	ON INSTI	LLATION	****	109
4.5 ASSAY METHOD	••••	••••	****	110
4.6 PHARMACODYNAMIC ANA	LYSIS	. ****	••••	111
4.7 STATISTICAL ANALYSIS	••••	••••	••••	111
4.8 RESULTS AND DISCUSSION	····	****	••••	112
4.9 COMPARISON BETWEEN T	HE INFL	UENCES		
OF ABSORPTION PROMOTI	ERS ON I	NSULIN		
AND CALCITONIN ABSORE	PTION	••••	••••	121
4.10 REFERENCES	****	****	****	144
СНАРТИ	<u>ER 5</u>			
IN VITRO MEFHOD DEVELOPMENT		••••	1	146-175
5.1 EQIUPMENTS AND MATER	IALS	••••	••••	148
5.2 REAGENTS	••••	••••	••••	149

5.3 CONSTRUCTION OF DIFFUSI	ON ASSE	MBLY		
FOR IN VITRO STUDY	••••	•••• ,	••••	149
5.4 PREPARATION OF FORMULA	ATIONS	••••	••••	150
5.5 IN VITRO PERMEATION EXP	ERIMENT	rs	****	151
5.6 ASSAY METHOD	••••	••••	••••	151
5.7 DATA ANALYSIS	••••	• • • •	••••	152
5.8 RESULTS AND DISCUSSION	••••	••••	••••	152
5.9 REFERENCES	••••			174
	-			
CHAPTER	<u> 6</u>			
DRY POWDER PREPARATION AND EV	ALUATIC	<u>N</u>	1	176-204
6.1 DRY POWDER PREPARATION	V	****	••••	179
6.1.1 MATERIALS AND METH	ODS	••••	••••	179
6.1.2 METHOD OF PREPARAT	YON	••••	••••	179
6.2 EVALUATION	••••	****	••••	180
6.2.1 LASER LIGHT SCATTER	ING MEA	SUREME	TV	180
6.2.2 IN VITRO DEPOSITION S	TYDY US	ING TWIN	ſ	
STAGE IMPINGER	••••		••••	181
6.2.3 IN VITRO DEPOSITION S	TUDY US	ING		
ANDERSON CASCADE IN	ИРАСТО І	R	••••	181
6.2.4 ANGLE OF REPOSE	••••	****	••••	182
6.2.5 TAPPED DENSITY	••••	••••	••••	182
6.2.6 CARR'S COMPRESSIBIL	ITY INDE	X	••••	182
6.2.7 DETERMINATION OF W	ATER CO	NTENT	••••	182
6.2.8 MEASUREMENT OF CO	NTENT U	NIFORMIT	Y	183
6.3 RESULTS AND DISCUSSION	****	****	••••	183
6.4 COMPARISON OF INSULIN A	ND CALC	CITONIN		
DRY POWDER INHALER	••••	****	••••	188
6.5 REFERENCES	••••	****	••••	203
CHAPTER	<u>27</u>			
SUMMARY AND CONCLUSION	••••	****	2	05-216