FORMULATION AND EVALUATION OF DRUG DELIVERY SYSTEMS BASED ON GEL FORMING POLYMERS

A Thesis

Presented to the Graduate School
Faculty of Pharmacy, Alexandria University
In Partial Fulfillment of the
Requirements for the Degree

Of

Doctor of Philosophy

In

Pharmaceutics

By

Abeer Ahmed Kassem
M. Pharm. Sci., Alexandria University

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Dedicated to

ALLAH

The creator

My great Parents

My first two teachers

Dear husband

My support

Pretty Daughter

Innocent Son

My precious

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PD	Probing depth	
BP	Bleeding on probing	
CAL	Loss of clinical attachment level	
MIC	Minimum inhibitory concentration	
GCF	Gingival crevicular fluid	
PHBA	Poly(hydroxybutyric acid)	
PMM	Polymethyl methacrylate	
EC	Ethyl cellulose	
PHEMA	Poly(2-hydroxyethyl)-methacrylate	
PMA	Poly(methacrylic acid);	
HPC	Hydroxypropyl cellulose	
PLGA	Poly(lactide/ glycolide);	
PEG	Polyethylene glycol	
PLA	Poly(lactide)	
TPP	Tripolyphosphate	
HEC	Hydroxyethyl cellulose	
PVP	Polyvinylpyrrolidone	
CMC	Carboxymethyl cellulose	
MC	Methyl cellulose	
HPMC	Hydroxypropylmethyl cellulose	
POE	Poly(ortho ester)	
PCA	Pyridone carboxylic acid	
Tc	Tetracycline	
Tc HCl	Tetracycline hydrochloride	
EVA	Ethylene vinyl acetate	
NSAI	Non-steroidal anti-inflammatory	
PVA	Polyvinyl alcohol	
Na CMC	Carboxymethyl cellulose sodium	
SEM	Scanning Electron Microscope	
SGF	Simulated Gingival Fluid	
CAP	Cellulose acetate phthalate	
Ch	Chitosan	
A	Sodium alginate	
P	Pectin	
PEC	Polyelectrolyte Complex	
ChA *PEC*	Chitosan-Sodium alginate Polyelectrolyte Complex	
ChP *PEC*	Chitosan-Pectin Polyelectrolyte Complex	
FTIR	Fourier-Transform Infrared spectroscopy	
Tc/*PEC*	Polyelectrolyte complex film containing Tc HCl	
Tc/ChA	Chitosan-Sodium alginate film containing Tc HCl	
Tc/ChP	Chitosan-Pectin film containing Tc HCl	
DSC	Diffrential Scanning Calorimetry	
LCST	Lower Critical Solution Temperature	
UCST	Upper Critical Solution Temperature	
EO	Ethylene oxide	

PO	Polypropylene oxide	
PAA	Polyacrylic acid	
COX-1	Cyclooxygenase-1 enzyme	
COX-2	Cyclooxygenase-2 enzyme	
MMP8	Matrix metalloproteinase 8	
Mx	Meloxicam	
MH	Minocycline HCl	
Pl	Pluronic®	
C:H	Carbopol®: Hydroxypropylmethyl cellulose	