

CONTENTS

Items	Page
Introduction and aim of the work.....	1
Review.....	3
*Gut motility	3
* Motor physiology of small intestine	5
* Regulation of the gut motility.....	11
*Nitric Oxide	22
* Nitric Oxide synthetase isoenzymes.....	25
* Nitric Oxide functions.....	28
Material and Methods.....	36
Results	45
Discussion.....	81
Summary and Recommendation.....	94
References.....	99
Arabic Summary	

LIST OF TABLES AND CHARTS

Table and Chart No.	Title	Page
Table and chart (1)	Effects of L.Name on basal duodenal motility.....	46
Table and chart (2)	Effects of L.Name on jejunal motility.....	48
Table and chart (3)	Effects of L.Name on ileal motility.....	50
Table and chart (4)	Effects of L.Name on duodenal motility after adding ACH. (1µg %).....	52
Table and chart (4)	Effects of L.Name on duodenal motility after adding ACH. (1µg %).....	54
Table and chart (6)	Effects of L.Name on ileal motility after adding ACH. (1µg %).....	56
Table and chart (7)	Effects of L.Name on duodenal motility after adding adrenaline (20µg %).....	58
Table and chart (8)	Effects of L.Name on jejunal motility after adding adrenaline (20µg %).....	60
Table and chart (9)	Effects of L.Name on ileal motility after adding adrenaline (20µg %).....	62
Table and chart (10)	Effects of L.arginine on duodenal motility.	64
Table and chart (11)	Effects of L.arginine on jejunal motility...	66
Table and chart (12)	Effects of L.arginine on ileal motility.....	68
Table and chart (13)	Effects of L.arginine on duodenal motility after adding ACH (1µg %).....	70
Table and chart (14)	Effects of L.arginine on jejunal motility after adding ACH (1µg %).....	72
Table and chart (15)	Effects of L.arginine on ileal motility after adding ACH (1µg %).....	74
Table and chart (16)	Effects of L.arginine on duodenal motility after adding adrenaline (20µg %).....	76
Table and chart (17)	Effects of L.arginine on jejunal motility after adding adrenaline (20µg %).....	78
Table and chart (18)	Effects of L.arginine on ileal motility after adding adrenaline (20µg %).....	80

LIST OF FIGURES

Figure No.	Title	Page
Fig.(1)	Effects of L.Name on basal duodenal motility.....	45
Fig.(2)	Effects of L.Name on jejunal motility.....	47
Fig.(3)	Effects of L.Name on ileal motility.....	49
Fig.(4)	Effects of L.Name on duodenal motility after adding ACH. (1µg %).	51
Fig.(5)	Effects of L.Name on jejunal motility after adding ACH. (1µg %).	53
Fig.(6)	Effects of L.Name on ileal motility after adding ACH. (1µg %).	55
Fig.(7)	Effects of L.Name on duodenal motility after adding adrenaline (20µg %).	57
Fig.(8)	Effects of L.Name on jejunal motility after adding adrenaline (20µg %).	59
Fig.(9)	Effects of L.Name on ileal motility after adding adrenaline (20µg %).	61
Fig.(10)	Effects of L.arginine on duodenal motility..	63
Fig.(11)	Effects of L.arginine on jejunal motility....	65
Fig.(12)	Effects of L.arginine on ileal motility.....	67
Fig.(13)	Effects of L.arginine on duodenal motility after adding ACH (1µg %).	69
Fig.(14)	Effects of L.arginine on jejunal motility after adding ACH (1µg %).	71
Fig.(15)	Effects of L.arginine on ileal motility after adding ACH (1µg %).	73
Fig.(16)	Effects of L.arginine on duodenal motility after adding adrenaline (20µg %).	75
Fig.(17)	Effects of L.arginine on jejunal motility after adding adrenaline (20µg %).	77
Fig.(18)	Effects of L.arginine on ileal motility after adding adrenaline (20µg %).	79
Fig.(a)	Peristaltic reflex	10
Fig.(b)	Mechanisms of NO Action	23
Fig(c)	Biosynthesis of NO	25

Fig (d)	Organ bath	39
Fig (e)	Oscillograph	40

ABBREVIATIONS

ACH	:	Acetylcholine
Amp	:	Amplitude
ATpase	:	Adenosine triphosphatase
BER	:	Basal electrical rhythm
cAMP	:	Cyclic adenosine monophosphate
CCK	:	Cholecystokinin
cGMP	:	Cyclic guanosine monophosphate
CM	:	Circular muscle
cNOS	:	Constitutive nitric oxide synthase
CNS	:	Central nervous system
DAG	:	Diacylglycerol
DCCs	:	Discrete clustered contractions
DMA	:	Dimethyl L-arginine
EC	:	Enterochromaffin cell
EDRF	:	Endothelium derived relaxing factor
EFS	:	Electrical field stimulation
EPSPS	:	Excitatory postsynaptic potential
ENS	:	Enteric nervous system
eNOS	:	Endothelial nitric oxide synthase
FAD	:	Flavin adenine dinucleotide
FMD	:	Flavine mononucleotide
GABA	:	Gamma aminobutyric acid
GERD	:	Gastroesophageal reflux disease
GI	:	Gastrointestinal
GIT	:	Gastrointestinal tract
GLP-1	:	Glucagon like peptide-1
GLP-2	:	Glucagon like peptide-2
GMCs	:	Giant migrating contractions
ICC	:	Interstitial cell of Cajal
ICC-IM	:	Intramuscular ICC
IJPs	:	Inhibitory junctional potential
IL-1	:	Interleukine 1

IL-4	:	Interleukine 4
IL-10	:	Interleukine 10
IP3	:	Inositol triphosphate
IPAns	:	Intrinsic primary afferent neurons
iNOS	:	Inducible nitric oxide synthase
L-arg	:	L-arginine
LES	:	Lower esophageal sphincter
LM	:	Longitudinal muscle
L-NAA	:	N ^G –amino-L-arginine
L-NAME	:	N ^G –nitro-L-arginine methyl ester
L-NIO	:	N-iminoethyl –L-ornithine
L-NMMA	:	N ^G -monomethyl-L-arginine
L-NNA	:	N ^G -nitro-L-arginine
M	:	Mole
MMC	:	Migrating complex
MPOs	:	Myenteric potential oscillations
NANC	:	Nonadrenergic noncholinergic
nNOS	:	Neuronal nitric oxide synthase
NO	:	Nitric oxide
NO2	:	Nitrite
NO3	:	Nitrate
NOS	:	Nitric oxide synthase
O ₂ ⁻	:	Superoxide
ONOO ⁻	:	Peroxynitrite
PACAP	:	Pituitary adenyl cyclase activating peptide
PLC	:	Phospholipase C
rHB1.1	:	Recombinant human haemoglobin
RPCs	:	Retrograde peristaltic contractions
SNP	:	Sodium nitroprusside
Th ₁	:	T-helper type 1
Th ₂	:	T-helper type 2
TLESR	:	Transient lower esophageal relaxation
UES	:	Upper esophageal sphincter
VIP	:	Vasoactive intestinal peptide
5-HT	:	5-hydroxytryptamine
γ-IF	:	Gamma interferon