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Study on the potential neuroprotective effect of tetramethylpyrazine in rotenone-induced model of Parkinson's disease in rats

A thesis submitted for the partial fulfillment of requirements for the degree of Doctor of Philosophy (PhD) in Pharmaceutical Sciences (Pharmacology & Toxicology)

$\mathbf{\underline{By}}$

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List of Abbreviations

3-MT	3-Methoxytramine
6-OHDA	6-Hydroxydopamine
Ab	Antibody
ABB	Antibody binding buffer
ALT	Alanine aminotransferase
ASK1	Apoptosis signal-regulating kinase 1
AST	Aspartate aminotransferase
Αβ	Amyloid β peptide
BBB	Blood-brain barrier
BCA	Bicinchoninic acid
Blk	Blank
BMI	Body mass index
BNIP3	Bcl-2/adenovirus E1B 19kDa interacting protein 3
CI	Confidence interval
COMT	Catechol-O-methyl-transferase
COX2	Cyclooxygenase 2
CXCR4	Chemokine (C-X-C motif) receptor 4
DA	Dopamine agonists
DAMP	Damage-associated molecular patterns
DOPAC	Dihydroxyphenylacetic acid
ERK	extracellular signal-regulated kinase
GCLc	Catalytic subunit of c-glutamylcysteine ligase
HIF-1α	Hypoxia-inducible factor-1 α

HMGB1	High-mobility group box-1 protein
HO-1	Heme oxygenase-1
HVA	Homovanillic acid
IFN-γ	Interferon-γ
IGFBP3	Insulin growth factor binding protein 3
iNOS	Inducible nitric oxide synthase
JNK	c-jun N-terminal kinase
LBs	Lewy bodies
L-DOPA	3,4 Dihydroxy-L-phenylamine
MAOI	Monoamine oxidase inhibitor
MAPK	Mitogen-activated protein kinase
MDR	Multidrug resistance
MPP ⁺	1-Methyl-4-phenylpyridinium
MPTP	1-Mthyl-4-phenyl-1, 2, 3, 6-tetrahydropyridine
MSA	Multiple system atrophy
NF-κB	Nuclear Factor kappa B
NO	Nitric oxide
NOX2	NADPH oxidase 2
Nrf2	Nuclear factor erythroid 2-related factor 2
NSB	Non-specific binding
OHSCs	Organotypic hippocampal slice cultures
PD	Parkinson's disease
PET	Positron emission tomography
PGC-1α	Peroxisome proliferator-activated receptor-c coactivator-1α

PIC	Protease inhibitor cocktail
pNA	p-nitroaniline
POAG	Primary open-angle glaucoma
REM	Rapid eye movement
ROS	Reactive oxygen species
SDF-1	Stromal cell-derived factor-1
SNpc	Substantia nigra pars compacta
SOD	Superoxide dismutase
SPECT	Single-photon emission computed tomography
TEMED	Tetramethylethylenediamine
TLR4	Toll-like receptor-4
TMB	Tetramethylbenzidine
TMP	Tetramethylpyrazine
TNF-α	Tumor necrosis factor
UPDRS	Unified Parkinson's disease rating scale
VEGF	Vascular endothelial growth factor

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