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CERTIFICATE

This is to certify that the Ph.D. thesis entitled **"Bioactivity-Guided Isolation, Purification, and Characterization of an Anthelmintic Compound from *Hypericum japonicum* Thunb."** is an independent and original work carried out by **Mritunjoy Kumar Roy**, Ph.D. Scholar, Department of Zoology, Bodoland University, under my guidance and supervision.

I further certify that **Mritunjoy Kumar Roy** has fulfilled all the requirements as per the Ph.D. Regulations of Bodoland University for the submission of his doctoral thesis.

I wish him success in life.

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SELF-DECLARATION CERTIFICATE

I hereby declare that the thesis entitled **"Bioactivity-Guided Isolation, Purification, and Characterization of an Anthelmintic Compound from *Hypericum japonicum* Thunb."**, submitted by me to Bodoland University, in partial fulfillment of the requirements for the award of the **Doctor of Philosophy (Ph.D.)** degree, is a record of bonafide research work carried out by me under the supervision of **Dr. Ananta Swargiary**.

I further declare that this work has not been submitted previously for the award of any degree, diploma, or other similar titles in this or any other university or institution.

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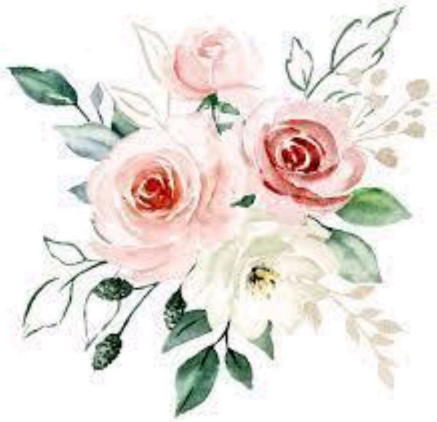

"I dedicate this achievement to my family and closest companions, whose constant encouragement and support made this milestone possible. This degree is as much theirs as it is mine."

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Mritunjoy Kumar Roy

ABBREVIATIONS

$(NH_4)_2MoO_4$	Ammonium molybdate
µg	Micro gram
µL	Micro litre
2D	Two dimension
3D	Three dimension
AAE	Ascorbic acid equivalent
Abs	Absorbance
ABTS	2,2'-Azinobis-(3-Ethylbenzothiazoline-6-Sulfonate)
AchE	Acetylcholinesterase
AchI	Acetylthiocholine iodide
ACP	Acid phosphatise
ADMET	Absorption–distribution–metabolism–excretion–toxicity
$AlCl_3$	Aluminium chloride
ALP	Alkaline phosphatase
BSA	Bovin serum albulim
Cd	Cadmium
CH_3COONa	Sodium acetate
CO_2	Carbon dioxide
Cr	Chromium
Cu	Copper
Cu^+	Cuprous ions
Cu^{2+}	Copper ions
DE	Diethyl ether
DL	Dalton's lymphoma
DMSO	Dimethyl sulfoxide
DPPH	1,1-Diphenyl-2-Picrylhydrazyl
DPX	Dibutylphthalate Polystyrene Xylene
DTNB	5,5-dithiobis(2-nitrobenzoic acid)
EA	Ethyl acetate
EDTA	Ethylenediaminetetraacetic acid

FCR	Folin-Ciocalteu reagent
FE	Fe^{2+} equivalent
Fe^{2+}	Ferrous iron
Fe^{3+}	Ferric iron
$FeCl_3$	Ferric {Iron (III)} chloride
$FeSO_4$	Ferrous sulphate
FRAP	Ferric Reducing Antioxidant Power
GAE	gallic acid equivalent
h	hours
H_2SO_4	Sulfuric acid
HB	hydrogen bond
HCl	Hydrochloric acid
$HClO_4$	Perchloric acid
Hex	Hexane
HNO_3	Nitric acid
HPLC	High-performance liquid Chromatography
$K_2S_2O_8$	Potassium persulphate
Kcal	Kilo Calorie
kJ	Kilo Joules
LC-MS	Liquid Chromatography- Mass spectrometry
LDH	Lactate dehydrogenase
M	Morality
MCEHJ	methanolic crude extract of *Hypericum japonicum*
MDA	Malondialdehyde
MDH	Malate dehydrogenase
mg	Milligram
$MgCl_2$	Magnesium chloride
µM	Micro mole
min	Minutes
mL	Millilitre
mM	Milli molar
MMPBSA	Molecular Mechanics/Poisson Boltzmann Surface Area

MTT	3-[4,5-dimethylthiazole-2-yl]-2,5-diphenyltetrazolium bromide
N	Normality
Na_2CO_3	Sodium carbonate
Na_3PO_4	Sodium phosphate
NADH	Reduced nicotinamide adenine dinucleotide
NaOH	Sodium hydroxide
NCBI	National Center for Biotechnology Information
NIPER-G	National Institute of Pharmaceutical Education and Research, Guwahati
nm	Nanometer
nM	Nano Mole
ns	Nanoseconds
O.D	Optical Denstiy
Pb	Lead
PBS	Phosphate-buffered saline
PDB	Protein Data Bank
pNP	p-nitrophenol
pNPP	p-nitrophenyl phosphate
QE	Quercetin equivalent
Rg	Radius of gyration
RMSD	Root mean square deviation
RMSF	Root mean square fluctuations
ROS	Reactive oxygen species
Rpm	Revolutions per minute
SAIF	Sophisticated Analytical Instrument Facility
SD	Standard deviation
SDF	Structure Data File
SDS	Sodium dodecyl sulphate
SEM	Scanning Electron Microscopy
TBA	Thiobarbituric acid
TCA	Trichloroacetic acid
TFC	Total flavonoid content

TIC	Technology Incubation Centre
TLC	Thin Layer Chromatography
TPC	Total phenolic content
TPTZ	2,4,6-tripyridyl-s-triazine
TRABS	Thiobarbituric acid reactive species
V/V	Volume per volume
w/v	Weight by volume
Zn	Zinc

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