Isolation, Structure Elucidation, Metabolite Profiling and Bio-, Pharma- Activity Screening of *Eichhornia crassipes* (Mart.) Solms

By

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CERTIFICATE

This is to certify that the dissertation entitled "**Isolation, Structure Elucidation, Metabolite Profiling and Bio-, Pharma- Activity Screening of *Eichhornia crassipes* (Mart.) Solms**" submitted to Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore in partial fulfilment of the requirement for the award of the **Degree of Doctor of Philosophy in Chemistry** is a record of original research work done by **Ms. P. Jayanthi** during the period of her study in the Department of Chemistry, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, under my supervision and guidance and the thesis has not formed the basis for the award of any Degree/Diploma/Associateship/Fellowship or similar title to any candidate of any other University.

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DECLARATION

I hereby declare that the thesis entitled "**Isolation, Structure Elucidation, Metabolite Profiling and Bio-, Pharma- Activity Screening of *Eichhornia crassipes* (Mart.) Solms**" submitted to Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore in partial fulfilment of the requirement for the award of the **Degree of Doctor of Philosophy in Chemistry** is a record of original research work done by me under the supervision and guidance of **Dr. P. Lalitha, M.Sc., M.Phil., Ph.D., (Avinashilingam)**, Assistant Professor (SS), Department of Chemistry, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore and it has not formed the basis for the award of any Degree/ Diploma/Associateship/Fellowship or similar title to any candidate of any other University.

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Abbreviations and Acronyms

kg	Kilogram
g	gram
µg	Milligram
mg	Microgram
m^2	Meter square
cm	Centimeter
nm	Nanometer
µM	Micrometer
mM	Milli Molar
mol	Mole
°C	Degree Celsius
h	Hour
L	Litre
mL	Millilitre
U/mL	Units per Milliliters
ppt	parts per trillion
ppm	parts per million
eV	electron Volt
GAE	Gallic Acid Equivalents
body wt.	Body weight
TLC	Thin Layer Chromatography
CC	Column Chromatography
HPLC	High Performance Liquid Chromatography
HPTLC	High Performance Thin Layer Chromatography
GC-MS	Gas Chromatography - Mass Spectrometry
LC-MS	Liquid Chromatography - Mass Spectrometry
PDA	Photoelectron Diode Array
UV	Ultra Violet
FTIR	Fourier Transform Infrared Spectroscopy
^{1}H NMR	Proton Nuclear Magnetic Resonance
^{13}C NMR	Carbon Nuclear Magnetic Resonance
DEPT	Distortionless Enhancement by Polarization Transfer

^{1}H - ^{1}H COSY	Proton - Proton COrrelation SpectroscopY
HSQC	Heteronuclear Single Quantum Coherence
HMBC	Heteronuclear Multiple Bond Correlation
AA	Ascorbic Acid
TFA	Trifluoroacetic acid
TCA	Trichloro acetic acid
BHA	Butylated Hydroxy Anisole
BHT	Butylated Hydroxy Toluene
DPPH	1, 1 Diphenyl 2, picryl hydrazyl
ABTS	2, 2-Azinobis (3-ethyl benzothiazoline- 6- sulfonic acid)
DMPD	N, N-Dimethyl-p-phenylene diamine dihydrochloride
ORAC	Oxygen Radical Absorbance Capacity
FRAP	Ferric Reducing Ability of Plasma
TRAP	Total Radical Trapping Antioxidant Parameter
HMDB	Human Metabolome Database
NSAIDs	Nonsteroidal anti-inflammatory drugs
CoMFA	Comparative Molecular Field Analysis
CoMSIA	Comparative Molecular Similarity Indices Analysis
SOMFA	Self-Organizing Molecular Field Analysis
ANOVA	ANalysis Of VAriance
COX	Cyclooxygenase
SIRT	Sirtuin
PG	Prostaglandin
PDB	Protein Data Bank
HTS	High Throughput Screening
VS	Virtual Screening
GLIDE	Grid Based Ligand Docking with Energetics
SLIDE	Screening for Ligands by Induced-fit Docking
pBR322	Plasmid Bolivar and Rodriguez 322
pTZ57R/T	T-vector containing cDNA
PHF	Polyherbal Formulation
LCL	Lower Confidence Limit
UCL	Upper Confidence Limit
WSSA	Weed Science Society of America
EPA	Environmental Protection Agency