

## CERTIFICATE

I certify that the thesis entitled '**Unveiling the Anticariogenic Properties of Medicinal Plants and Development of a Polyherbal Dentifrice**' submitted for the award of **Doctor of Philosophy (Ph.D)** by **Gaayathiri Devi E** is the record of research work carried out by her during the period of study under my guidance and supervision, and that this work has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or other Titles in this Institute or any other University or Institution of Higher Learning.

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## DECLARATION

I declare that the thesis entitled '**Unveiling the Anticariogenic Properties of Medicinal Plants and Development of a Polyherbal Dentifrice**' submitted by me for the award of **Doctor of Philosophy (Ph.D)** is the record of work carried out by me during the period of study under the guidance of **Dr. M. K. Nisha**, Assistant Professor (SS), Department of Botany, Avinashilingam Institute of Home Science and Higher Education For Women and has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship, Titles in this Institute or any other University or other similar Institution of Higher Learning.

  
Signature of the Supervisor

  
Signature of the Research Scholar

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## LIST OF ABBREVIATIONS

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AAR	<i>Achyranthes aspera</i> root
AB	<i>Acinetobacter baumannii</i>
ACE	Angiotensin-converting enzyme
AIL	<i>Acalypha indica</i> leaves
ALB	Albumin
APL	<i>Abrus precatorius</i> leaves
AZL	<i>Azadirachta indica</i> leaves
BCL	<i>Barleria cuspidata</i> leaves
BCL2	B-cell lymphoma 2
BHI	Brain Heart Infusion
BIC	Biofilm inhibitory concentration
CA	<i>Candida albicans</i>
CA4	Carbonic anhydrase-4
CA6	Carbonic anhydrase-6
CLSI	Clinical and Laboratory Standards Institute
CTD	Comparative Toxicogenomic Database
CTD	Comparative Toxicogenomic Database
DL	Drug-likeness
DMSO	Dimethyl sulfoxide
DOE	Design of Experiments
DPPH	2,2 - DiPhenyl-1-Picryl Hydrazyl
EHL	<i>Euphorbia hirta</i> leaves
ELISA	Enzyme-linked immunosorbent assay
EPSs	Extracellular polysaccharides
FBP	<i>Ficus benghalensis</i> prop root
GAE	Gallic acid equivalents
Gbp	Glucan Binding Protein
GC-MS	Gas Chromatography Mass spectrometry
GEO	Gene Expression Omnibus Database
Glide	Grid-based Ligand Docking with Energetics
GO	Gene ontology
gtfC	glucosyltransferase C

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<i>GTFs</i>	Glucosyltransferases
<i>KP</i>	<i>Klebsiella pneumoniae</i>
<i>IL1B</i>	Interleukin 1-Beta
<i>IMPPAT</i>	A curated database of Indian Medicinal Plants, Phytochemistry, and Therapeutics
<i>Intra HB</i>	Intramolecular hydrogen bonding
<i>IZD</i>	Inhibitory zone diameter
<i>K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub></i>	Potassium dichromate
<i>KEGG</i>	Kyoto Encyclopaedia of Genes and Genomes
<i>KRAS</i>	Kirsten rat sarcoma virus
<i>LB</i>	Luria Bertani
<i>MALDI-TOF MS</i>	Matrix-assisted laser desorption ionization-time of flight mass spectrometry
<i>MAPK</i>	Mitogen-activated protein kinase
<i>MATH</i>	Microbial adhesion test to hydrocarbons
<i>MBC</i>	Minimum bactericidal concentration
<i>MDR</i>	Multi-drug resistant
<i>MDS</i>	Molecular dynamics simulation
<i>MFC</i>	Minimum Fungicidal Concentration
<i>MIC</i>	Minimum Inhibitory concentration
<i>MMP</i>	Matrix metalloproteinases
<i>MODDE</i>	Multivariate Data-driven Design and Engineering
<i>MolSA</i>	Molecular surface area
<i>MS</i>	Mean Squares
<i>NaF</i>	Sodium fluoride
<i>ND</i>	Not detected
<i>NPT</i>	No. of Particles, Pressure, and Temperature
<i>NVT</i>	No. of Particles, Volume, and Temperature
<i>OEO1</i>	<i>Origanum vulgare</i> L.
<i>OEO2</i>	<i>Origanum heracleoticum</i> L.
<i>OPLS4</i>	Optimized Potentials for Liquid Simulations
<i>PA</i>	<i>Pseudomonas aeruginosa</i>
<i>PBL</i>	<i>Piper betle</i> leaves
<i>PGL</i>	<i>Psidium guajava</i> leaves
<i>PHDF</i>	PolyHerbal DentiFrice

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<i>PLCS</i>	Protein-ligand complex structure
<i>PLS</i>	Partial least squares
<i>PPI</i>	Protein-Protein Interaction
<i>PPL</i>	<i>Pongamia pinnata</i> leaves
<i>PSA</i>	Polar surface area
<i>RCSB</i> <i>PDB</i>	Research Collaboratory for Structural Bioinformatics Protein Data Bank
<i>RE</i>	Rutin equivalents
<i>rGYr</i>	Radius of gyration
<i>RH</i>	Relative humidity
<i>RMSD</i>	Root Mean Square Deviation
<i>RMSF</i>	Root Mean Square Fluctuation
<i>SASA</i>	Solvent accessible surface area
<i>SD</i>	Standard Deviation
<i>SDA</i>	Sabroud's Dextrose Agar
<i>SEM</i>	Scanning Electron Microscopy
<i>SMILES</i>	Simplified molecular input line entry specification
<i>SMU</i>	<i>Streptococcus mutans</i>
<i>SOS</i>	<i>Streptococcus oralis</i>
<i>SPSA</i>	<i>Streptococcus parasanguinis</i>
<i>SS</i>	Sum of Squares
<i>SSA</i>	<i>Streptococcus salivarius</i>
<i>SSE</i>	Secondary Structure Elements
<i>SVF</i>	<i>Solanum virginianum</i> fruit
<i>TFC</i>	Total Flavonoid Content
<i>TGFB1</i>	Transforming growth factor beta 1
<i>TIP3P</i>	Transferable Intermolecular Potential with 3 Points
<i>TPC</i>	Total Phenolic Content
<i>TPL</i>	<i>Tridax procumbens</i> leaves
<i>USEPA</i>	United States Environmental Protection Agency
<i>WHO</i>	World Health Organization
<i>XP</i>	Xtra Precision

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