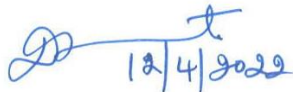


CERTIFICATE

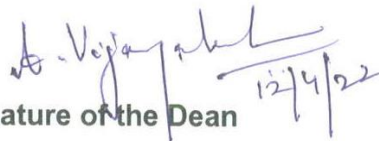
This is to certify that the thesis entitled “**Synergistic effect and apoptosis induction of flavonoid and acetogenin enriched fractions of *Annona muricata* leaves in Molt-3 cells and Peripheral Blood Lymphocytes**” submitted to Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for the award of the degree of **Doctor of Philosophy in Biochemistry**, is a record of original research work done by **Suganya. I**, during the period of her study in the Department of Biochemistry, Biotechnology and Bioinformatics, 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 University or Institute.



**Signature of the
Head of the Department**



**Signature of the
Supervisor**



Signature of the Dean

DECLARATION

I hereby declare that the matter embodied in this thesis entitled, **“Synergistic effect and apoptosis induction of flavonoid and acetogenin enriched fractions of *Annona muricata* leaves in Molt-3 cells and Peripheral Blood Lymphocytes”**, is the result of investigations carried out by me in the Department of Biochemistry, Biotechnology and Bioinformatics, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, under the supervision and guidance of **Dr. R. Nirmaladevi**, M.Sc., M.Phil., Ph.D., Assistant Professor (SG), Department of Biochemistry, Biotechnology and Bioinformatics, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore and that it has not been submitted for the award of any Degree / Diploma / Associateship / Fellowship etc., of any other University or Institute.



Signature of the Supervisor



Signature of the Candidate

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Suganya I

LIST OF TABLES

Table No.	Title	Page No.
1	FTIR functional group analysis of Ethanolic Crude Extract, Flavonoid and Acetogenin enriched fractions of <i>Annona muricata</i> leaves	56
2	Rf values of <i>Annona muricata</i> Ethanolic Crude Extract	59
3	Rf value of Quercetin in ECE	60
4	Rf value of Kaempferol in ECE	60
5	Rf value of Andrographolide in ECE	61
6	Rf value of Flavonoid Enriched Fraction	62
7	Rf value of Quercetin in FEF	63
8	Rf value of Kaempferol in FEF	63
9	Rf values of Acetogenin Enriched Fraction	65
10	Rf value of Andrographolide in AEF	65
11	Retention time of Ethanolic crude extract in HPLC Profile	67
12	Peak value of Flavonoid Enriched Fraction and Standards (Quercetin and Kaempferol)	70
13	Rf value of Acetogenin Enriched Fraction	71
14	Bioactive constituents identified in Ethanolic Crude Extract of <i>Annona muricata</i> leaves	73
15	Biological properties of Ethanolic Crude Extract phytoconstituents	74
16	Bioactive constituents identified in Flavonoid Enriched Fraction (FEF) of <i>Annona muricata</i> leaves	75
17	Biological properties of Flavonoid Enriched Fraction phytoconstituents	76
18	Bioactive constituents identified in Acetogenin Enriched Fraction (AEF) of <i>Annona muricata</i> leaves	77

Table No.	Title	Page No.
19	Biological properties of Acetogenin Enriched Fraction phytoconstituents	78
20	ADME properties of the FEF and AEF compounds	124
21	Glide SP docking of the Flavonoid Enriched Fraction (FEF) phytoconstituents with Mcl 1	126
22	Glide SP docking of the Flavonoid Enriched Fraction (FEF) phytoconstituents with MDM2	128
23	Glide SP docking of the Flavonoid Enriched Fraction (FEF) phytoconstituents with Bcl2	131
24	Glide SP docking of the Flavonoid Enriched Fraction (FEF) phytoconstituents with Bax	134
25	Glide SP docking of the Acetogenin Enriched Fraction (AEF) phytoconstituents with Mcl 1	137
26	Glide SP docking of the Acetogenin Enriched Fraction (AEF) phytoconstituents with MDM2	139
27	Glide SP docking of the Acetogenin Enriched Fraction (AEF) phytoconstituents with Bcl2	140
28	Glide SP docking of the Acetogenin Enriched Fraction (AEF) phytoconstituents with Bax	142

LIST OF FIGURES

Figure No.	Title	Page No.
1	Formation and regulation of ROS	15
2	Effect of ROS in cellular system	16
3	Formation of RNS	16
4	Sources and effects of ROS	18
5	ROS-mediated intracellular cell signaling pathways	19
6	Flavonoid targets in extrinsic and intrinsic apoptosis pathways	25
7	Role of Acetogenins in apoptosis	27
8	Scheme of anticancer phytochemical synthesis, optimization, characterization and prospective use as cancer therapeutic agent	28
9	Signaling pathways involved in T-cell acute lymphoblastic leukemia pathophysiology	31
10	Signaling pathways linked to reactive oxygen species production in acute lymphoblastic leukemia	32
11	Flavonoid Enriched Fractions from <i>Annona muricata</i> leaves	43
12	Bioassay guided fractionation of Flavonoid and Acetogenin rich fractions from <i>Annona muricata</i> leaves	43
13	Isolation of Acetogenin Enriched Fractions from <i>Annona muricata</i> leaves	44
14	UV-Visible absorption spectra of Ethanolic Crude Extract, Flavonoid (FEF) and Acetogenin (AEF) Enriched Fractions of <i>Annona muricata</i> leaves	52
15	UV-Visible absorption spectra of Quercetin, Kaempferol and Andrographolide	52
16	FTIR profile of <i>Annona muricata</i> Ethanolic Crude Extract	54

Figure No.	Title	Page No.
17	FTIR profile of Flavonoid Enriched Fraction (FEF) of <i>Annona muricata</i> leaf extract	55
18	FTIR profile of Acetogenin Enriched Fraction (AEF) of <i>Annona muricata</i> leaf extract	55
19	Densitogram of <i>Annona muricata</i> Ethanolic Crude Extract	59
20	Densitogram of Quercetin	59
21	Densitogram of Kaempferol	60
22	Densitogram of Andrographolide	61
23	Densitogram of Flavonoid Enriched Fraction	62
24	Densitogram of Quercetin	62
25	Densitogram of Kaempferol	63
26	Densitogram of Acetogenin Enriched Fraction	64
27	Densitogram of Andrographolide	65
28	HPLC profile of Ethanolic Crude Extract	67
29	HPLC profile of Flavonoid Enriched Fraction	68
30	HPLC profile of Quercetin	69
31	HPLC profile of Kaempferol	69
32	HPLC profile of Acetogenin Enriched Fraction	70
33	HPLC profile of Andrographolide	71
34	GCMS profile of Ethanolic Crude Extract	73
35	GCMS profile of Flavonoid Enriched Fraction (FEF) of <i>Annona muricata</i> leaves	75
36	GCMS profile of Acetogenin Enriched Fraction (AEF) of <i>Annona muricata</i> leaves	76
37	DPPH radical scavenging activity of <i>Annona muricata</i> Ethanolic Crude Extract and fractions	79

Figure No.	Title	Page No.
38	ABTS radical scavenging activity of <i>Annona muricata</i> Ethanolic Crude Extract and fractions	82
39	H ₂ O ₂ radical scavenging activity of <i>Annona muricata</i> ethanolic crude extract and fractions	83
40	Hydroxyl radical scavenging activity of <i>Annona muricata</i> Ethanolic Crude Extract and fractions	85
41	Inhibition of nitric oxide generation by the <i>Annona muricata</i> Ethanolic Crude Extract and fractions	87
42	Inhibition of super oxide generation by the <i>Annona muricata</i> Ethanolic Crude Extract and fractions	89
43	Chelating activity of the <i>Annona muricata</i> Ethanolic Crude Extract and fractions	91
44	Reducing power ability of the <i>Annona muricata</i> Ethanolic Crude Extract and fractions	93
45	Cytotoxic effect of <i>Annona muricata</i> Ethanolic Crude Extract and fractions by MTT assay in Molt-3 cells	97
46	Cytotoxic effect of <i>Annona muricata</i> Ethanolic Crude Extract and fractions by MTT assay in PBL	98
47	Cytotoxic effect of <i>Annona muricata</i> Ethanolic Crude Extract and fractions as determined by SRB assay in Molt-3 cells	101
48	Cytotoxic effect of <i>Annona muricata</i> Ethanolic Crude Extract and fractions as determined by SRB assay in PBL	102
49	Loewe model - Synergistic effect of FEF and AEF	105
50	Highest Single Agent model - Synergistic effect of FEF and AEF	106
51	Bliss model - Synergistic effect of FEF and AEF	106
52	Detection of cell death by Annexin V/FITC- PI apoptosis staining by flow cytometry analysis in Molt- 3 cells	108
53	Distribution of Molt-3 cells in apoptosis phase	109
54	Detection of cell death by Annexin V/FITC- PI apoptosis staining by flow cytometry analysis in PBL	109

Figure No.	Title	Page No.
55	Distribution of PBL in live phase	109
56	Detection of mitochondrial membrane potential ($\Delta\Psi_m$) by – JC-1 staining in Molt- 3 cells	112
57	Distribution of monomers in Molt-3 cells	112
58	Detection of mitochondrial membrane potential ($\Delta\Psi_m$) by – JC-1 staining in PBL	113
59	Distribution of monomers in PBL	113
60	Cell cycle analysis by flow cytometry in Molt-3 cells	116
61	Distribution of Molt-3 cells in various phases of cell cycle	116
62	Cell cycle analysis by flow cytometry in PBL	117
63	Distribution of PBL in various phases of cell cycle	117
64	Assessment of Intracellular ROS levels in Molt-3 treated cell lines	119
65	Distribution of normal cells and increased ROS production cells in Molt-3	120
66	Assessment of Intracellular ROS levels in PBL	120
67	Distribution of normal cells and increased ROS production cells in PBL	121

LIST OF PLATES

Figure No.	Title	Page No.
1	HPTLC profile of Ethanolic Crude Extract	58
2	HPTLC profile of Flavonoid Enriched Fraction	61
3	HPTLC profile of Acetogenin Enriched Fraction	64
4	Docking interactions of Flavonoid Enriched Fraction (FEF) phytoconstituents with Mcl 1	126
5	Docking interactions of Flavonoid Enriched Fraction (FEF) phytoconstituents with MDM2	129
6	Docking interactions of Flavonoid Enriched Fraction (FEF) phytoconstituents with Bcl2	132
7	Docking interactions of Flavonoid Enriched Fraction (FEF) phytoconstituents with Bax	135
8	Docking interactions of Acetogenin Enriched Fraction (AEF) phytoconstituents with Mcl 1	137
9	Docking interactions of Acetogenin Enriched Fraction (AEF) phytoconstituents with MDM2	139
10	Docking interactions of Acetogenin Enriched Fraction (AEF) phytoconstituents with Bcl2	141
11	Docking interactions of Acetogenin Enriched Fraction (AEF) phytoconstituents with Bax	143

ABBREVIATIONS

ROS	- Reactive Oxygen Species
RNS	- Reactive Nitrogen Species
RSS	- Reactive Sulfur Species
TLC	- Thin Layer Chromatography
HPTLC	- High Pressure Thin Layer Chromatography
HPLC	- High Pressure Liquid Chromatography
FT-IR	- Fourier Transform Infra-Red
DPPH	- (2, 2-diphenyl-2-picryl hydrazyl hydrate)
ABTS	- 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulphonic acid)
PBS	- Phosphate Buffered Saline
NBT	- NitroBlue Tetrazolium
EDTA	- Ethylene Diamine Tetraacetic Acid
ALL	- Acute Lymphoblastic Leukemia
Molt-3	- Acute T lymphoblastic leukemic cell line
PBL	- Peripheral Blood Lymphocytes
MTT	- 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide
SRB	- SulphoRodamine B
TCA	- TriCholoro Acetic acid
FITC	- Fluorescein Isothiocyanate
Bcl-2	- B-cell Lymphoma 2
Mcl-1	- Induced myeloid leukemia cell differentiation protein
Bax	- Bcl-2-like protein
Bak	- Bcl-2 homologous antagonist
Mdm2	- Mouse Double Minute 2 homolog
AEF	- Acetogenin Enriched Fraction
FEF	- Flavonoid Enriched Fraction
ECE	- Ethanolic Crude Extract