DESIGN, SYNTHESIS OF FLAVOKAWAIN B DERIVATIVE AND THEIR CYTOTOXIC EFFECTS ON MCF-7 AND MDA-MB-231 CELL LINES

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Master of Science

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SUPERVISOR'S DECLARATION

We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Master of Science.

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citation which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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LIST OF SYMBOLS

s	Singlet
d	Doublet
t	Triplet
m	Multiplet
J	Coupling constant
W	Watt
MHz	Mega Hertz
mg/mL	Milligram per millilitre
U/mL	Unit per millilitre
m/z	Mass to charge ratio
μM	Micromolar
μg/mL	Microgram per millilitre
α	Alpha
β	Beta
λ_{max}	Maximum wavelength
δ	Delta

LIST OF ABBREVIATIONS

^{13}C-NMR	Carbon Nuclear Magnetic Resonance
^{1}H-NMR	Proton Nuclear Magnetic Resonance
ABCG2	ATP-binding cassette sub-family G member 2
BCRP	Breast cancer resistance protein
BF_3-Et_2O	Boron trifluoride diethyl etherate
CC	Column chromatography
$CDCl_3$	Deuterated chloroform
CF_3	Trifluoromethyl
CO_2	Carbon dioxide
CuTC	Copper(I)-thiophene-2-carboxylate
DMEM	Dulbecco's Modified Eagle Medium
DMF	Dimethylformamide
DMSO	Dimethyl sulfoxide
ED_{50}	Median effective dose
FBS	Fetal Bovine Serum
FTIR	Fourier Transform Infrared spectroscopy
GC-MS	Gas Chromatography-Mass Spectrometry
GI_{50}	50% growth inhibition
Hep-G2	Liver hepatocelular carcinoma
IC_{50}	Concentration for 50% inhibition
K_2CO_3	Potassium carbonate
KOH	Potassium hydroxide
LU	Lung adenocarcinoma
MCF-7	Human breast adenocarcinoma cell line
MDA-MB-231	Human breast adenocarcinoma cell line
MDR	Multi-drug resistance

MIC	Minimum inhibitory concentration
MTT	3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide
NaOH	Sodium hydroxide
NMR	Nuclear Magnetic Resonance spectroscopy
OCH_3	Methoxy
P338	Leukemia
PARP	Poly (ADP ribose) polymerase
PBS	Phosphate buffer saline
Pd	Palladium
$Pd(dba)_2$	Bis(dibenzylideneacetone)palladium(0)
$PdCl_2$	Palladium(II) chloride
p-gp	Permeability glycoprotein
PPh_3	Triphenylphospine
RPMI	Roswell Park Medium Institute
$S\text{-}CH_3$	Thio-methyl
$SOCl_2$	Thionyl Chloride
SSG	Sodium stigluconate
SW480	Colon adenocarcinoma
TLC	Thin Layer Chromatography
UV-Vis	Ultraviolet-visible spectroscopy
VRP	Verapamil