



CHARACTERIZING AND ISOLATING PROTEIN
MARKER IN AUTHENTICATING
EURYCOMA LONGIFOLIA
HERBAL PRODUCTS

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LIST OF SYMBOLS

m	meter
cm	centimetre
μM	micro molar
LC ₅₀	lethal concentration
%	percentage
>	more than
<	less than
μg	micro gram
mL	mili litre
mg	mili gram
ppm	part per million
°C	degree Celsius
nm	nano meter
pH	hydrogen concentration
m/z	mass to charge ratio
kDa	kilo Dalton
μm	micro meter
μL	micro litre
L	litre
N	normality
V	voltage
hr	hour
mBar	mini bar
μJ	micro joule
mM	mili molar
mm	mili meter
v/v	volume/volume

LIST OF SYMBOLS

ng/ μ L	nano gram/micro liter
kV	kilo volt
T	total concentration of acrylamide and bis-acrylamide monomer

LIST OF ABBREVIATIONS

2DE	Two Dimensional Electrophoresis
APCI	Atmospheric Pressure Chemical Ionization
APS	Ammonium Persulphate
B-ME	2-Mercaptoethanol
BSA	Bovine Serum Albumin
CAPD	Computer Aided Process Design
CC ₅₀	Critical Concentration
cGMP	Cyclic Guanoside Monophosphate
CHAPS	3-[(3-cholamidopropyl) dimethylammonio]-1-propanesulfonate
DAD	Diode Array Detector
DCA	Drug Control Authority
DHEA	Dihydroepiandrosterone
DTT	Dithiothreitol
ED	Erectile Dysfunction
EL	<i>Eurycoma longifolia</i>
EMEA	European Medicines Agency
EPP1	Entry Point Project 1
ESI	Electro Spray Ionization
EU	European Union
EUR	European Dollar
FRIM	Forest Research Institute of Malaysia
GCMS	Gas Chromatography Mass Spectrometry
GI ₅₀	Growth Inhibition
GMP	Good Manufacturing Process
HCl	Hydrochloric Acid
HPLC	High Performance Liquid Chromatography

LIST OF ABBREVIATIONS

IAC	Immuno Affinity Column
IEX	Ion Exchange Chromatography
IMP7	Image Master 2D Platinum 7
IP	International Products
IPG	Immobilized pH Gradient
LC	Liquid Chromatography
LCMS	Liquid Chromatography Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantification
MALDI	Matrix Assisted Laser Desorption Ionization
MIT	Massachusetts Institute of Technology
MOH	Ministry of Health
MRP	Malaysian Registered Products
MUP	Malaysian Unregistered Products
NIR	Near Infra Red
NPCB	National Pharmaceutical Control Bureau
OHCT	Oxidized Hydroxyl Cis Terpenone
PDE6	Phosphodiesterase Type 6
POC	Point of Care
QToF	Quadrupole Time of Flight
Rf	Retention Factor
SD	Standard Deviation
SDS PAGE	Sodium Dodecyl Sulphate Polyacrylamide Gel Electrophoresis
SEC	Size Exclusion Chromatography
SELDI-MS	Surface Enhance Laser Desorption Ionization Mass Spectrometer
SNPs	Single Nucleotide Polymorphisms
TA	Tongkat Ali

LIST OF ABBREVIATIONS

TCM	Traditional and Complimentary Medicine
TCM	Traditional Chinese Medicines
TEMED	Tetramethylethylenediamine
TLC	Thin Layer Chromatography
TOF	Time of Flight
UFLC	Ultra Fast Liquid Chromatography
US	United States
UV	Ultra Violet
WHO	World Health Organization