

Abbreviations

Entry	Expanded form	Abbreviations
1	Dimethyl sulfoxide	DMSO
2	Dimethyl formamide	DMF
3	Tertiary butanol	t-BuOH
4	Potassium tertiary butoxide	t-BuOK
5	Lead tetra acetate	LTA
6	Ethyl acetate	EtOAc
7	n-Butanol	n-BuOH
8	Methanol	MeOH
9	N-Bromosuccinimide	NBS
10	Nuclear magnetic resonance	NMR
11	Infrared	IR
12	Ultra violet	UV
13	Melting point	mp
14	Distortion less enhancement by polarization transfer	DEPT
15	Correlation spectroscopy	COSY
16	Nuclear overhauser effect spectroscopy	NOESY
17	Heteronuclear single-quantum spectrum	HSQC
18	Heteronuclear multiple-bond correlation spectroscopy	HMBC
19	Microwave	MW
20	Minimum inhibitory concentration	MIC
21	Specific rotation at sodium-D light	$[\alpha]_D$
22	Dynamic light scattering	DLS
23	Sodium dodecylsulfate	SDS
24	Critical micelle concentration	CMC
25	Electron spray ionization mass spectrometry	ESIMS
26	Time-of-flight mass spectrometry	TOFMS
27	Proton chemical shift	δ_H
28	Carbon chemical shift	δ_C
29	Two dimensional nuclear magnetic resonance spectroscopy	2D NMR
30	Tetra methyl silane	TMS
31	Fast atom bombardment mass spectrometry	FABMS
32	Fourier transform	FT
33	Thin layer chromatography	tlc
34	Nicotinamide adenine dinucleotide phosphate	NADP
35	Nicotinamide adenine dinucleotide phosphate hydride	NADPH
36	Microbial type culture collection	MTCC
37	petroleum ether	PE
38	Dichloromethane	DCM
39	Ethylenediamine	EDA

Chapter II describes the detail experimental procedures and a collection of important references used during the study.

Part II is divided into four chapters. Chapter I comprise a short review on pyrazine derivatives. Chapter II is divided in two sections. Section A is related to the development of a clean protocol for the synthesis of pyrazine derivatives of triterpenoids, the total optimization of the reaction condition and the details about the structure elucidation of the synthesized pyrazine derivatives.

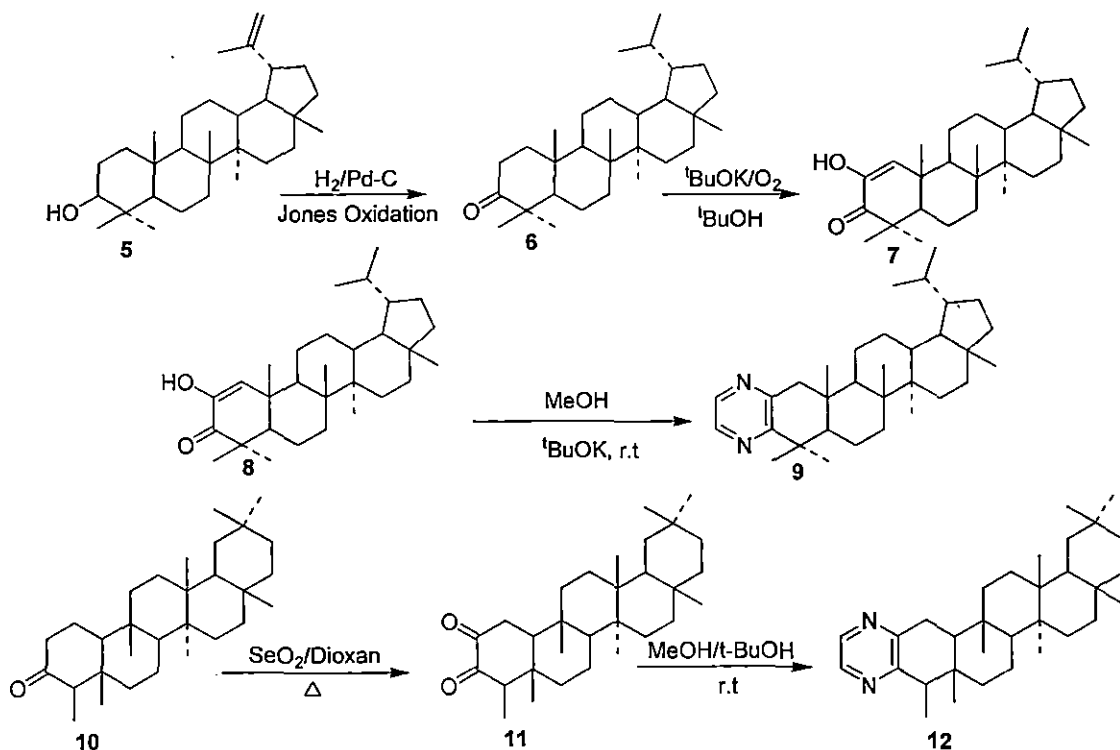


Figure 2 Synthesis of pyrazine derivatives of triterpenoids

Section B of this chapter describes the biological activity of the synthesized compounds. It represents the results of the antifungal activity and the antitopoisomerase activity with a through prediction of binding efficiency to the enzyme molecule by 3D docking studies. Chapter III is further classified into two different sections. Section A relates to the synthesis of benzopyrazine or quinoxaline derivative of pentacyclic triterenoid, friedelin by a novel protocol, standardization of the reaction condition, scope and application of the present protocol and a proposed mechanism of the developed method. Section B is related to the biological work. But because of the insolubility of the synthesized

Entry	Expanded form	Abbreviations
40	Tetranitro methane	TNM
41	Deoxyrib nucleic acid	DNA
42	Protein data bank	PDB
43	Topoisomerase II α	TOPO-II α
44	Trimethyl silyl chloride	TMSCI
45	Tetra-n-butylammonium bromide	TBAB
46	Cetyl trimethyl ammoniumbromide	CTAB
47	Cetyl pyridiniumchloride	CPC
48	Sodium dodecylbenzenesulfonate	SDBS
49	Tetra-n-butylammoniumiodide	TBAI
50	Polydispersity index	PDI
51	Ethyl acetate	EA
52	Ethylenediamine tetraacetic acid	EDTA
53	Natural product	NP
54	Human immunodeficiency virus	HIV
55	Optical rotatory dispersion	ORD
56	Lithium aluminium hydride	LAH
57	2,3-Dichloro-5,6-dicyano quinone	DDQ
58	N-methyl morpholine-N-oxide	NMMO
59	Metachloro perbenzoic acid	MCPBA
60	Central nervous system	CNS
61	Tetrahydro furan	THF