

Peganumine B-I and two enantiomers, new alkaloids from the seeds of *peganum harmala* linn and its potential cytotoxicity and cholinesterases inhibitory activities

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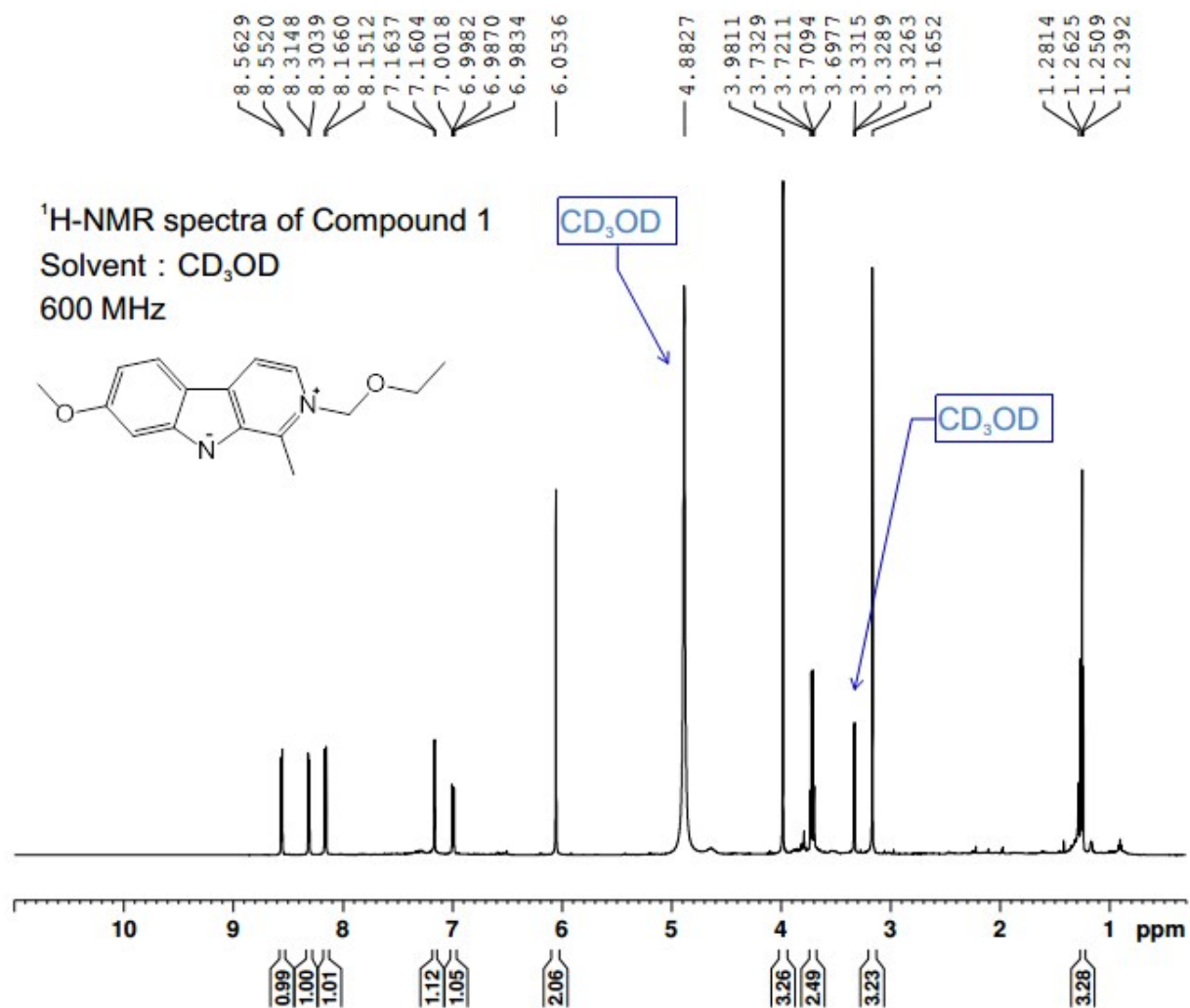
[‡] *Shanghai R&D Centre for Standardization of Chinese Medicines, 199 Guoshoujing Road, Shanghai 201203, China*

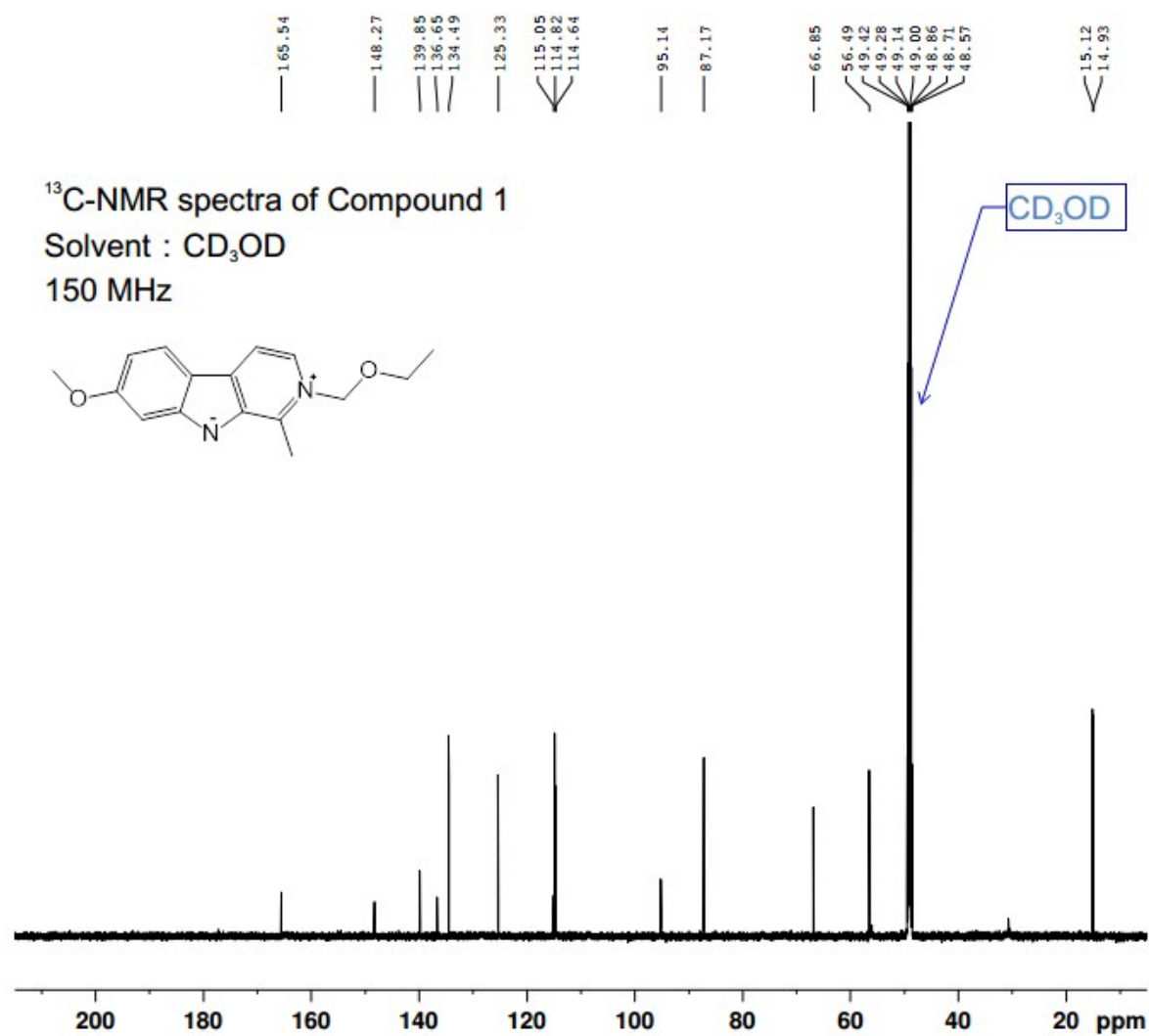
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[#] *College of Pharmacy, The University of Michigan, Ann Arbor, MI 48109-1065, USA*

¹³C and ¹H NMR spectrum of new compounds

1.1 NMR spectrum of compound 1



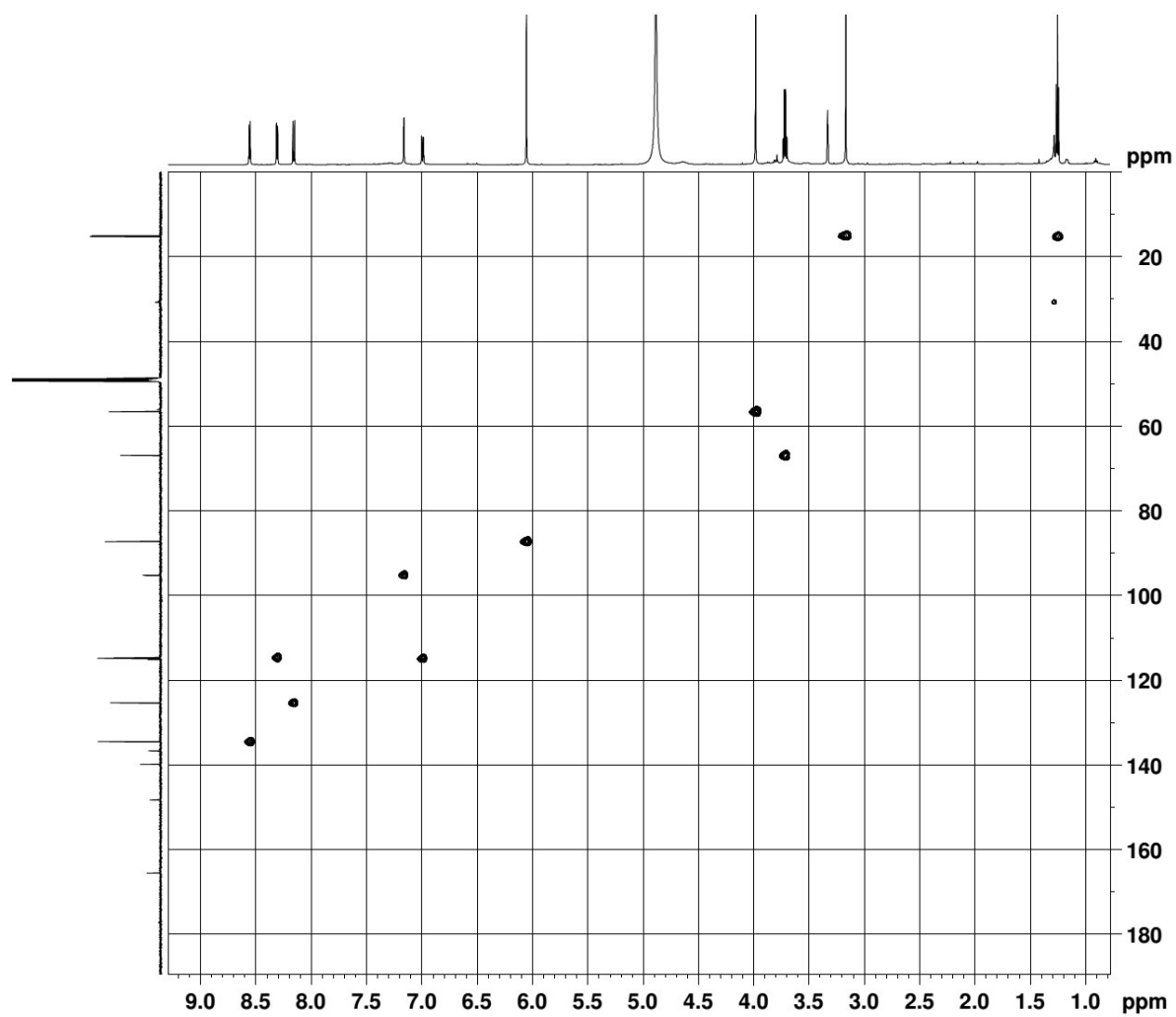
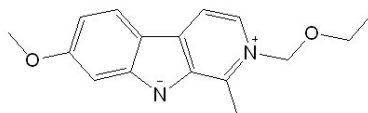


HMQC spectra of Compound 1

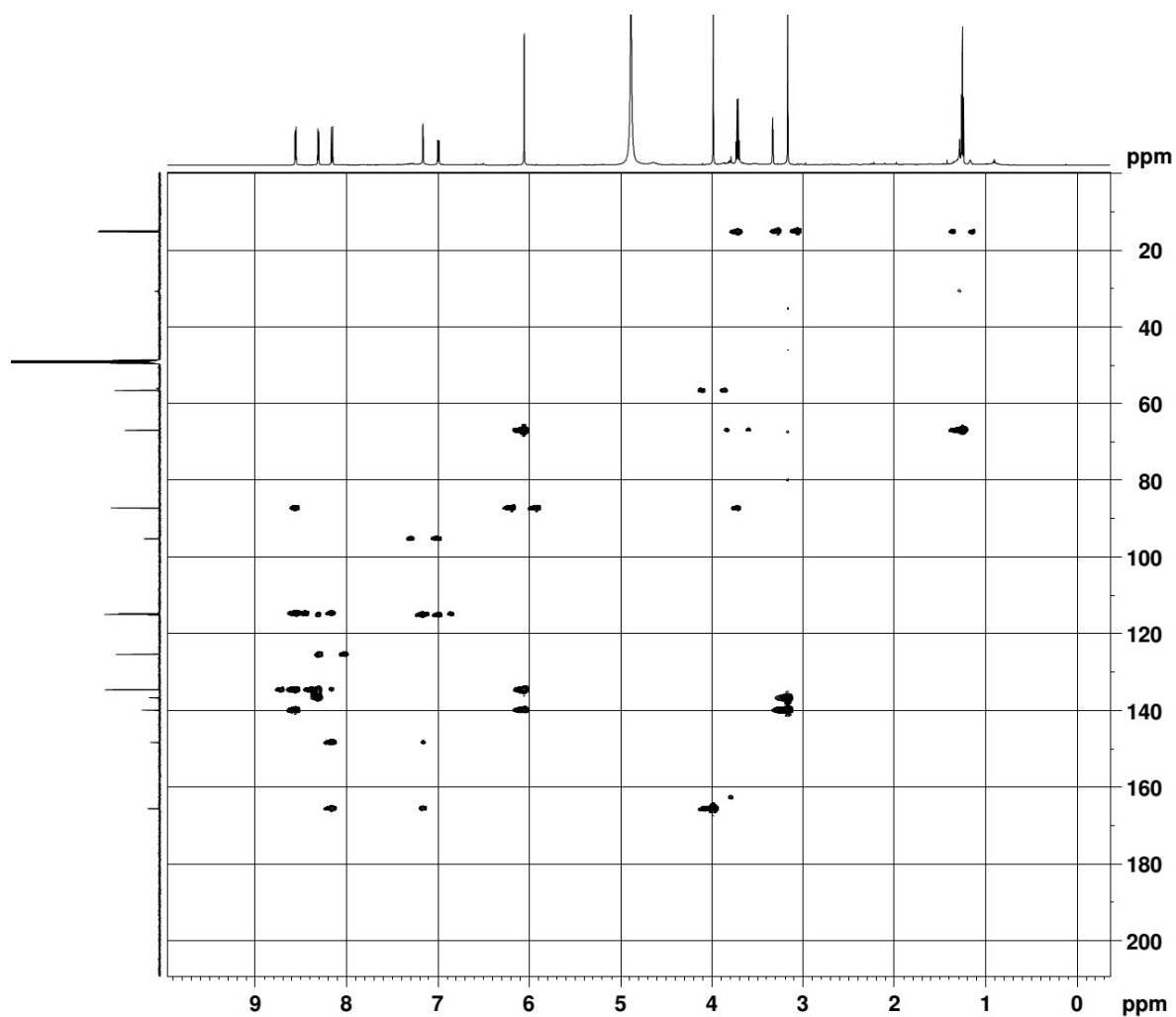
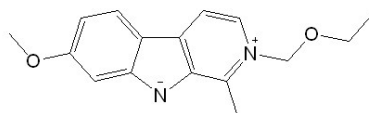
Solvent : CD₃OD

¹³C-NMR 150.9202056 MHz

¹H-NMR 600.2000000 MHz



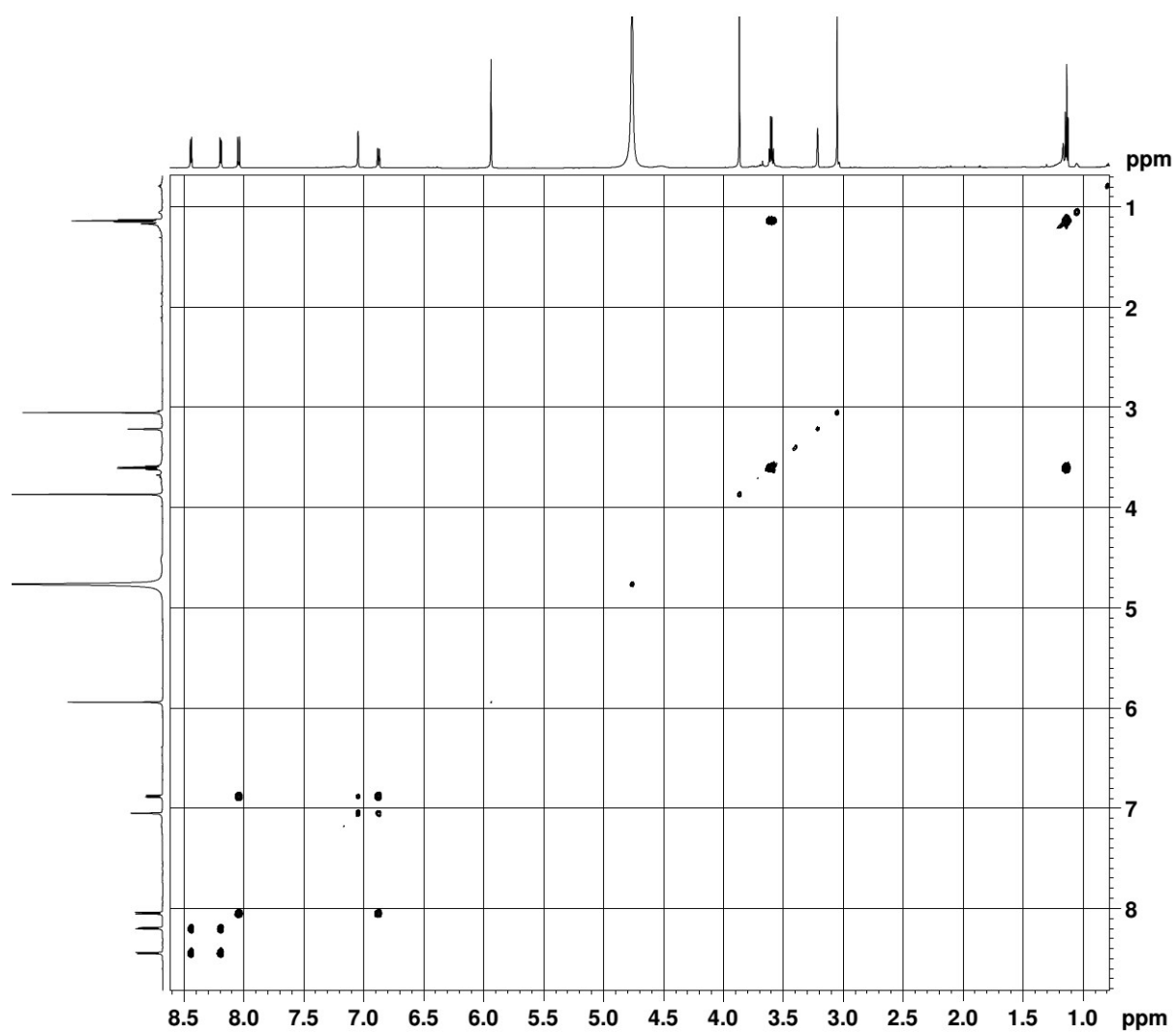
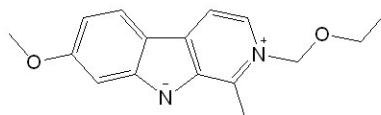
HMBC spectra of Compound 1
 Solvent : CD₃OD
¹³C-NMR 150.9202056MHz
¹H-NMR 600.2000000 MHz



¹H-¹H COSY spectra of Compound 1

Solvent : CD₃OD

¹H-NMR 600.200000 MHz

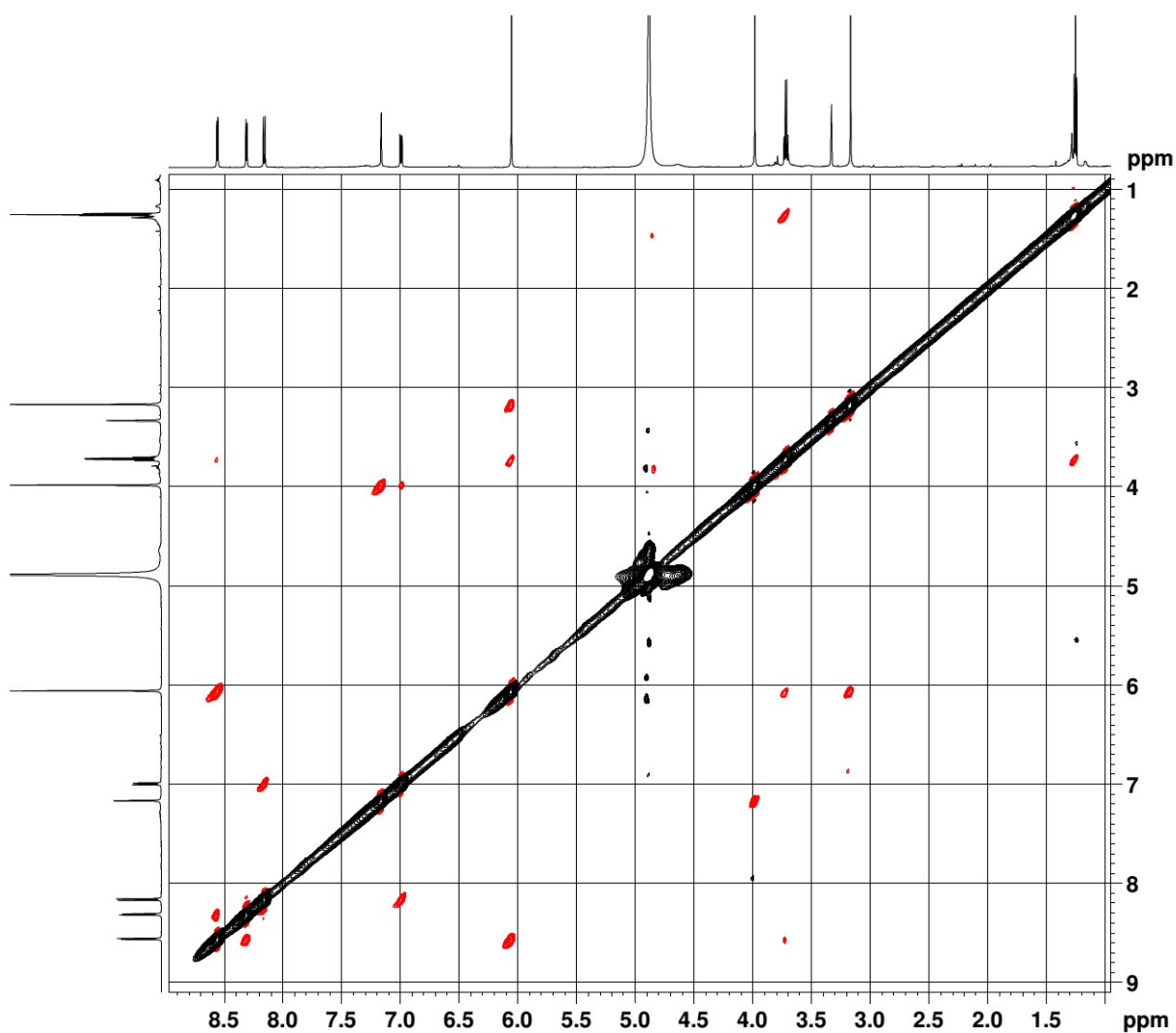
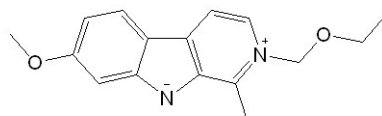


NOESY spectra of Compound 1

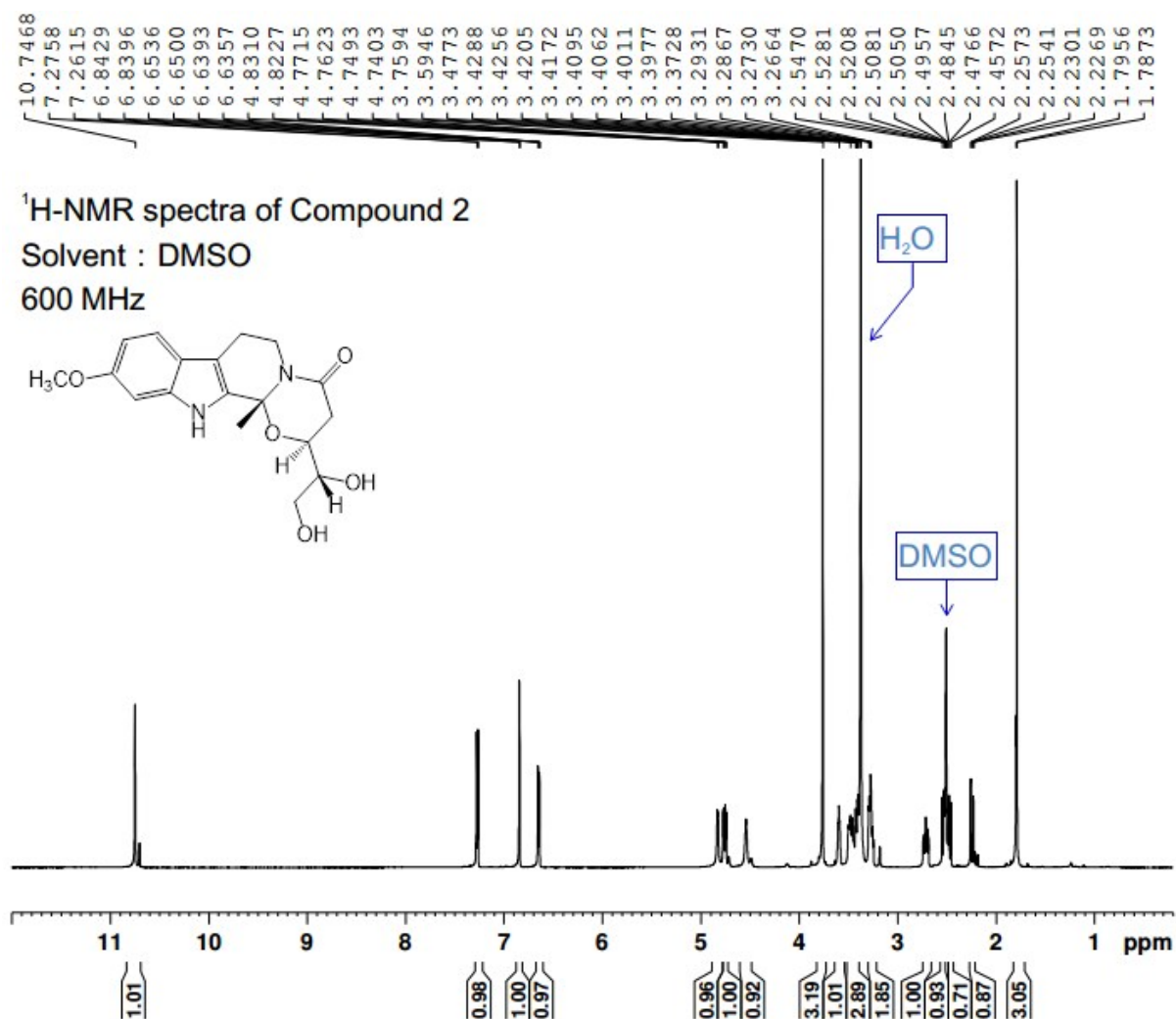
Solvent : CD₃OD

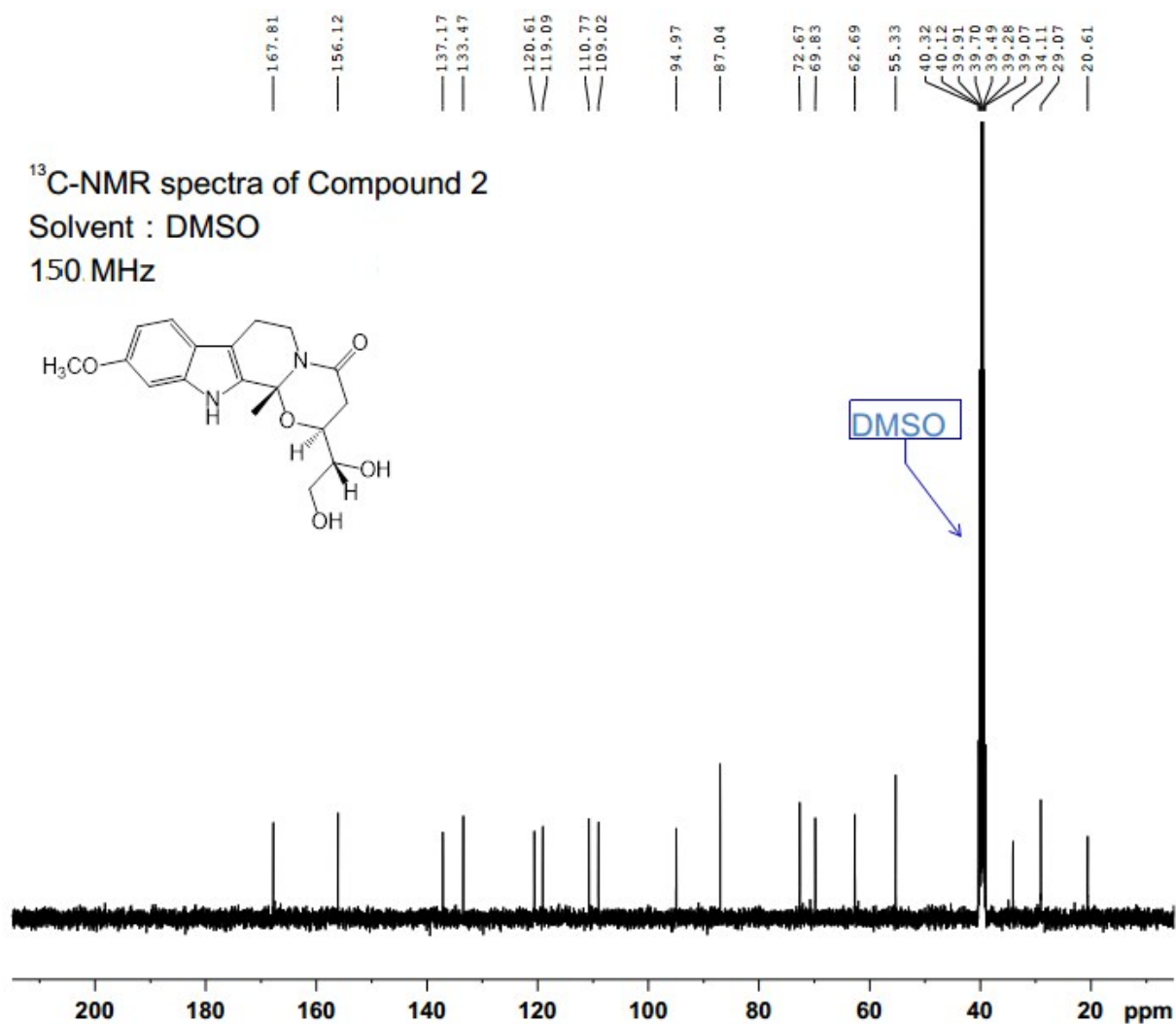
¹H-NMR 150.9202056MHz

¹³C-NMR 600.2000000 MHz



1.2 NMR spectrum of compound 2



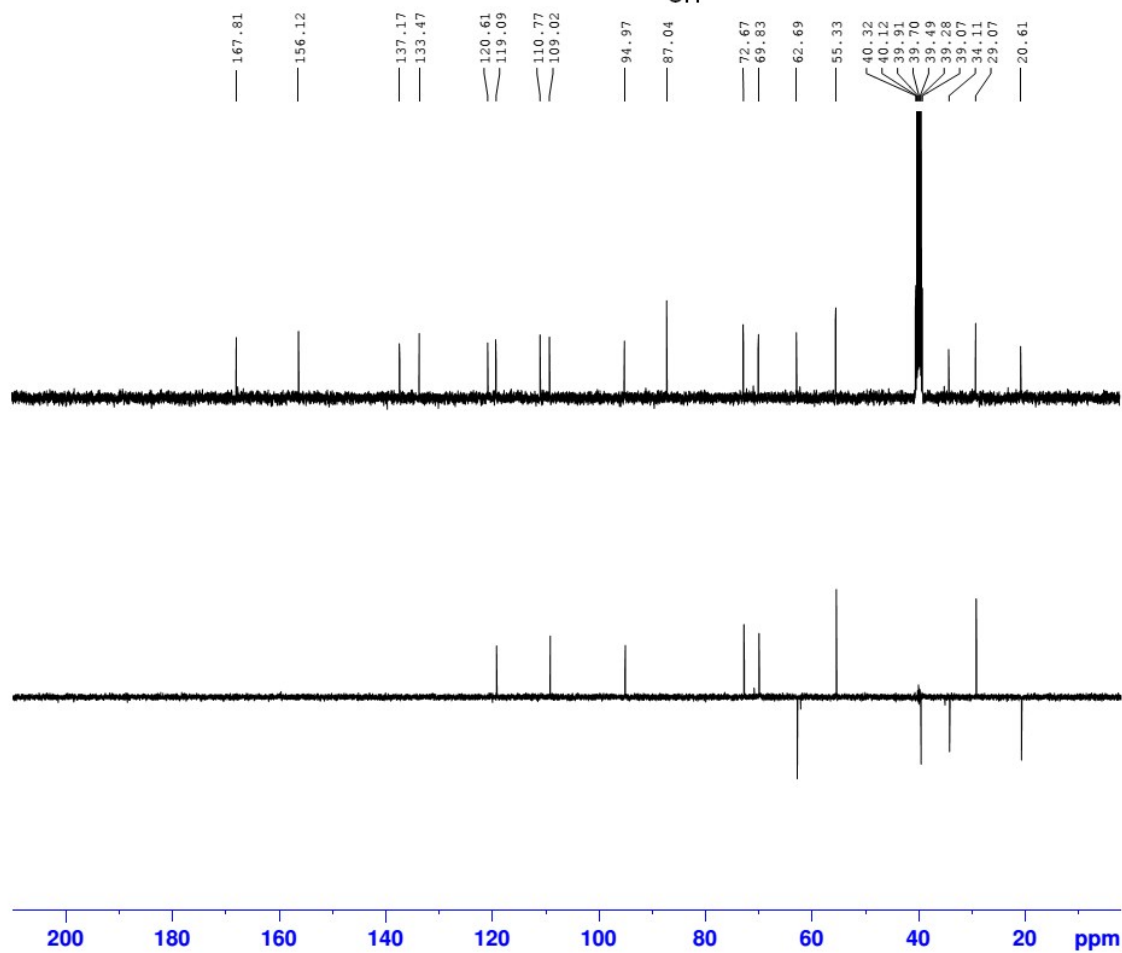
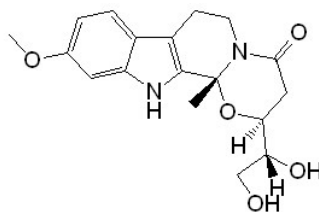


DEPT spectra of Compound 2

Solvent : DMSO

^1H -NMR 600 MHz

^{13}C -NMR 150 MHz

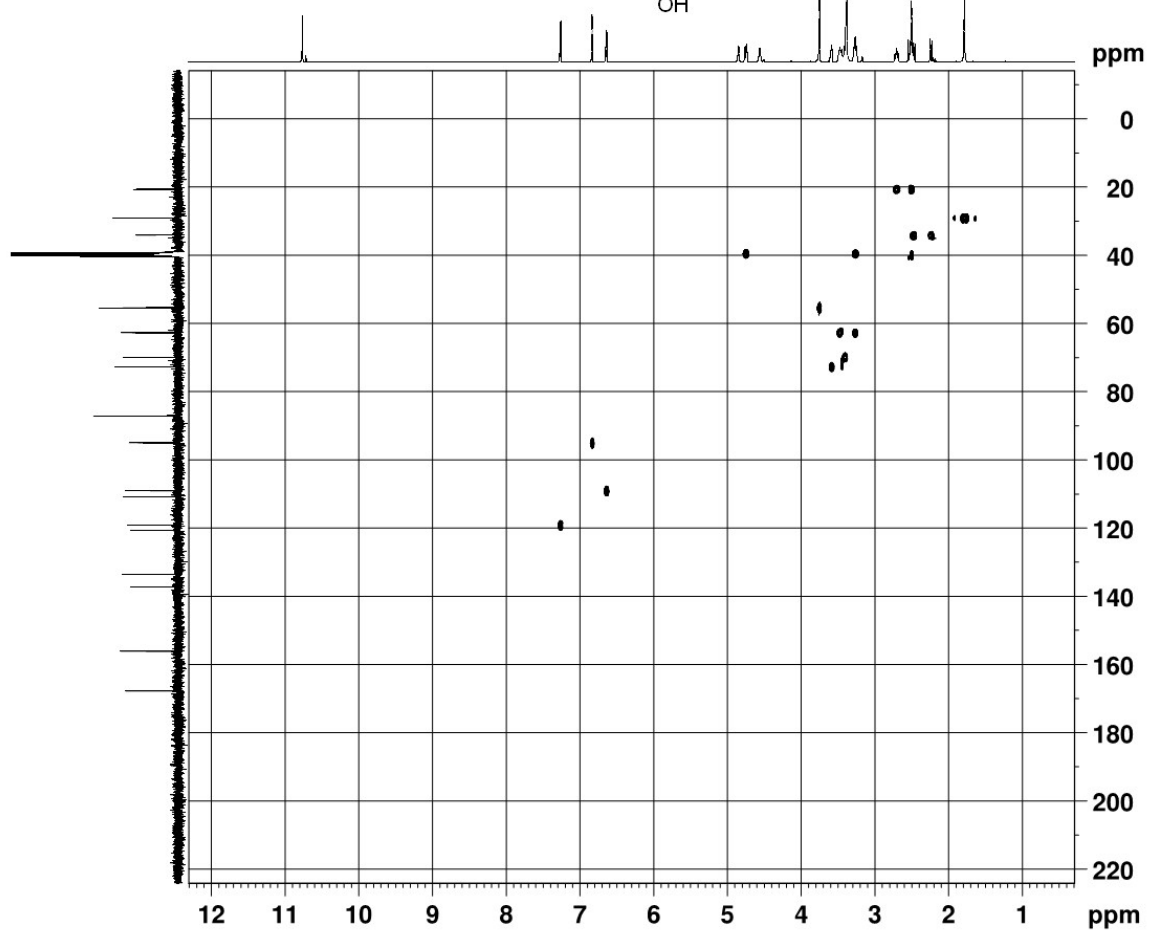
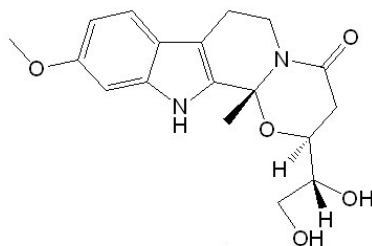


HMQC spectra of Compound 2

Solvent : DMSO

^1H -NMR 600 MHz

^{13}C -NMR 150 MHz

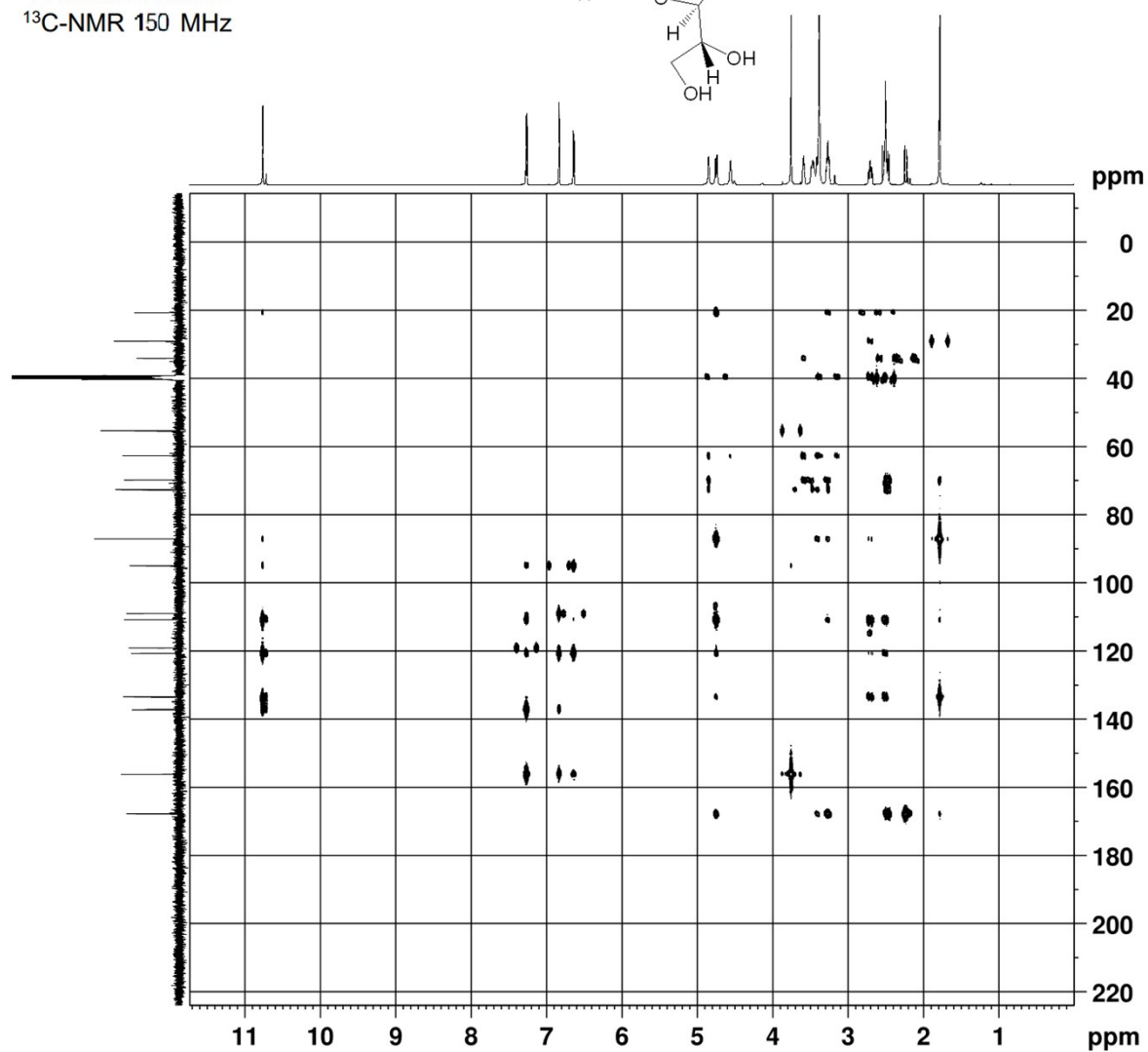
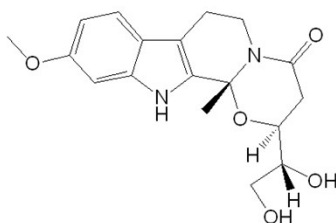


HMBC spectra of Compound 2

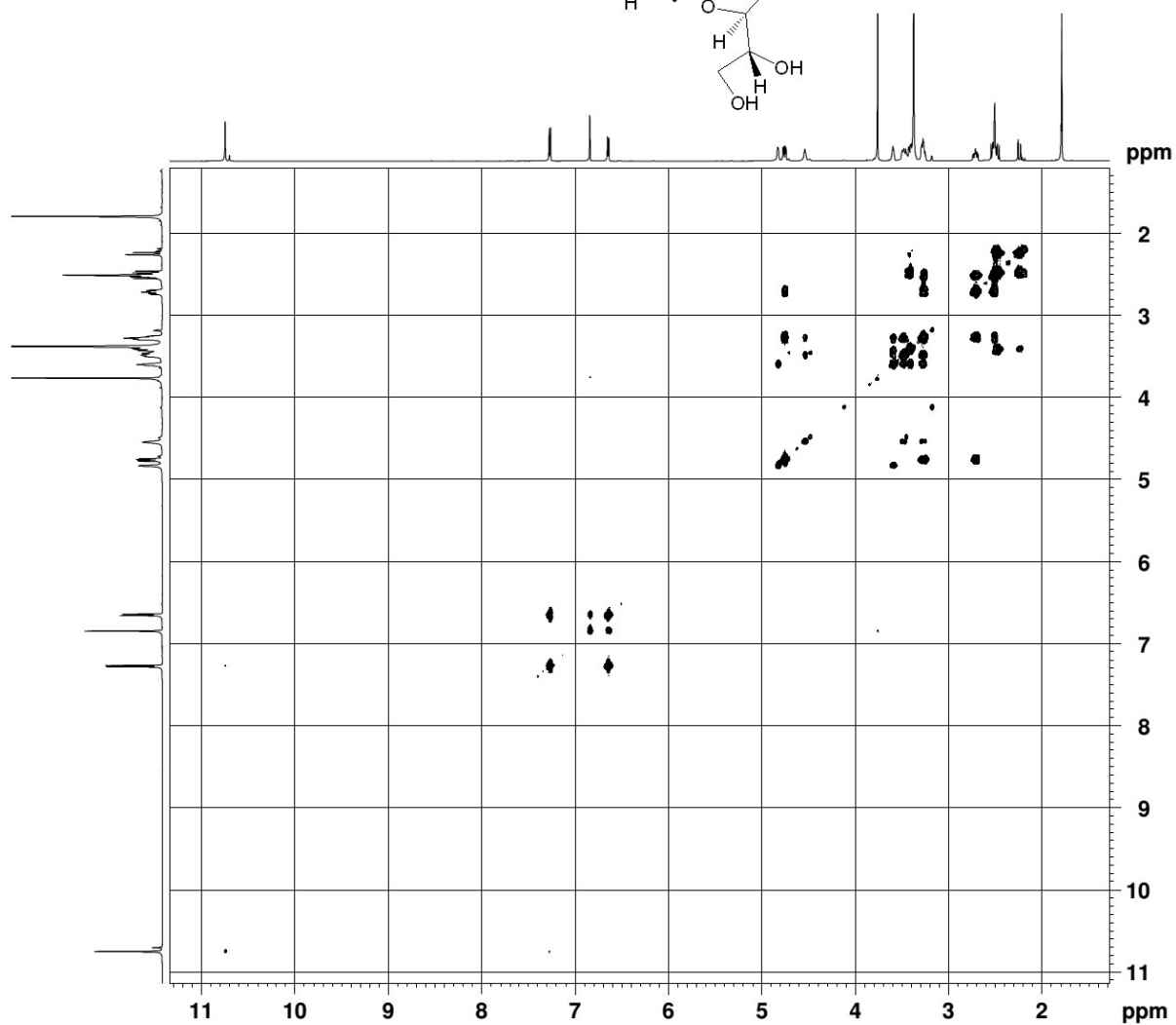
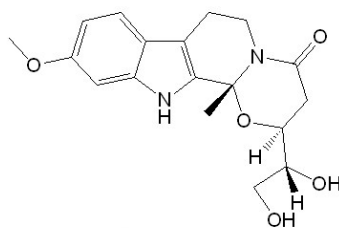
Solvent : DMSO

^1H -NMR 600 MHz

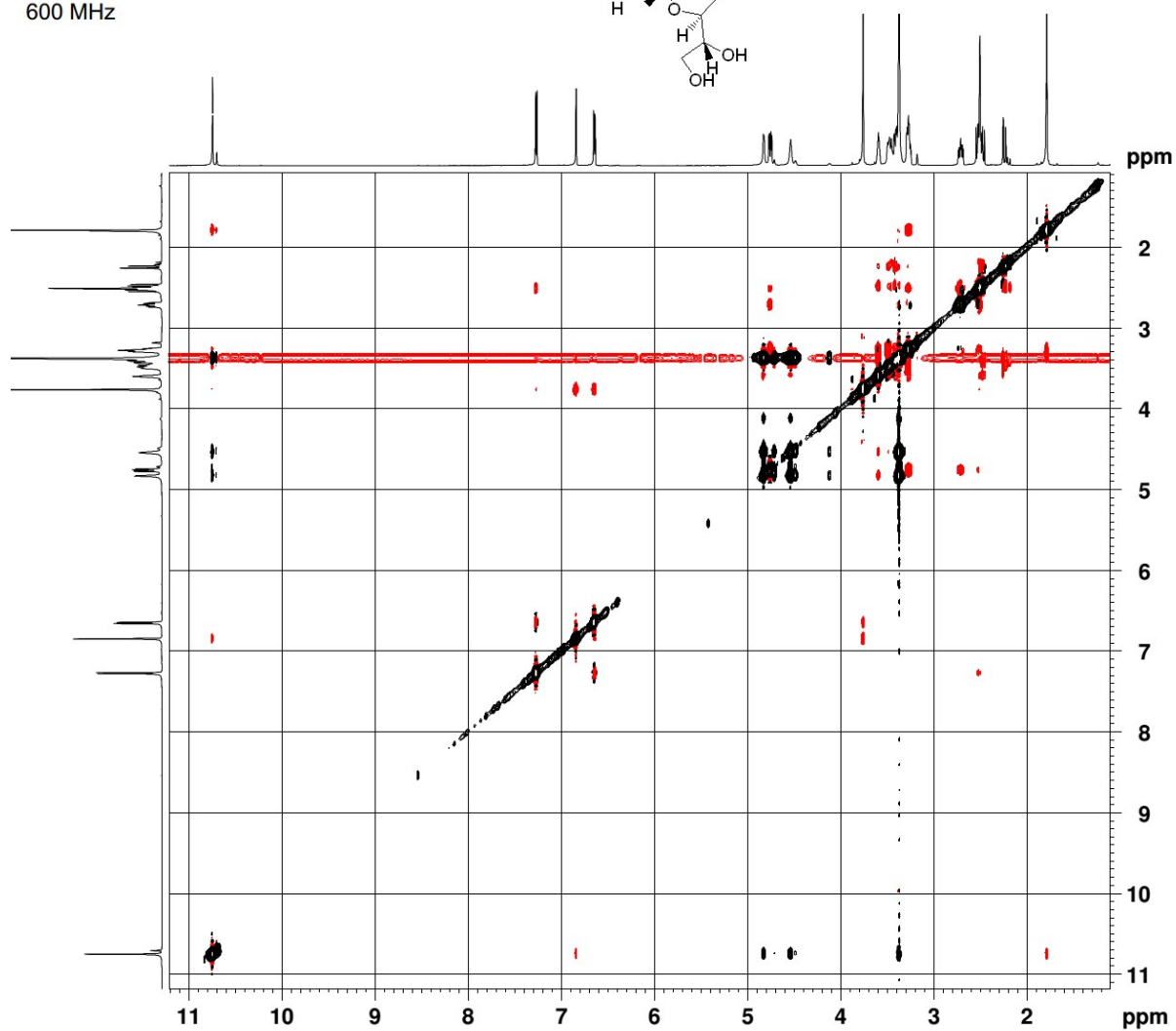
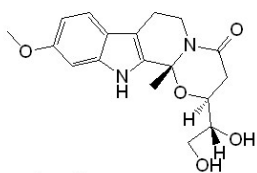
^{13}C -NMR 150 MHz



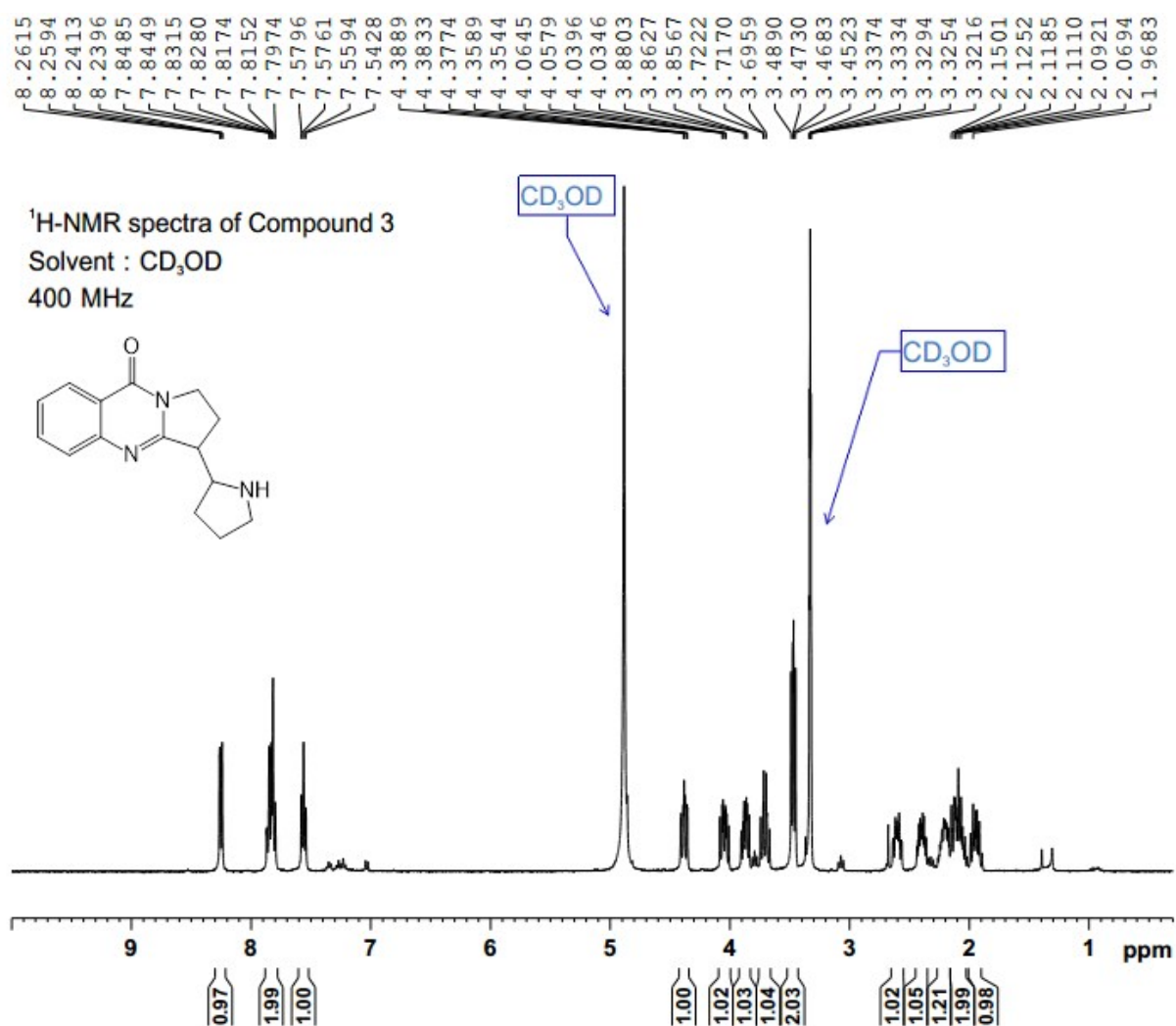
^1H - ^1H COSY spectra of Compound 2
Solvent : DMSO
600 MHz

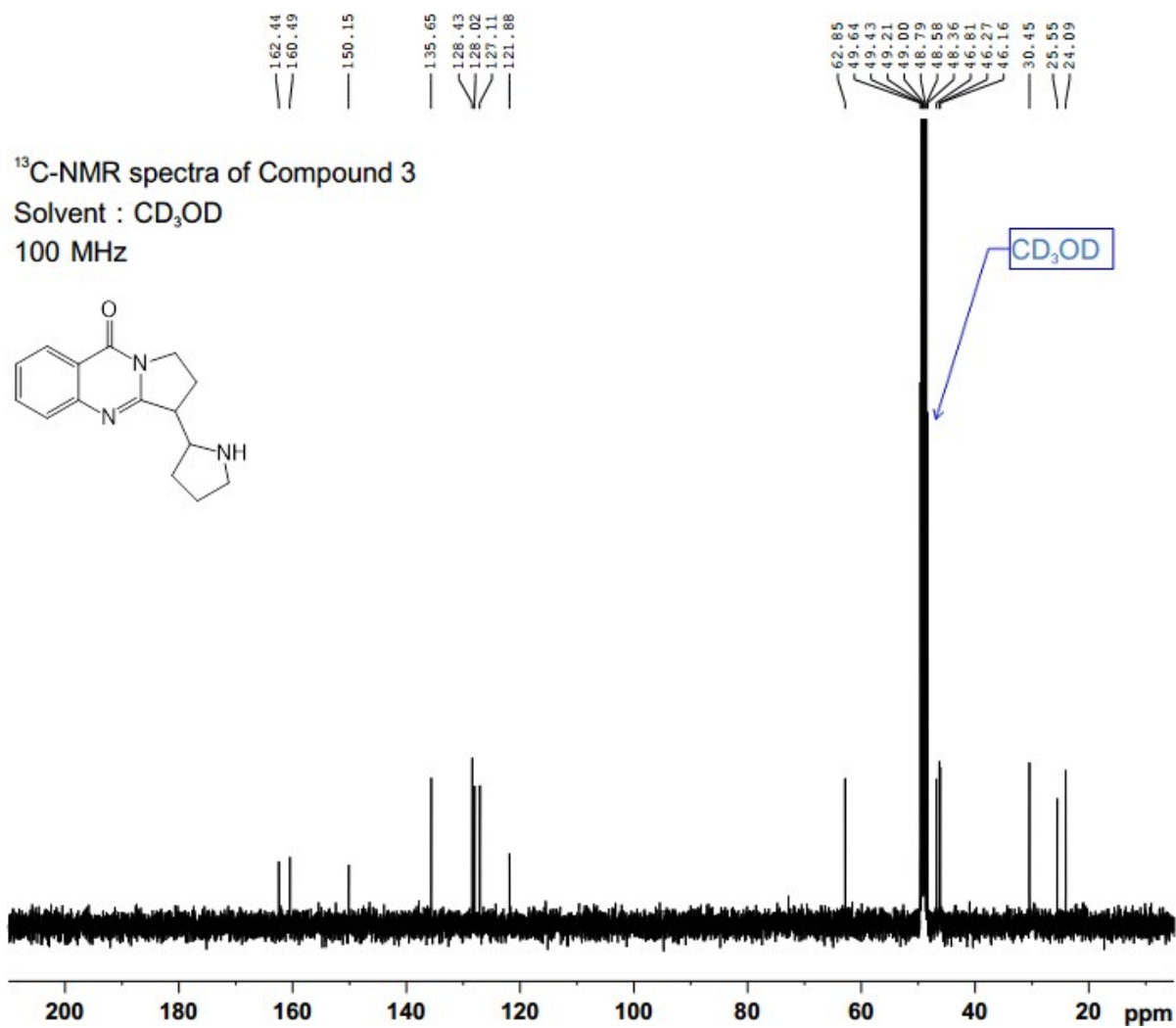


NOESY spectra of Compound 2
Solvent : DMSO
600 MHz



1.3 NMR spectrum of compound 3



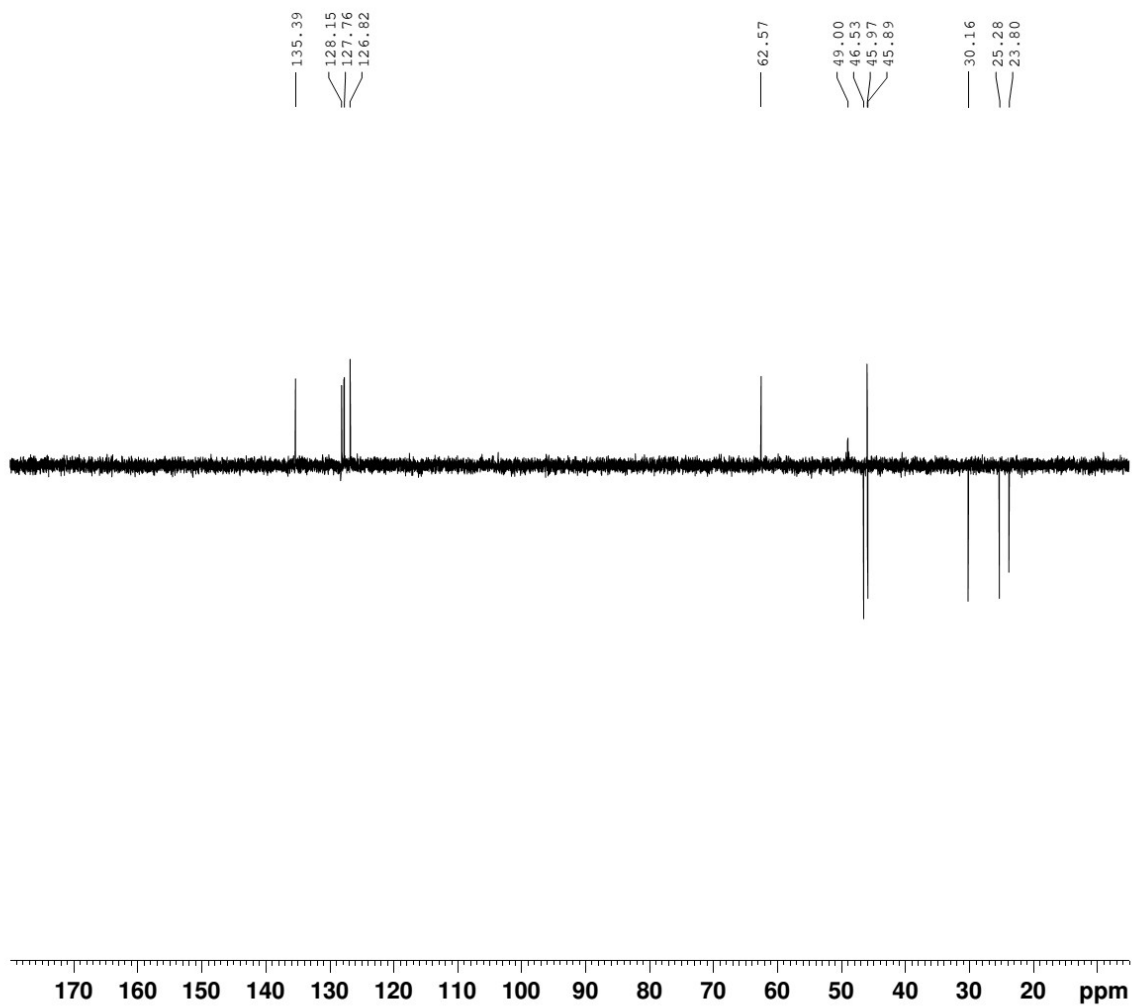
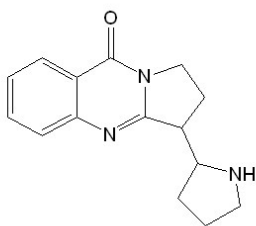


DEPT spectra of Compound 3

Solvent: CD₃OD

¹³C-NMR 150 MHz

¹H-NMR 600 MHz

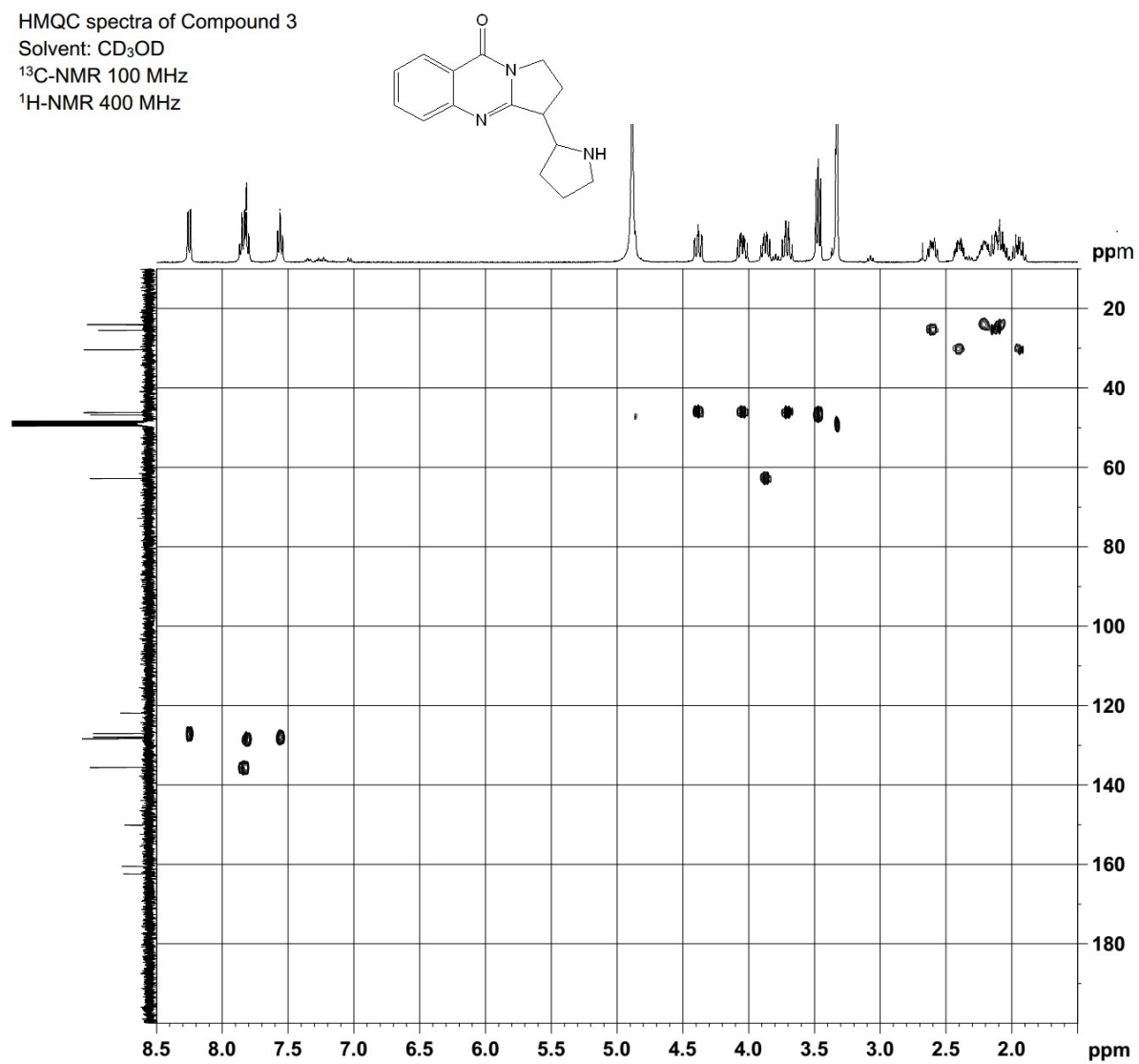


HMQC spectra of Compound 3

Solvent: CD₃OD

¹³C-NMR 100 MHz

¹H-NMR 400 MHz

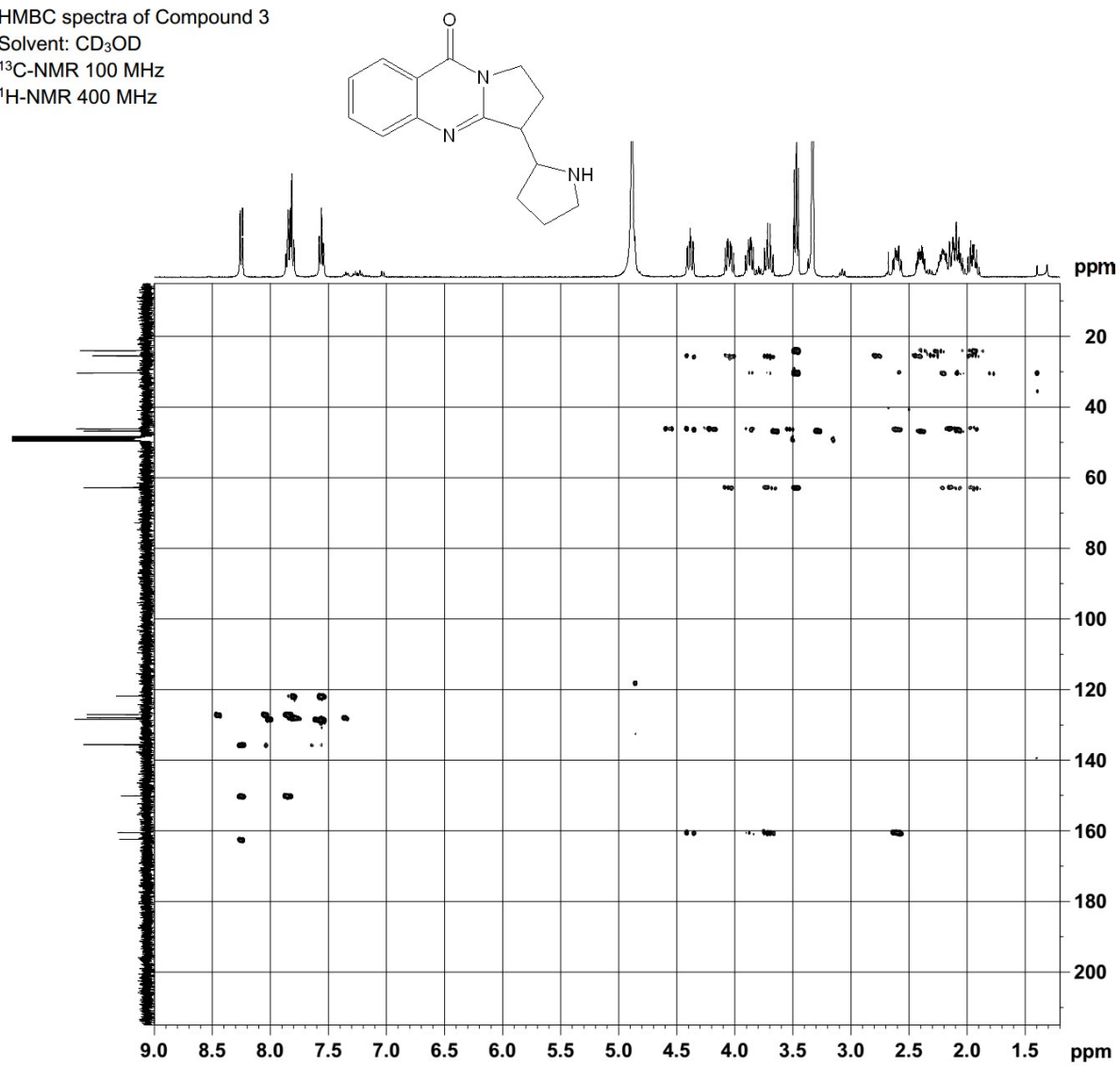


HMBC spectra of Compound 3

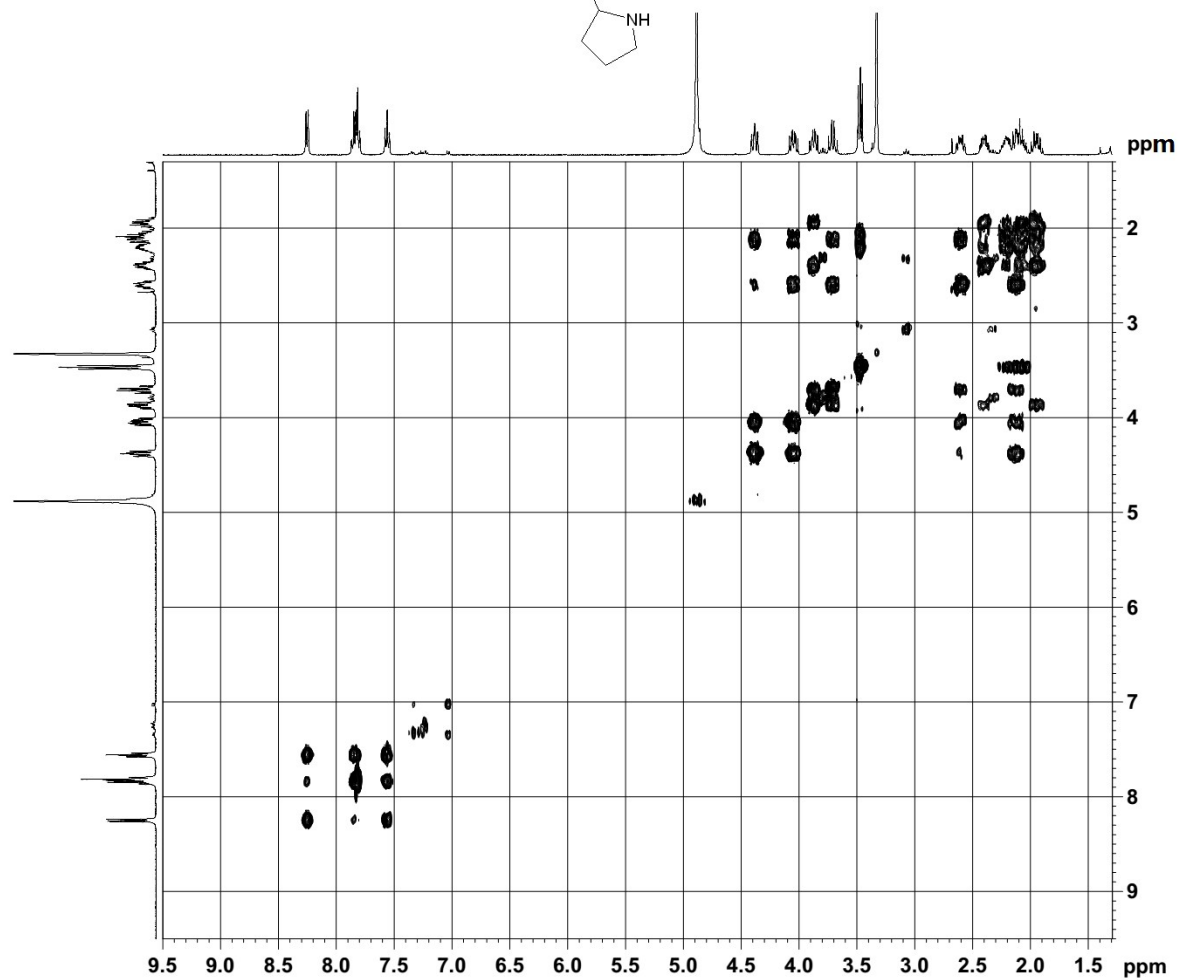
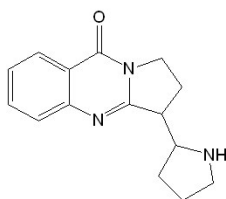
Solvent: CD₃OD

¹³C-NMR 100 MHz

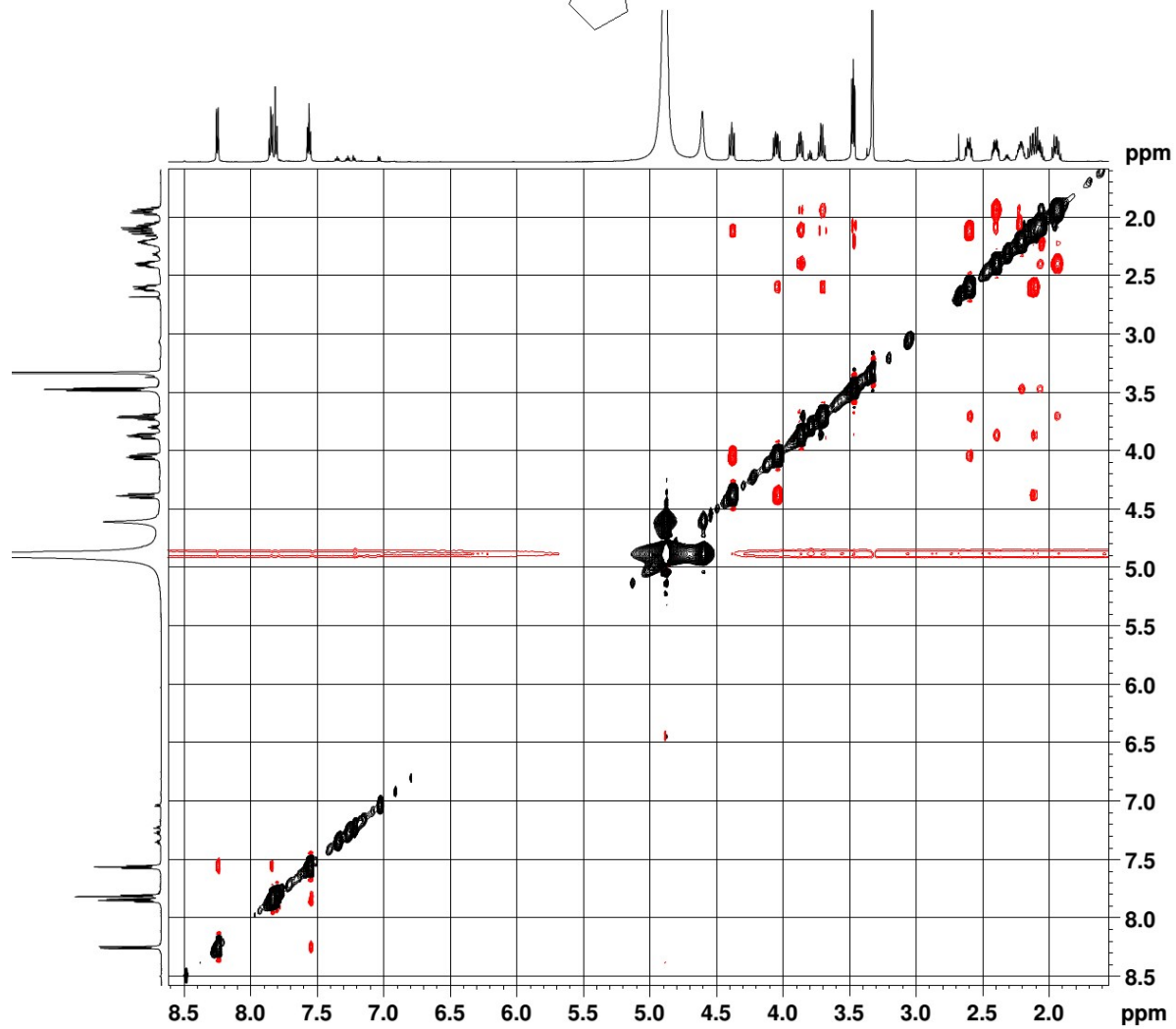
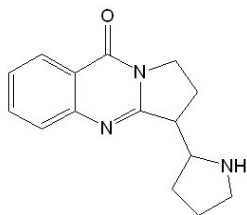
¹H-NMR 400 MHz



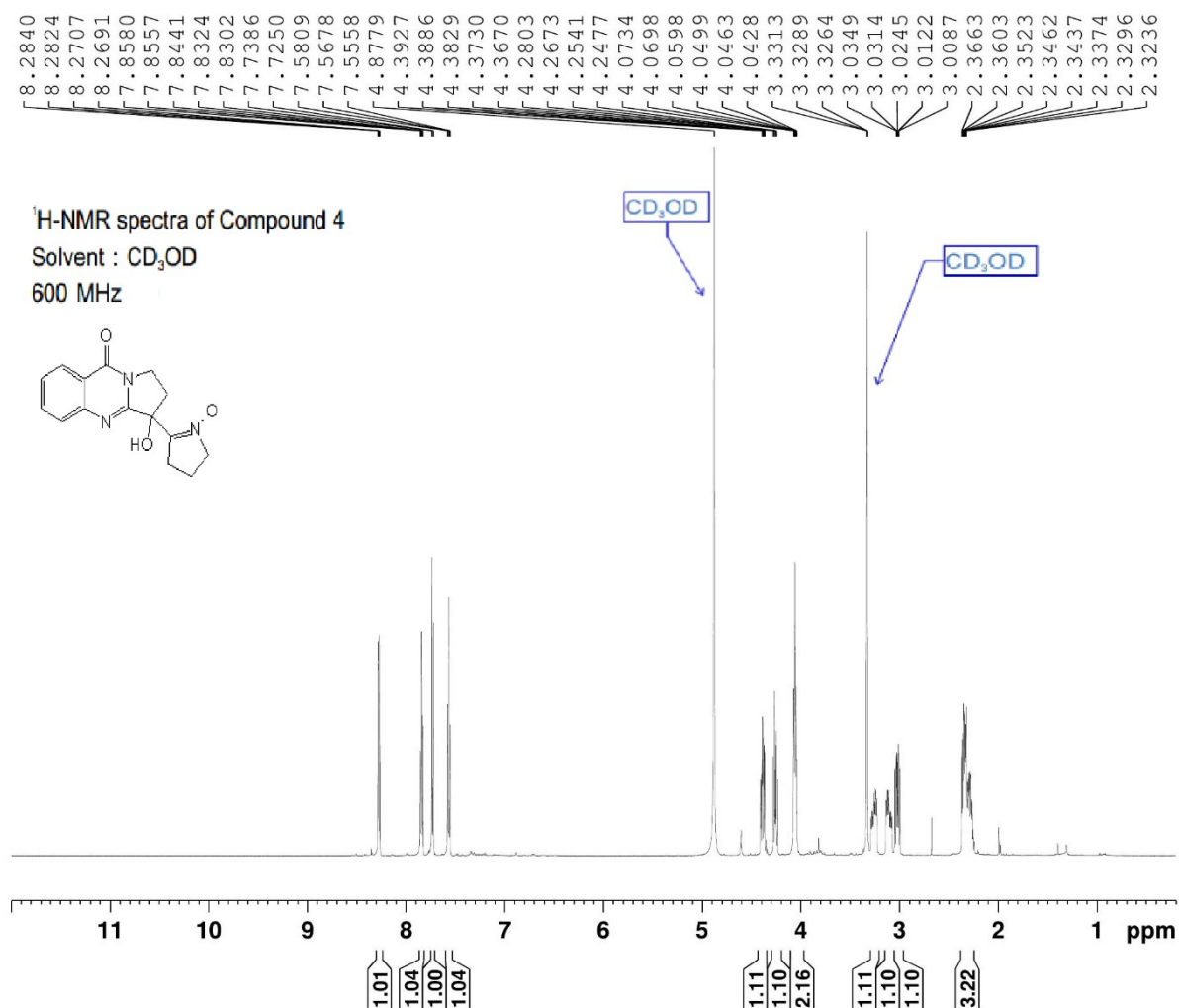
¹H-¹H COSY spectra of Compound 3
Solvent: CD₃OD
400 MHz

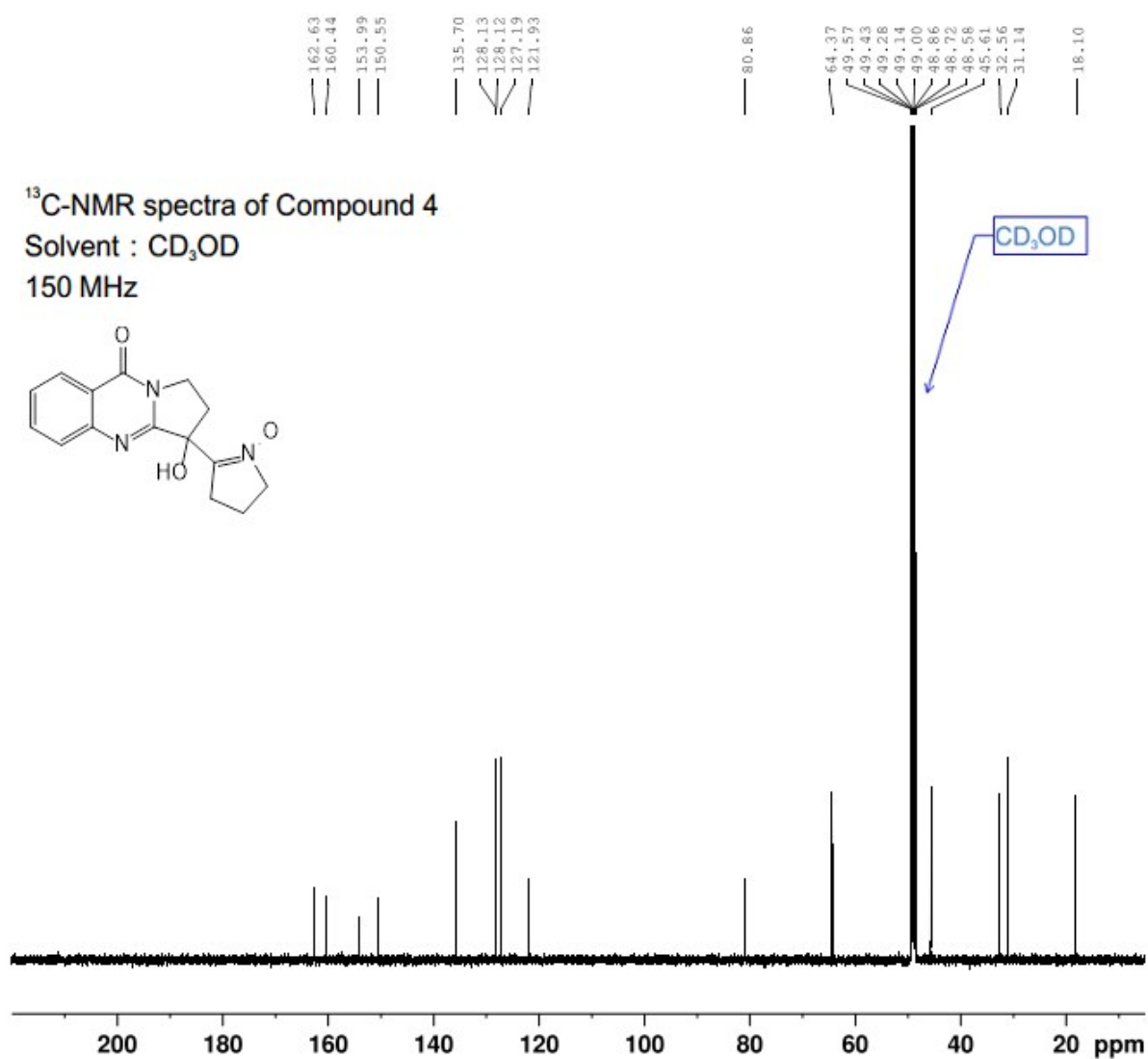


NOESY spectra of Compound 3
Solvent: CD₃OD
600 MHz



1.4 NMR spectrum of compound 4



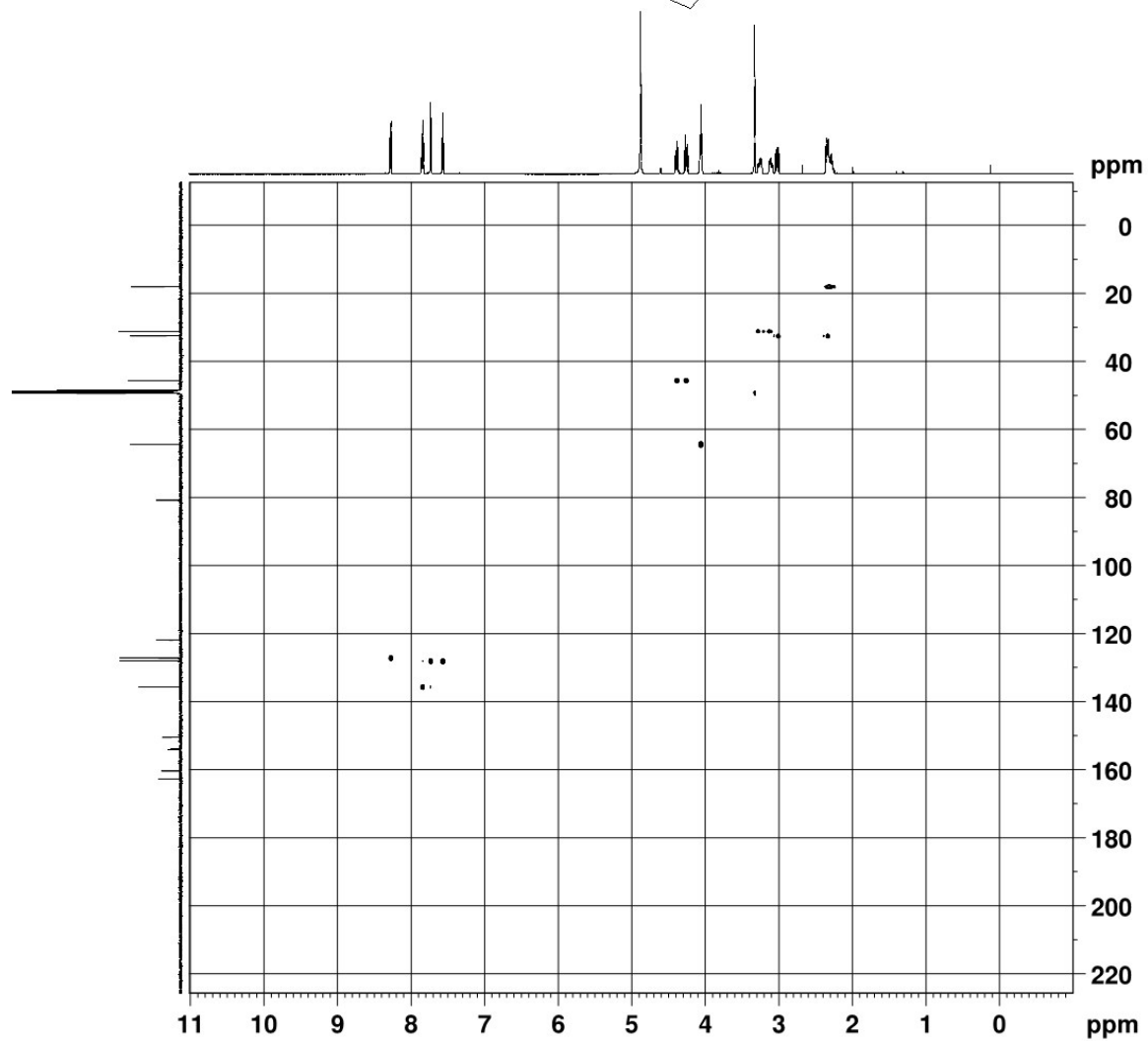
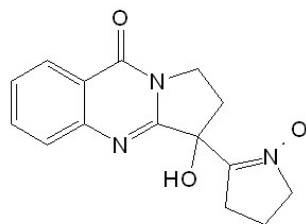


HMQC spectra of Compound 4

Solvent : CD₃OD

¹³C-NMR 150 MHz

¹H-NMR 600 MHz

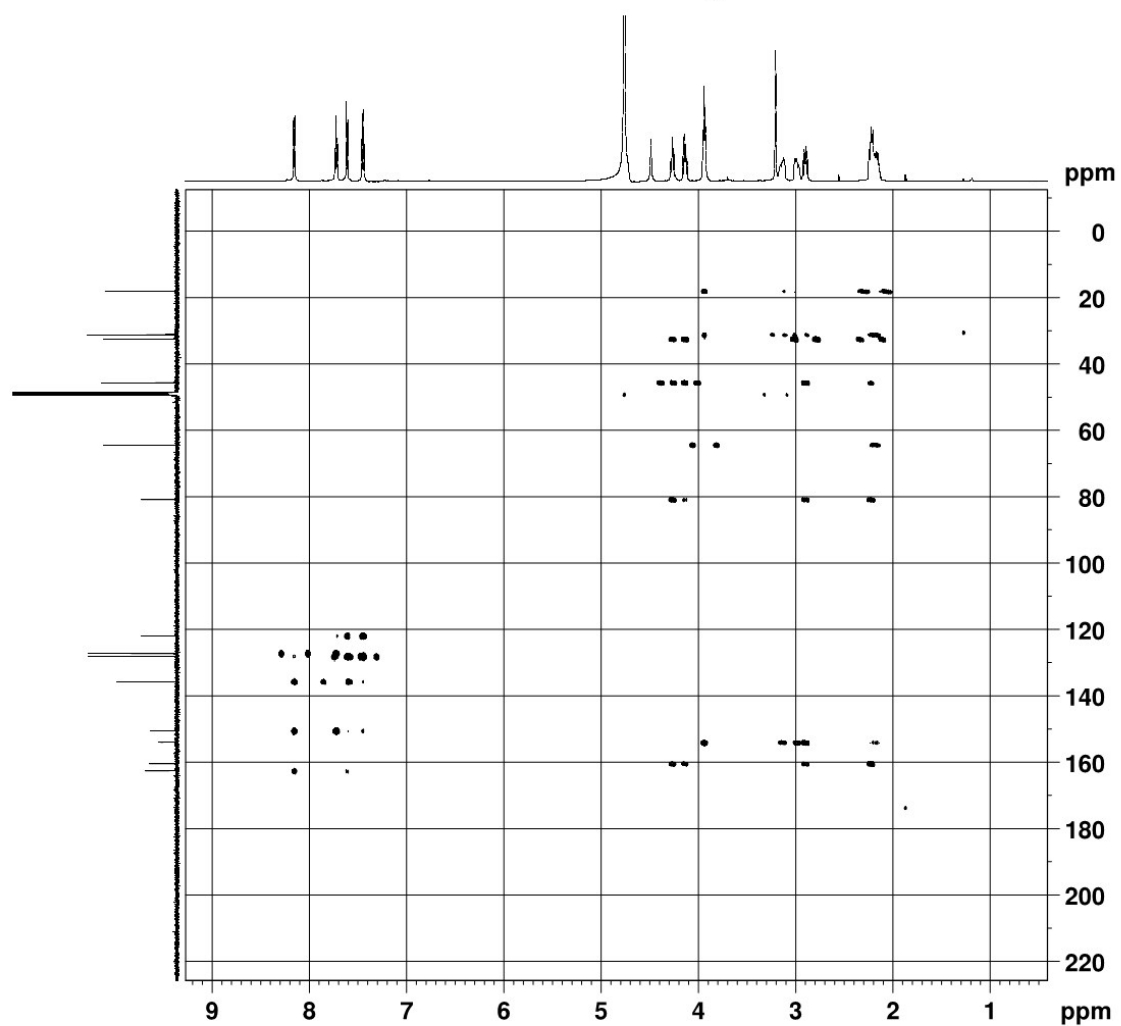
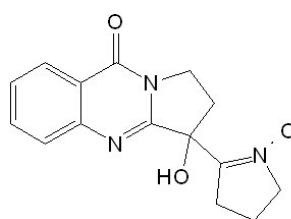


HMBC spectra of Compound 4

Solvent : CD₃OD

¹³C-NMR 150 MHz

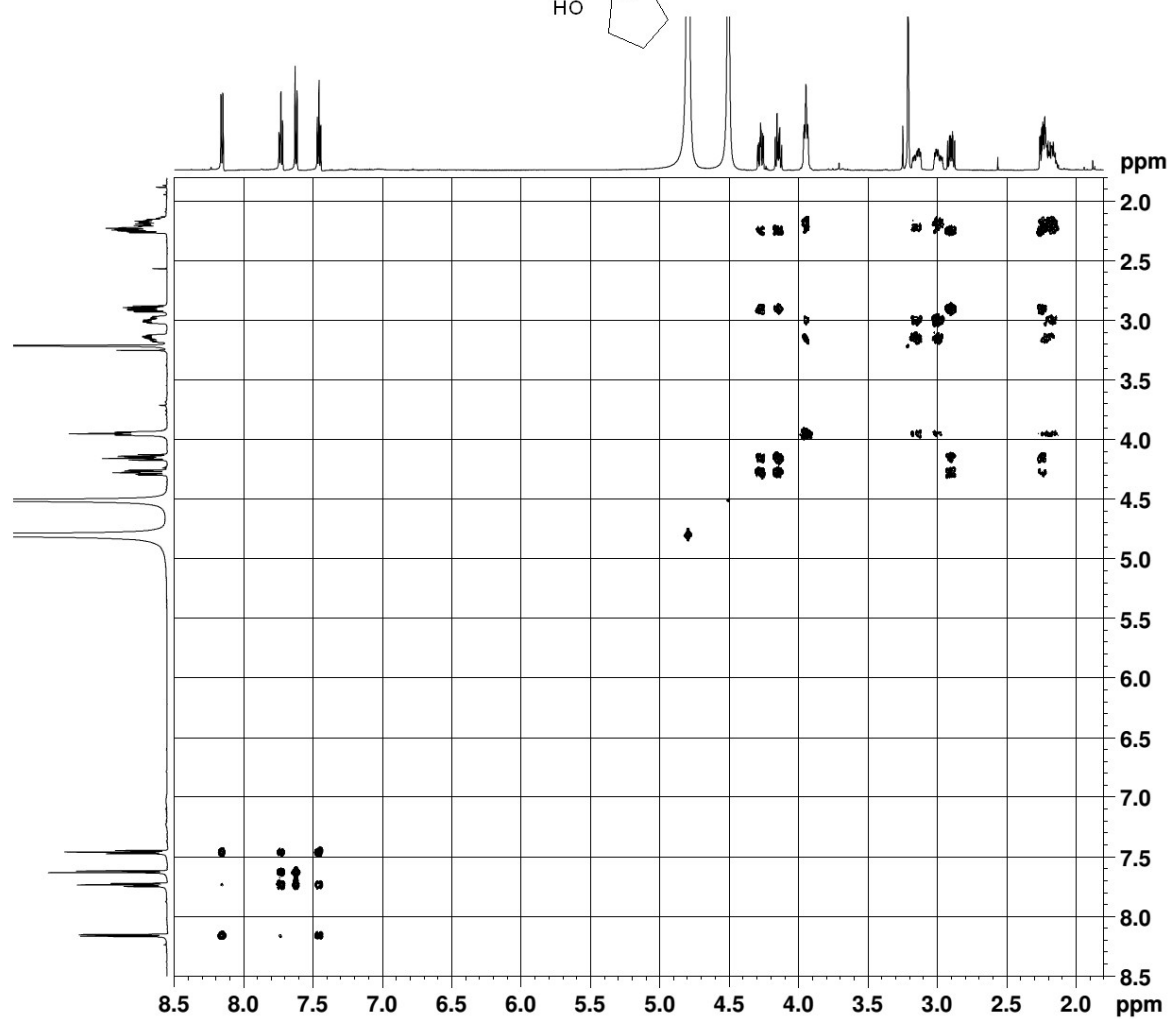
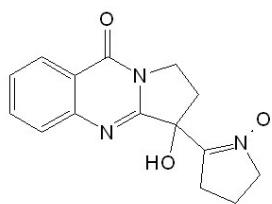
¹H-NMR 600 MHz



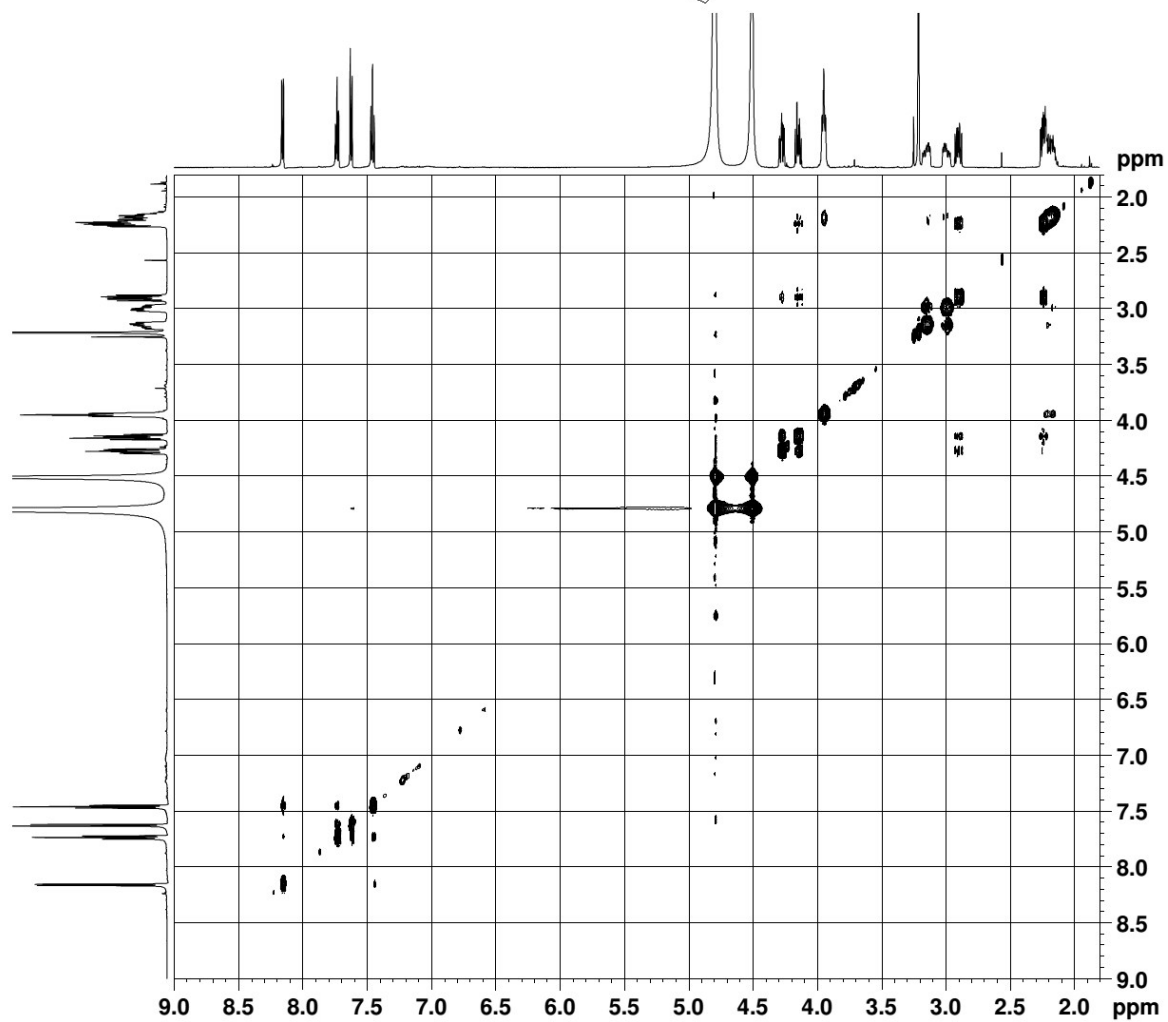
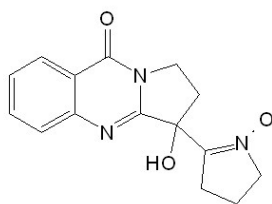
^1H - ^1H COSY spectra of Compound 4

Solvent : CD_3OD

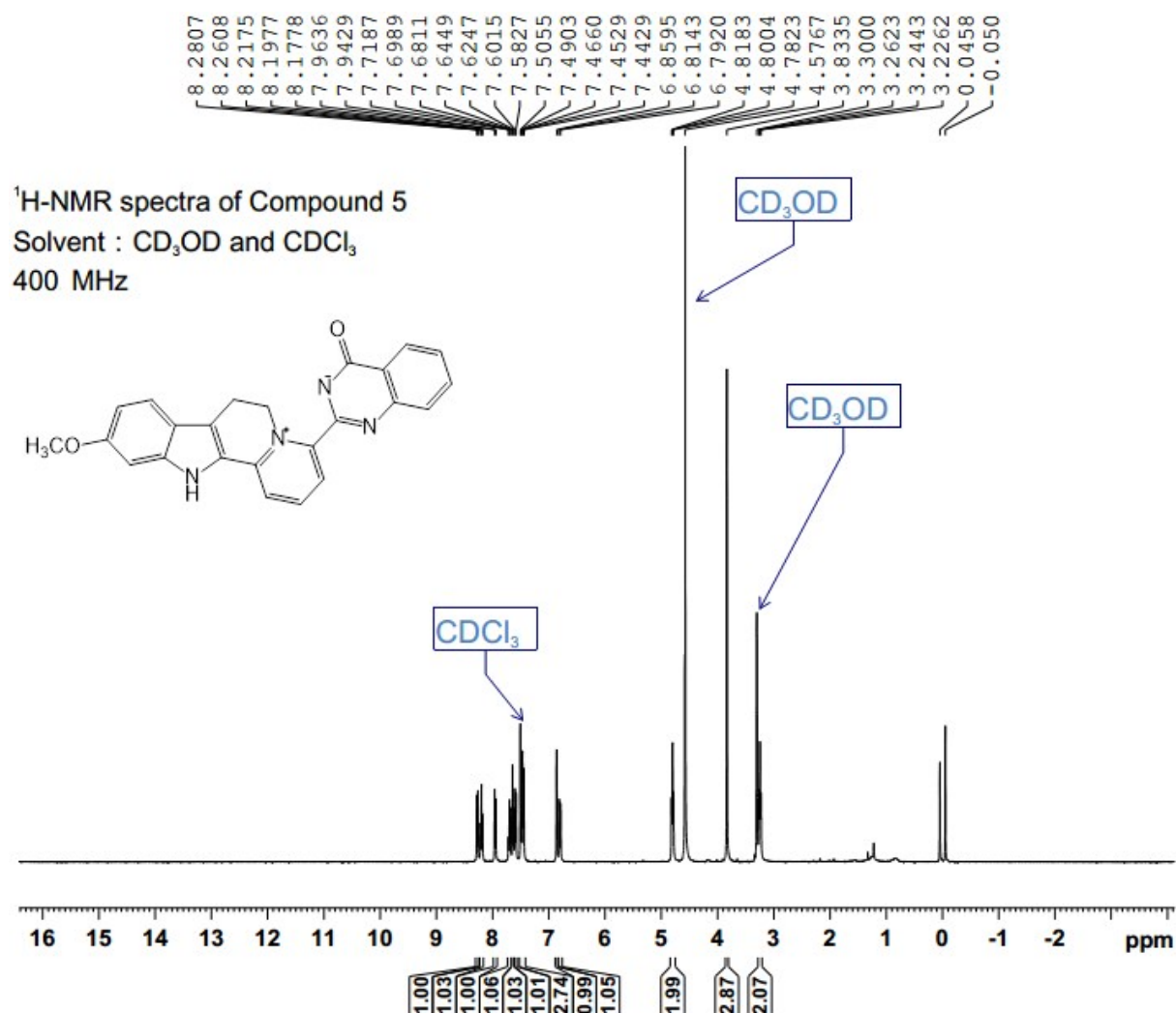
600 MHz

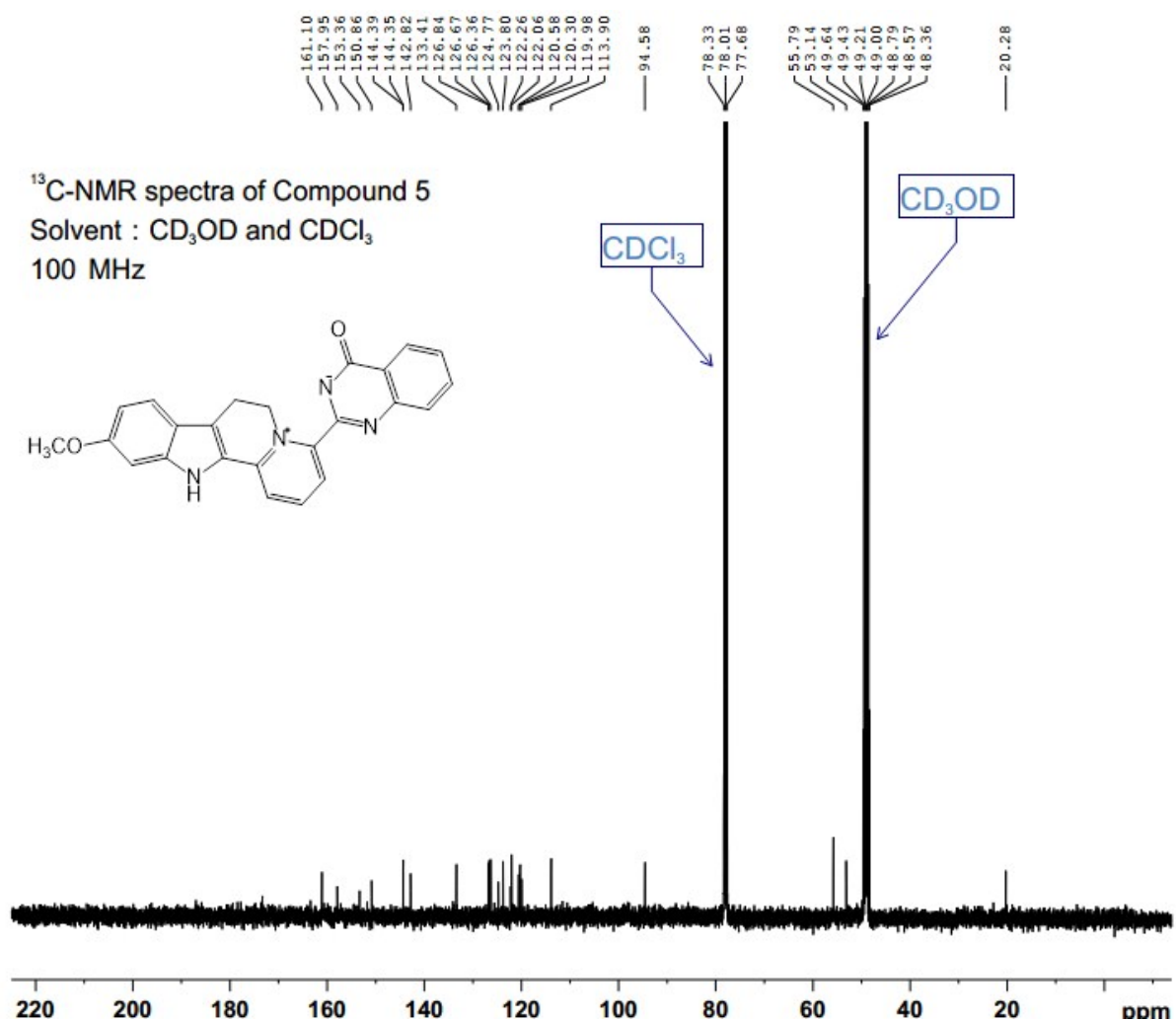


NOESY spectra of Compound 4
Solvent : CD₃OD
600 MHz

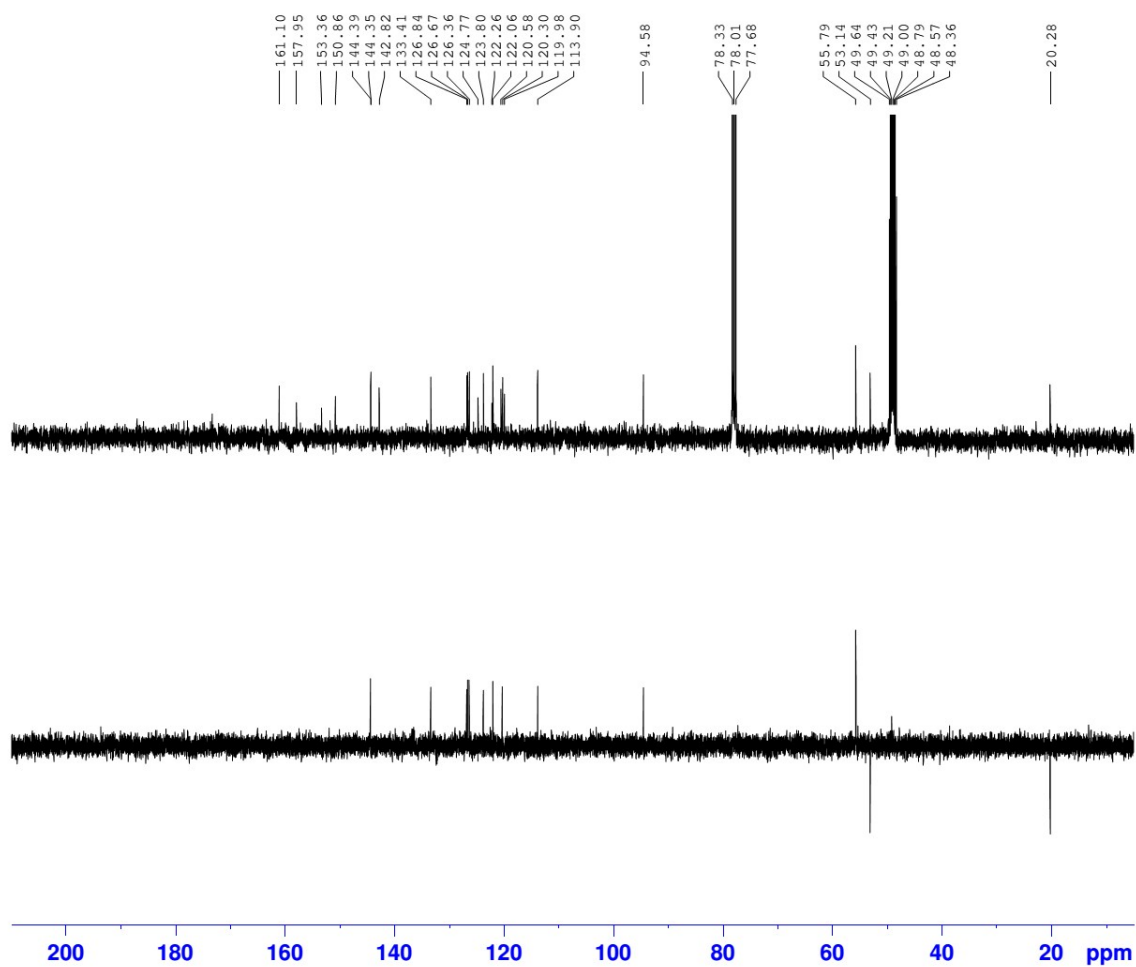
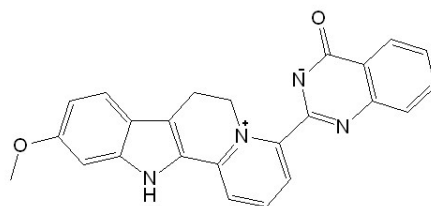


1.5 NMR spectrum of compound 5





DEPT spectra of Compound 5
 Solvent : CD₃OD and CDCl₃
¹³C-NMR 100 MHz
¹H-NMR 400 MHz

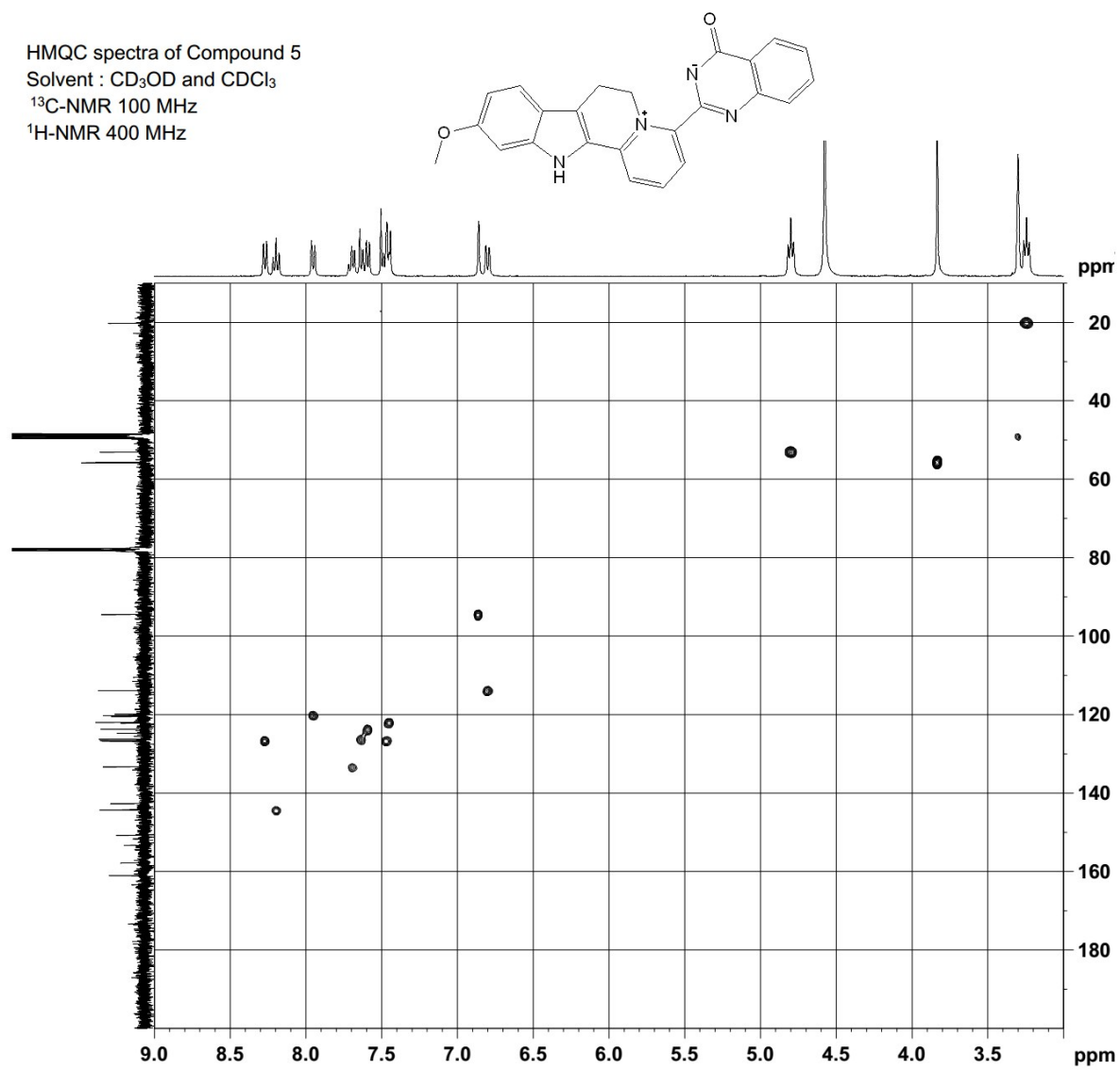


HMQC spectra of Compound 5

Solvent : CD₃OD and CDCl₃

¹³C-NMR 100 MHz

¹H-NMR 400 MHz

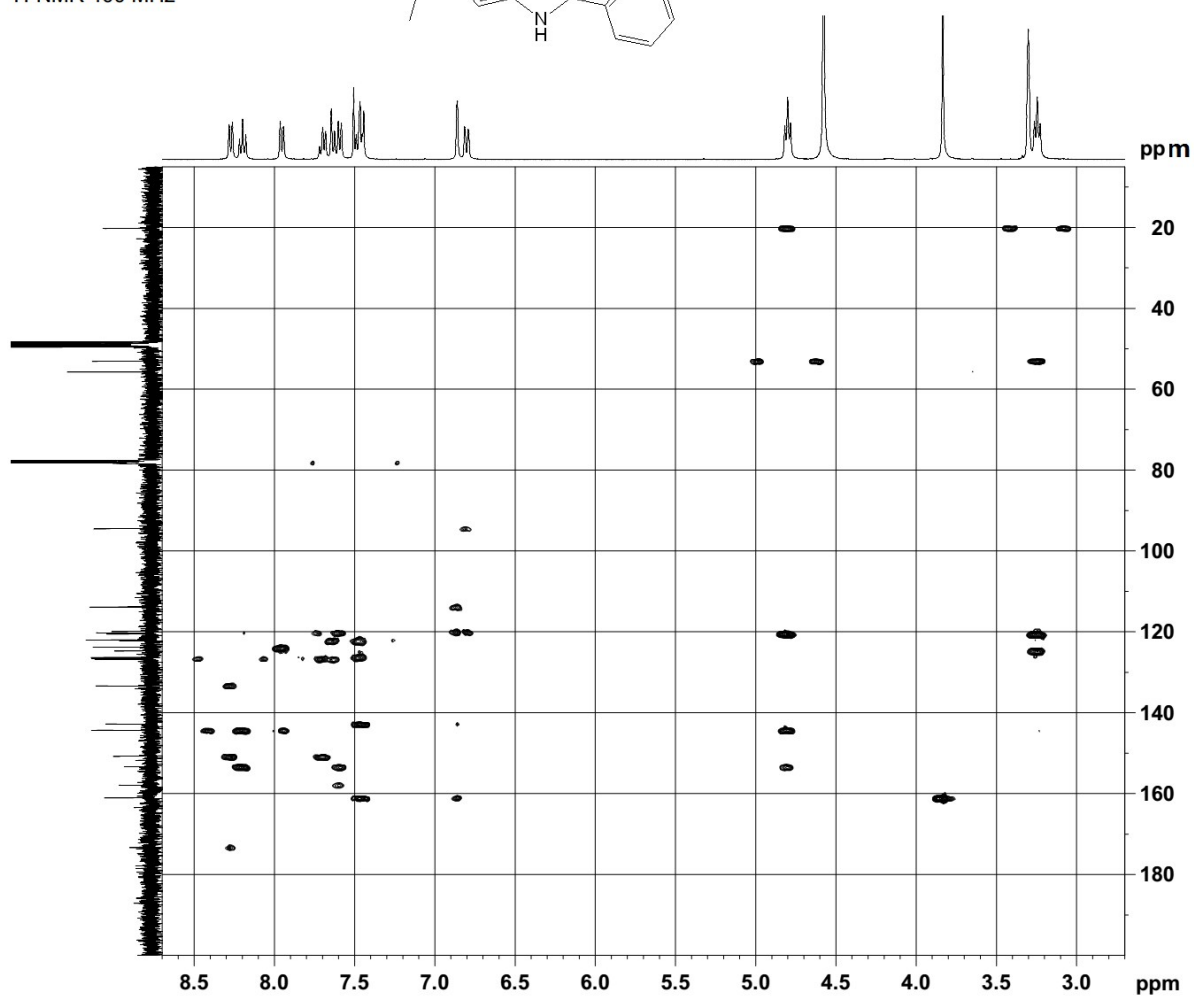
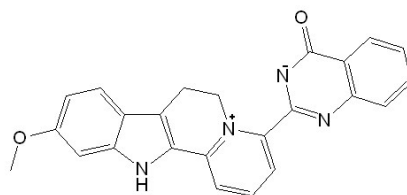


HMBC spectra of Compound 5

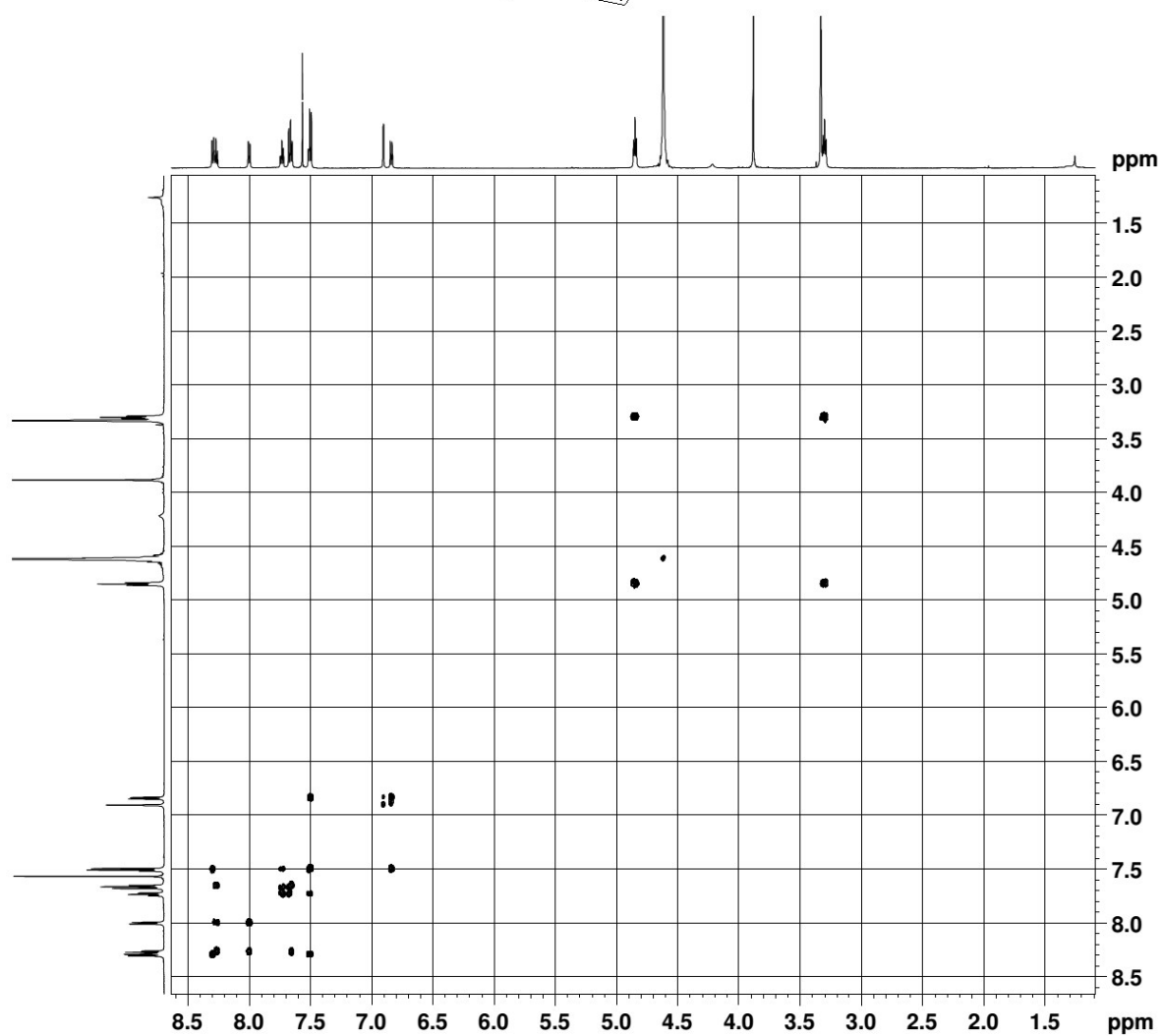
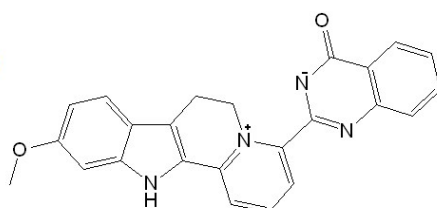
Solvent : CD₃OD and CDCl₃

¹³C-NMR 100 MHz

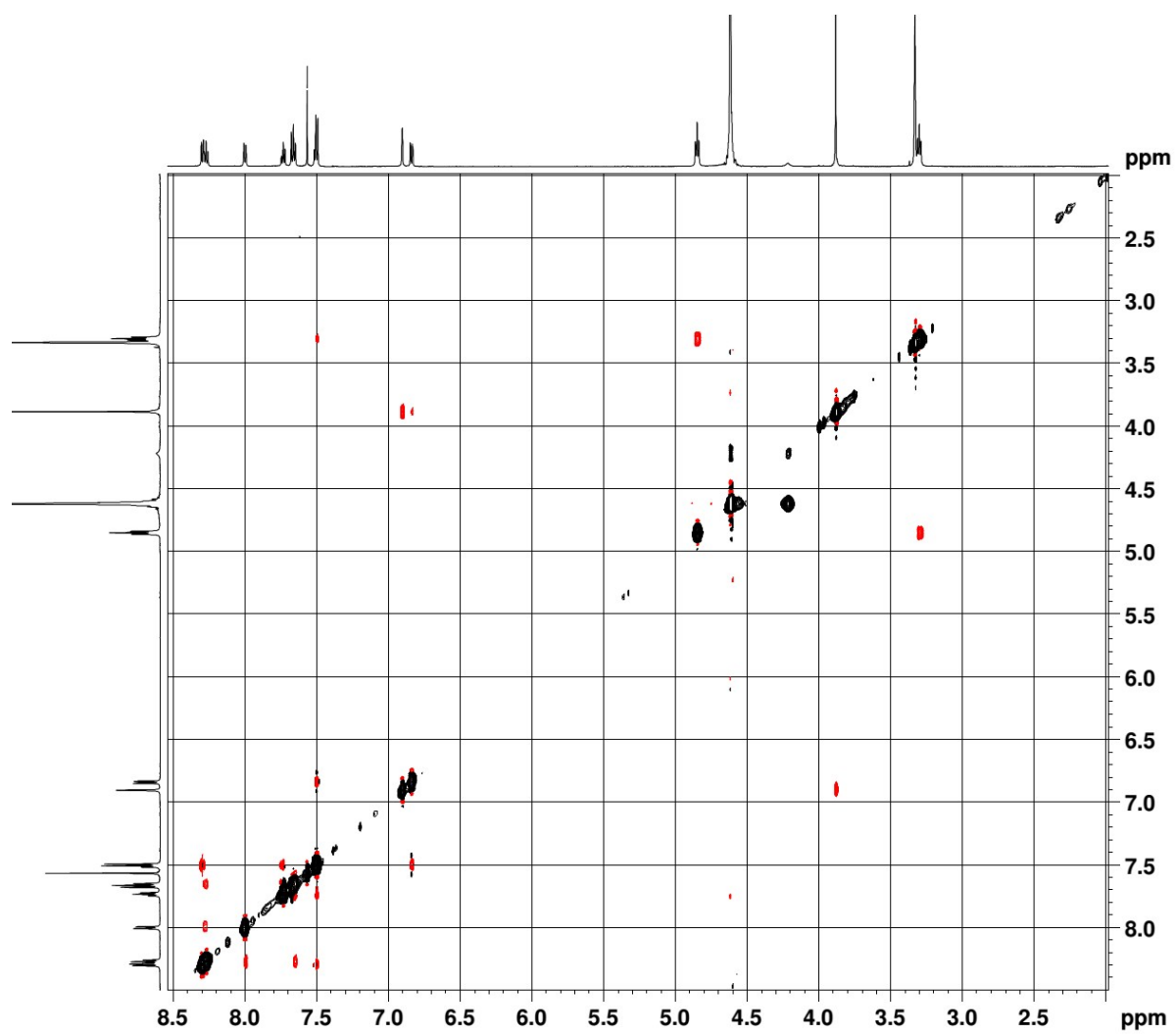
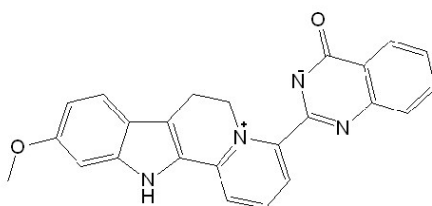
¹H-NMR 400 MHz



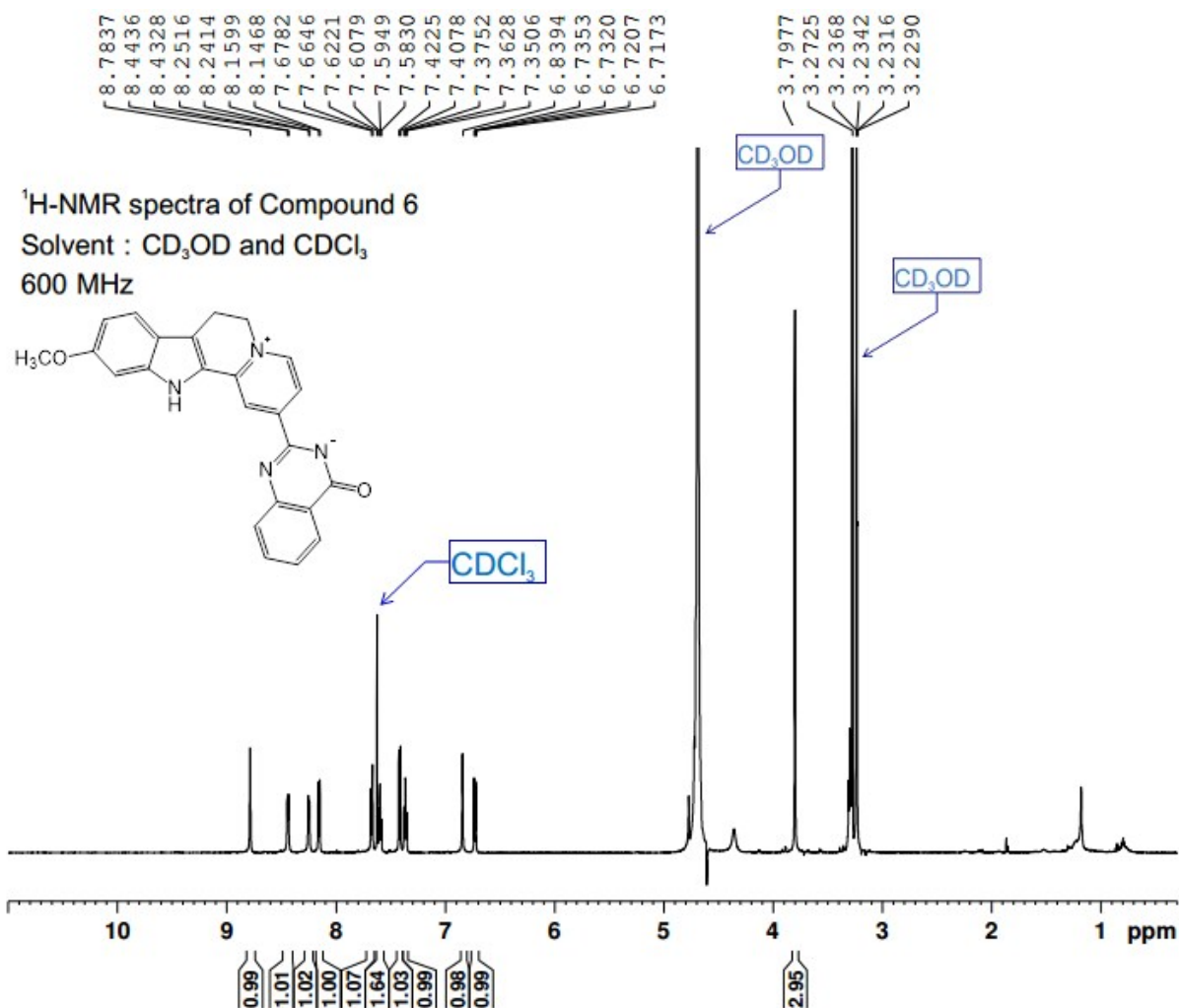
¹H-¹H COSY spectra of Compound 5
 Solvent : CD₃OD and CDCl₃
 600 MHz

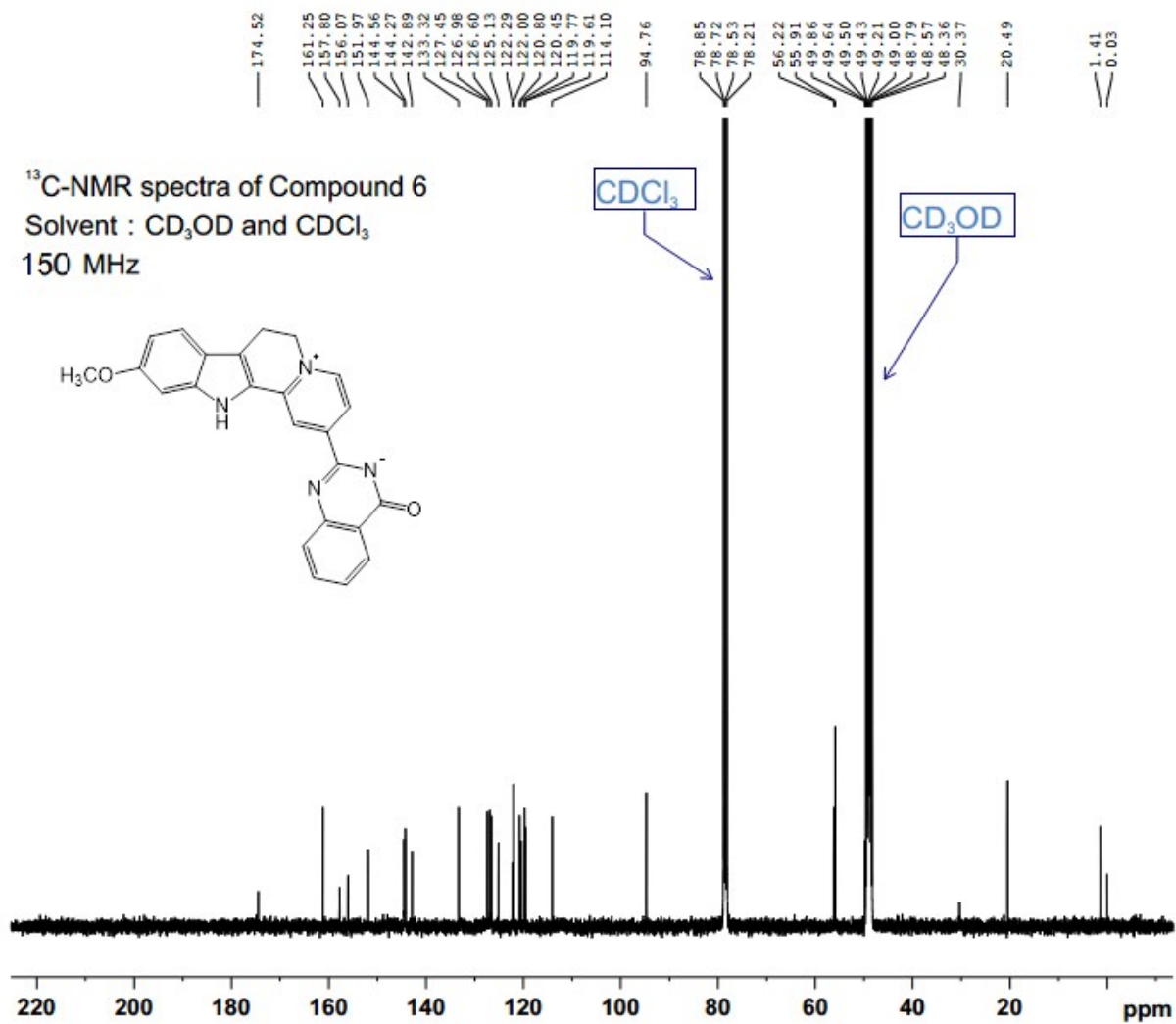


NOESY spectra of Compound 5
 Solvent : CD₃OD and CDCl₃
 600 MHz



1.6 NMR spectrum of compound 6



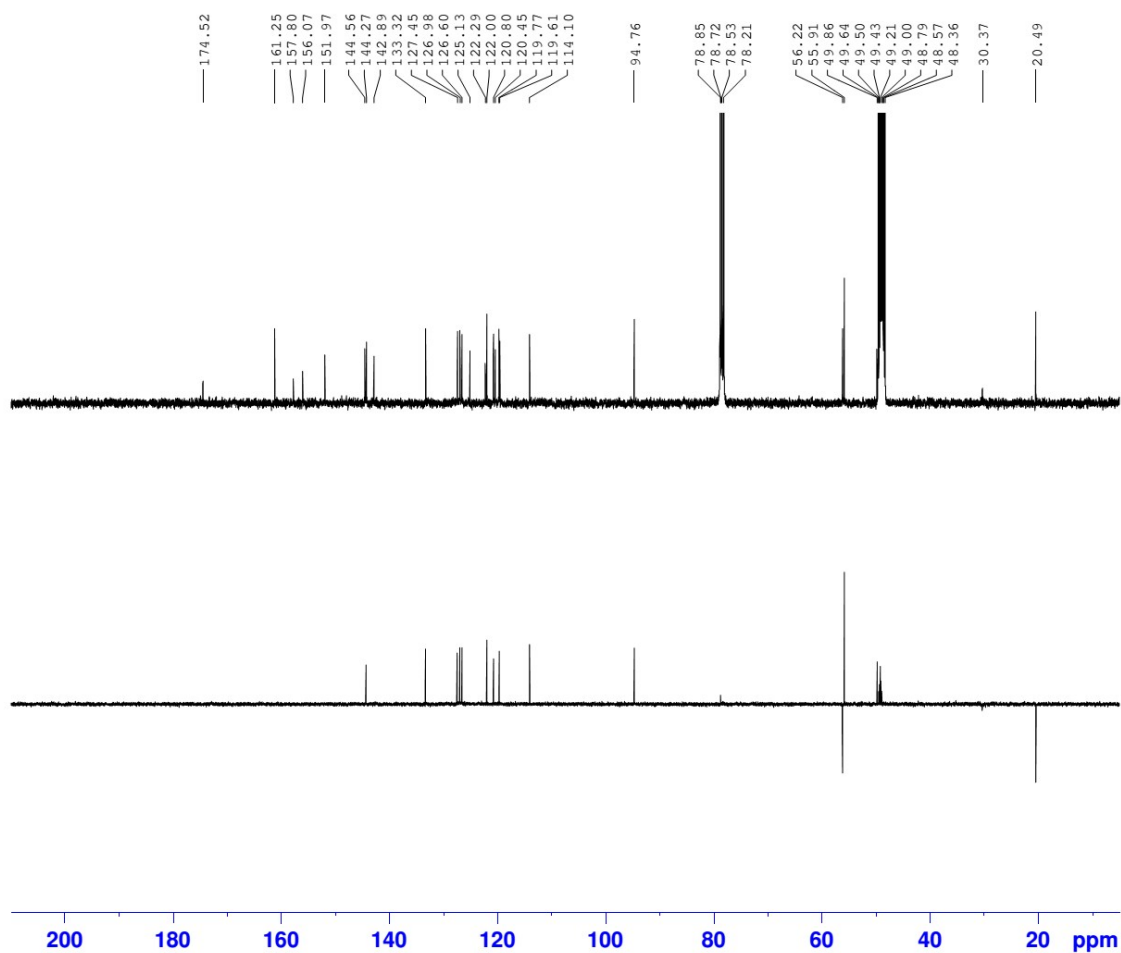
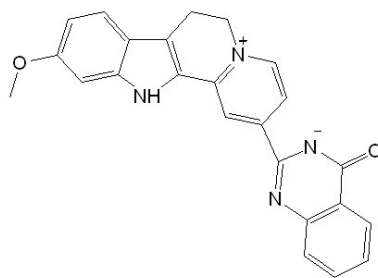


DEPT spectra of Compound 6

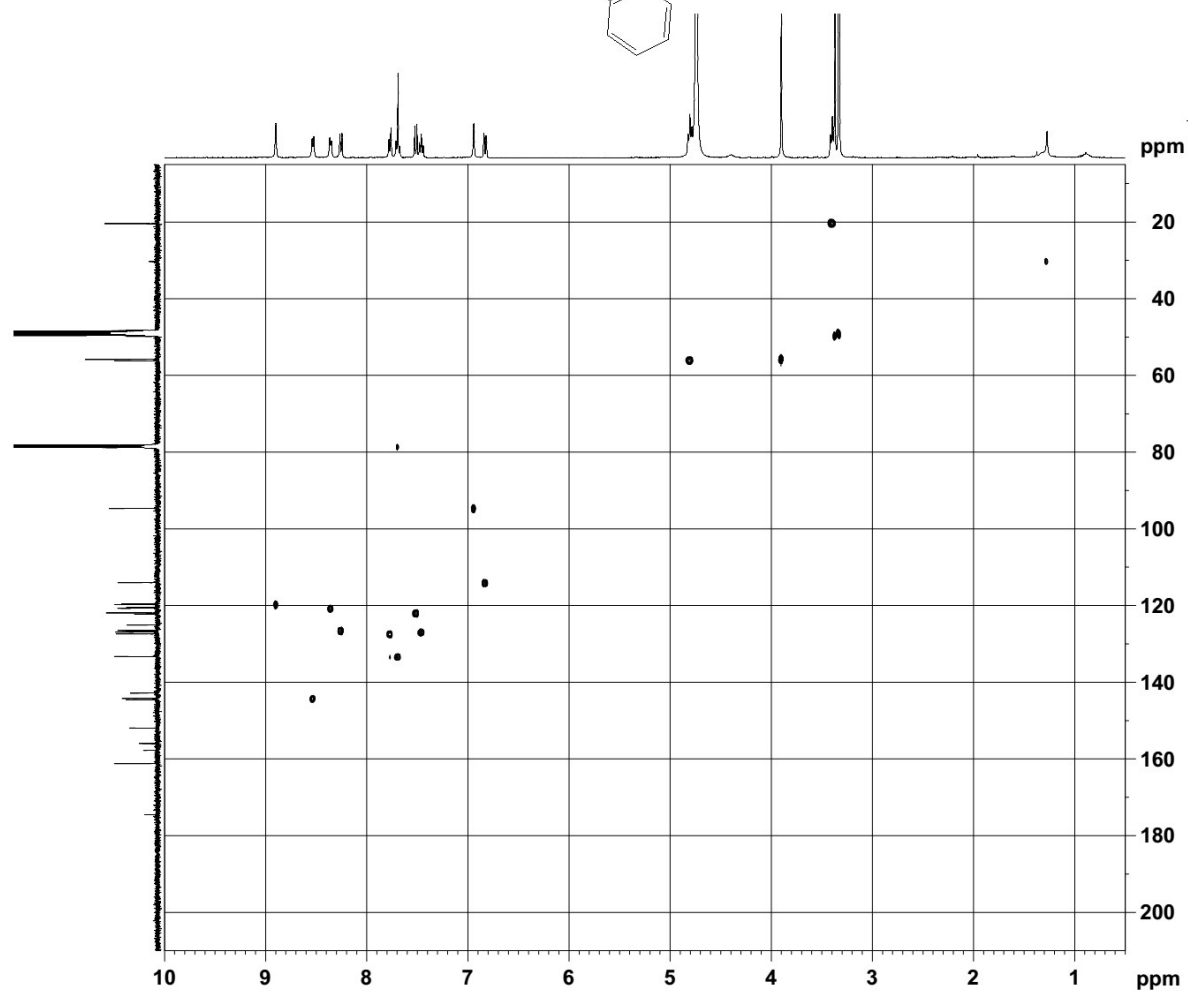
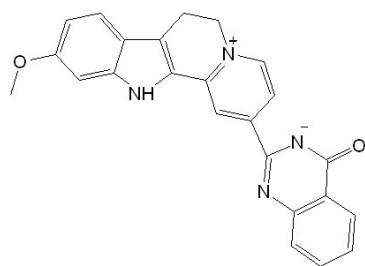
Solvent : CD₃OD and CDCl₃

¹³C-NMR 150 MHz

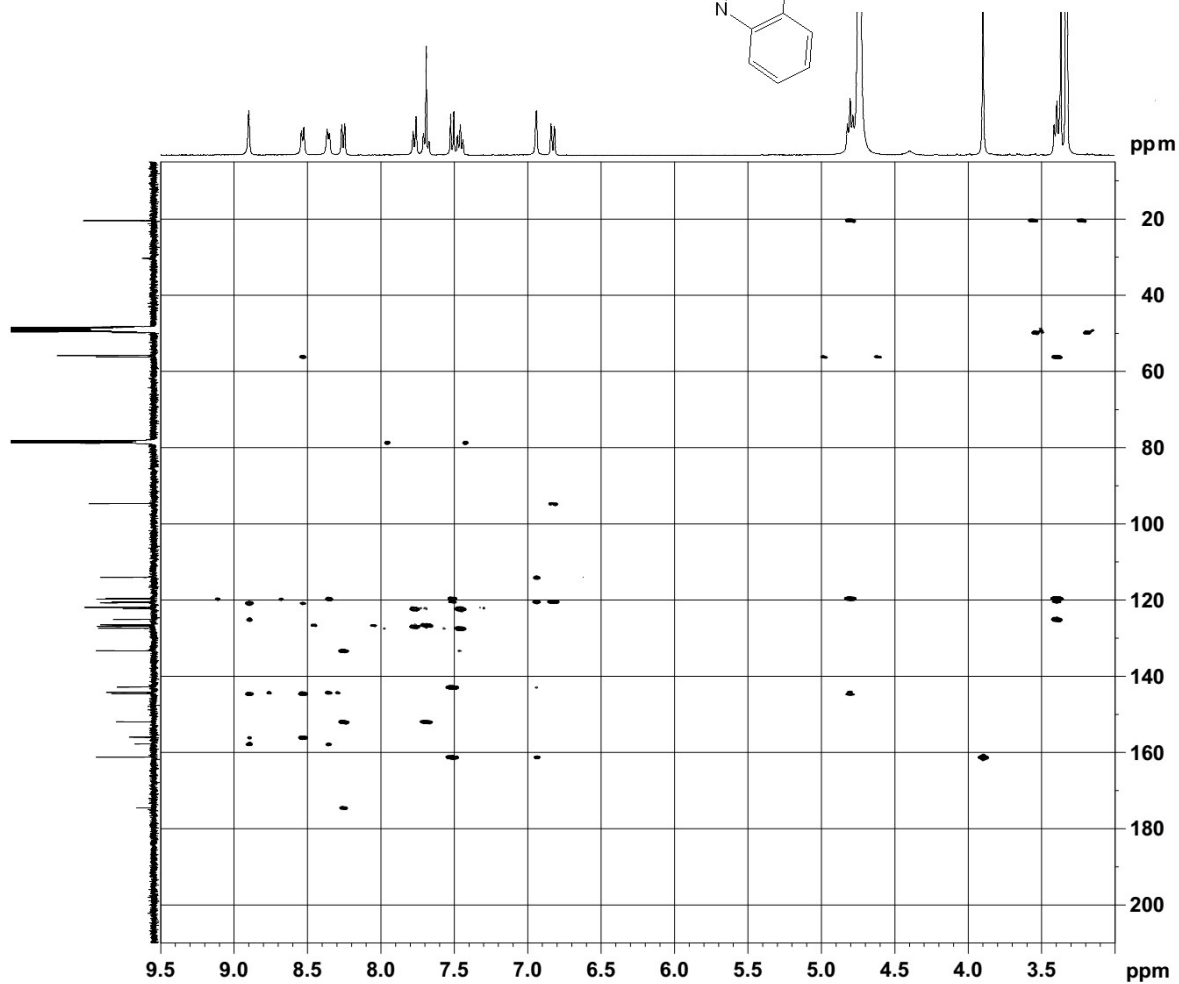
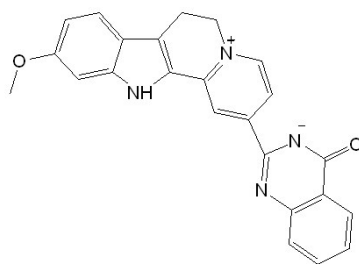
¹H-NMR 600 MHz



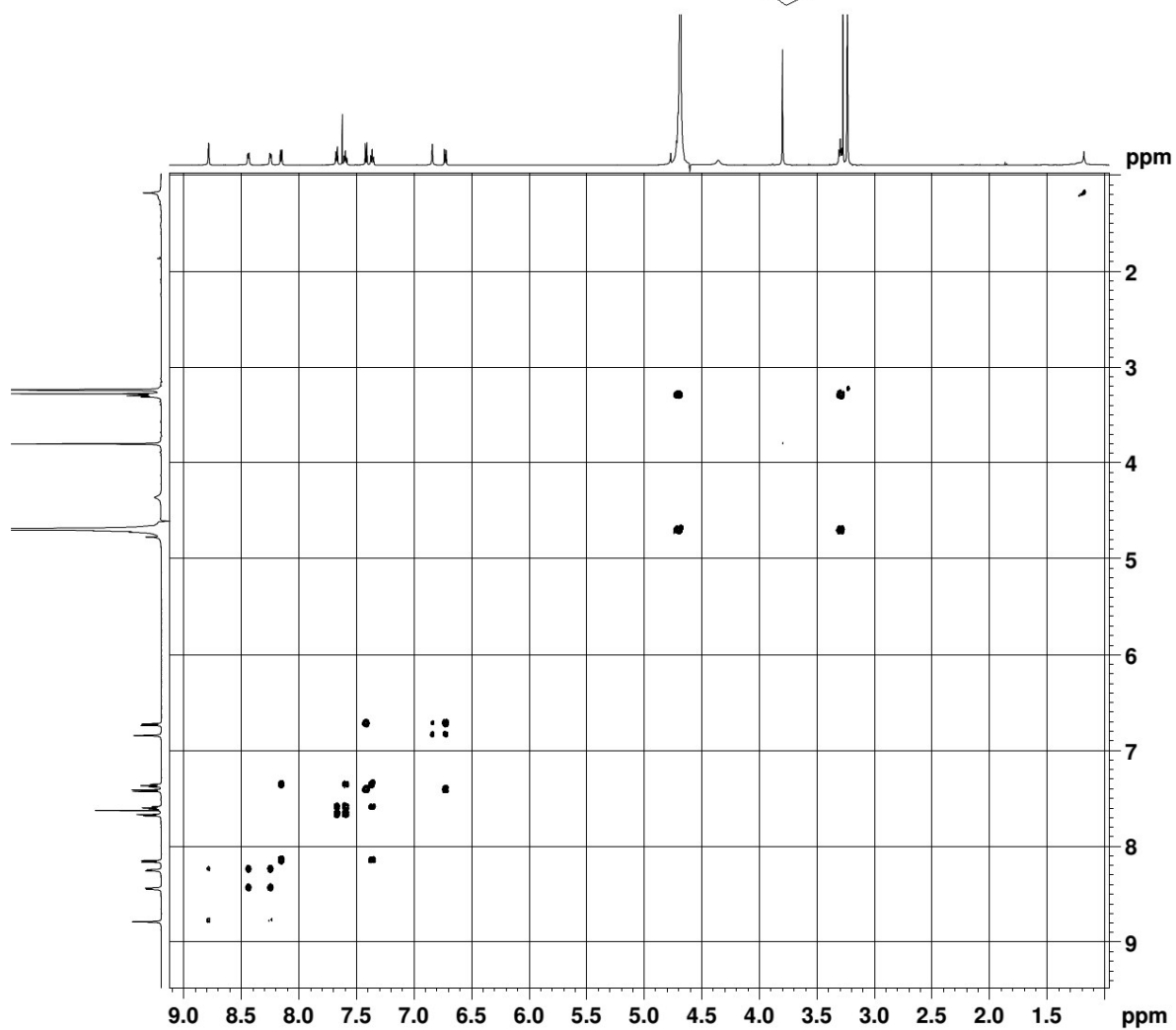
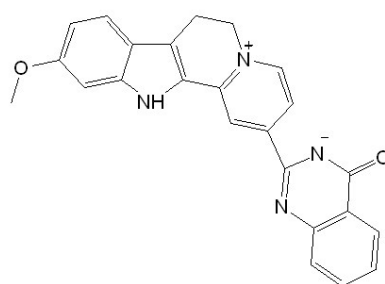
HMQC spectra of Compound 6
 Solvent : CD₃OD and CDCl₃
¹³C-NMR 150 MHz
¹H-NMR 600 MHz



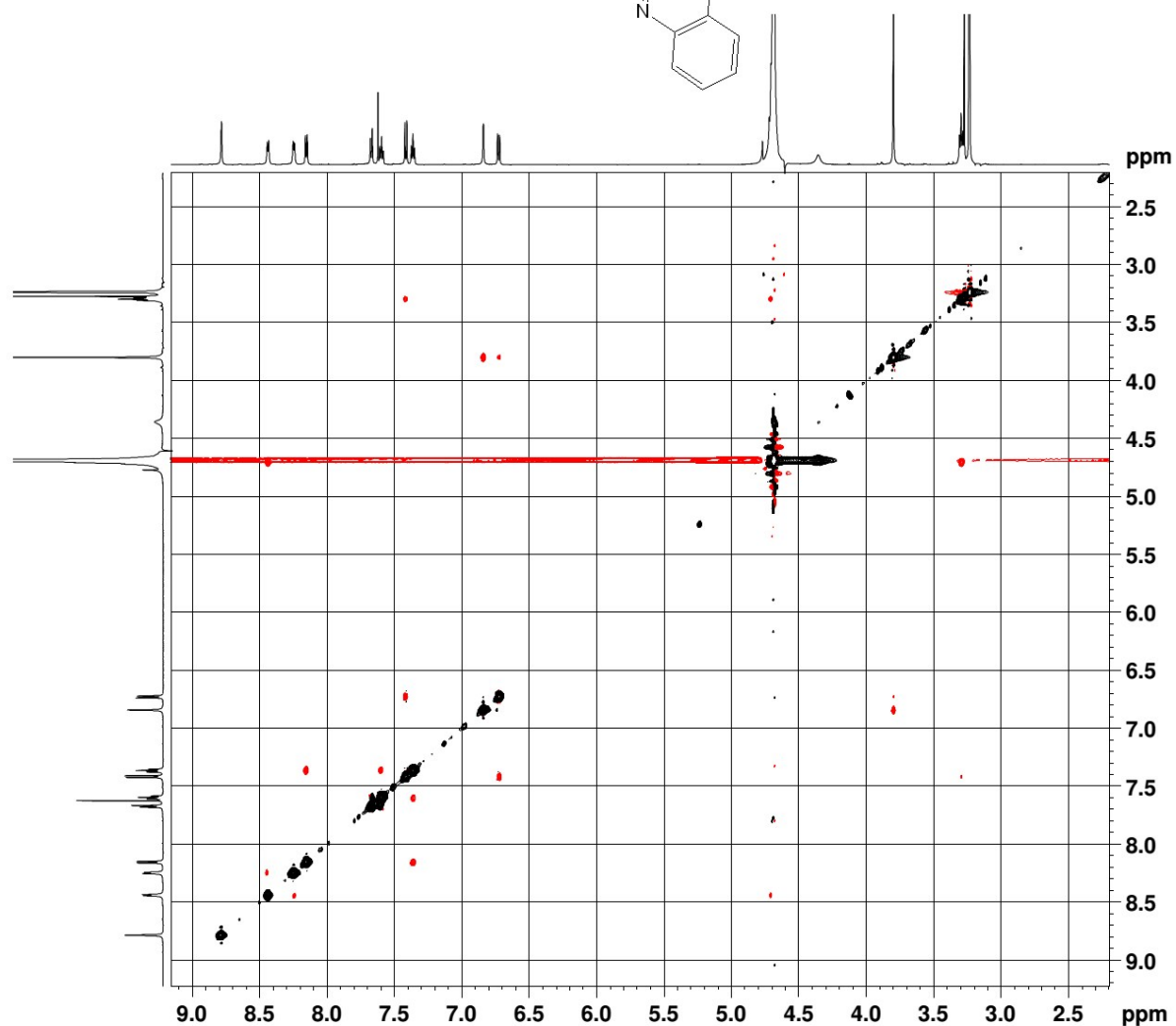
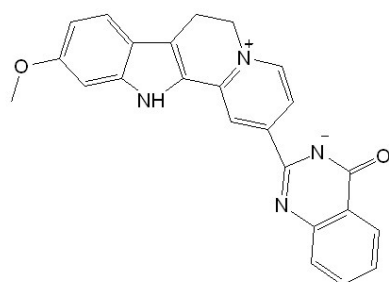
HMBC spectra of Compound 6
 Solvent : CD₃OD and CDCl₃
¹³C-NMR 150 MHz
¹H-NMR 600 MHz



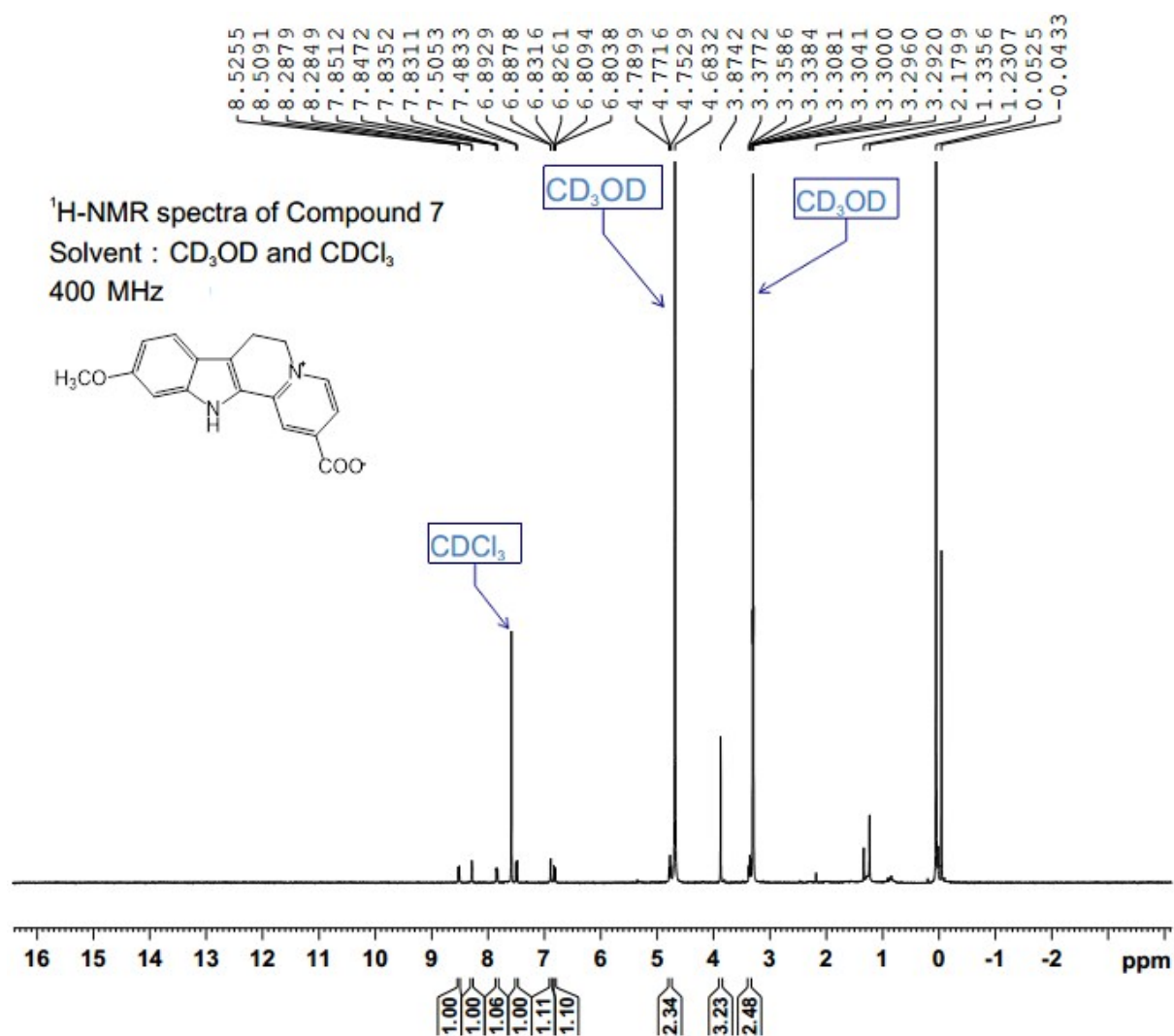
COSY spectra of Compound 6
 Solvent : CD₃OD and CDCl₃
 600 MHz

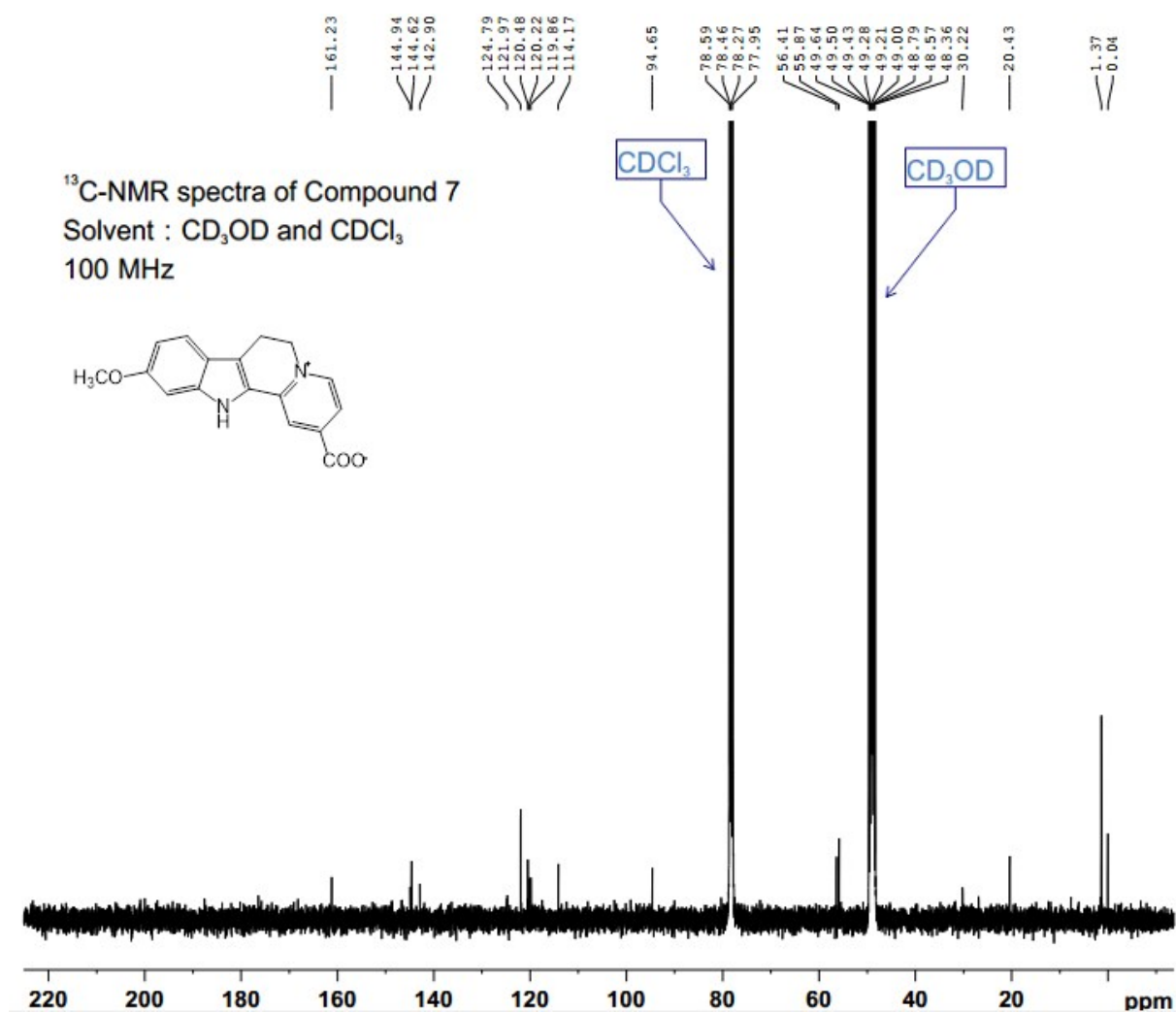


NOESY spectra of Compound 6
Solvent : CD₃OD and CDCl₃
600 MHz

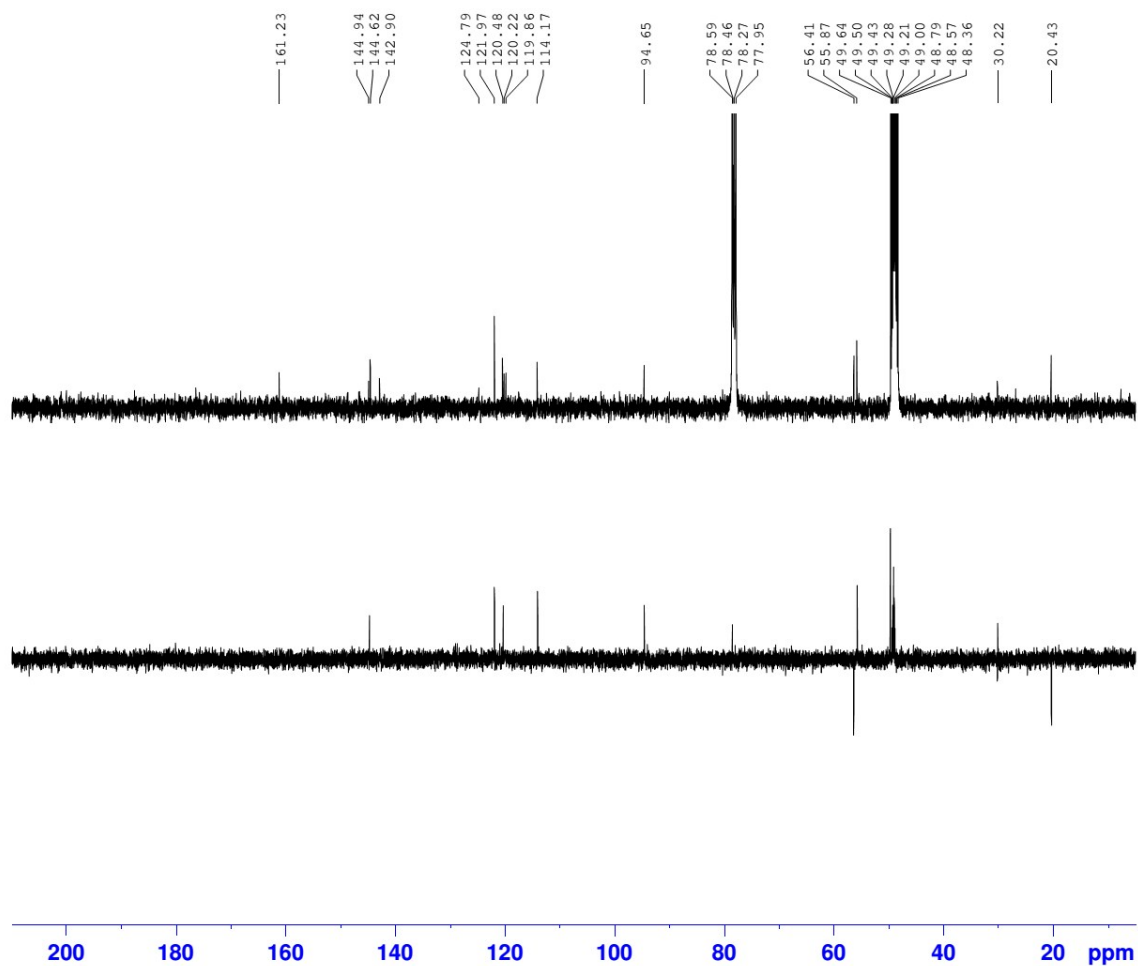
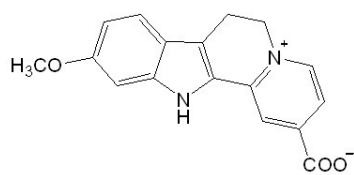


1.7 NMR spectrum of compound 7





DEPT spectra of Compound 7
 Solvent : CD₃OD and CDCl₃
¹³C-NMR 100 MHz
¹H-NMR 400 MHz

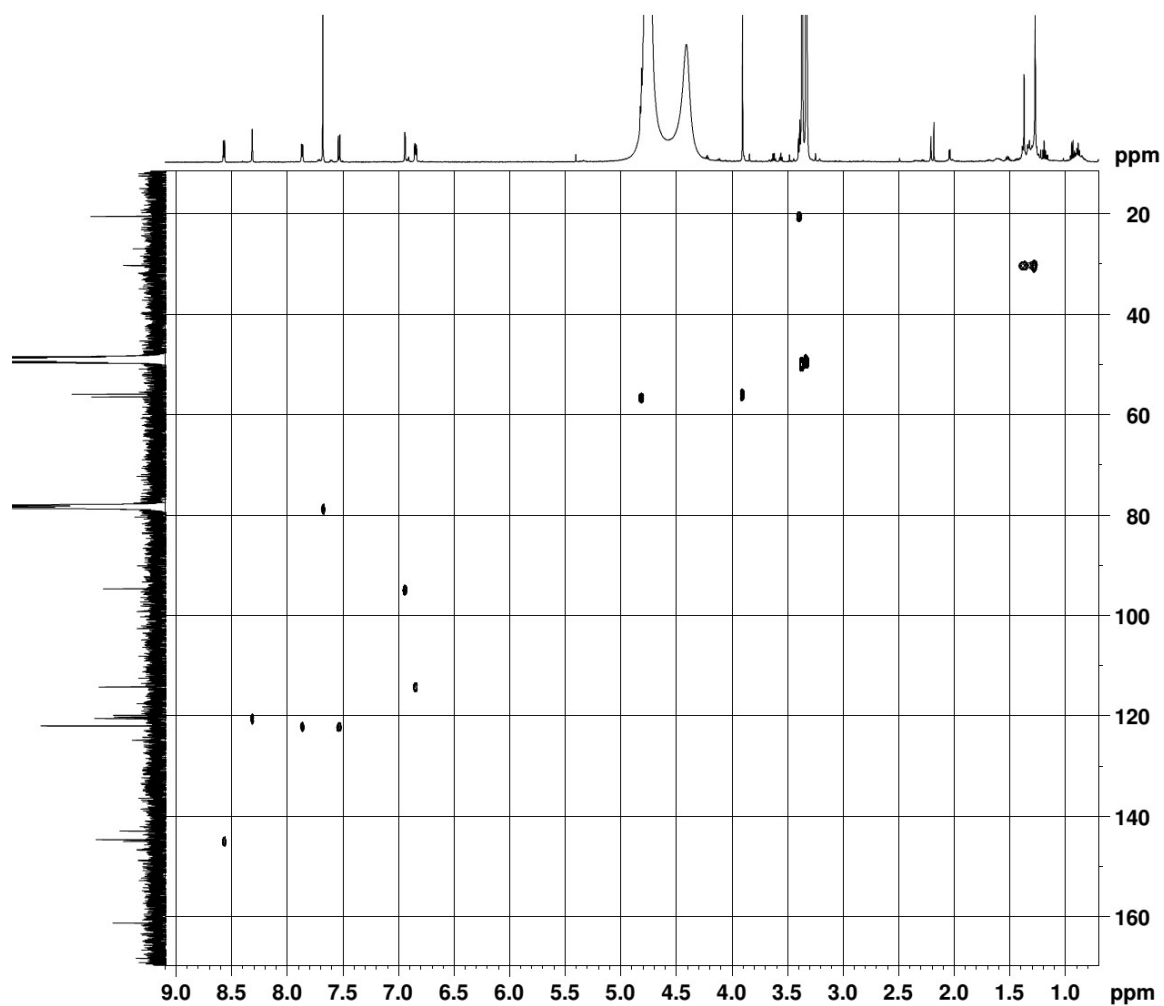
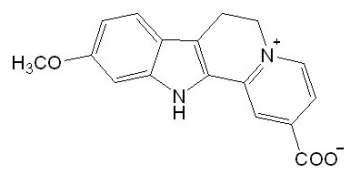


HMQC spectra of Compound 7

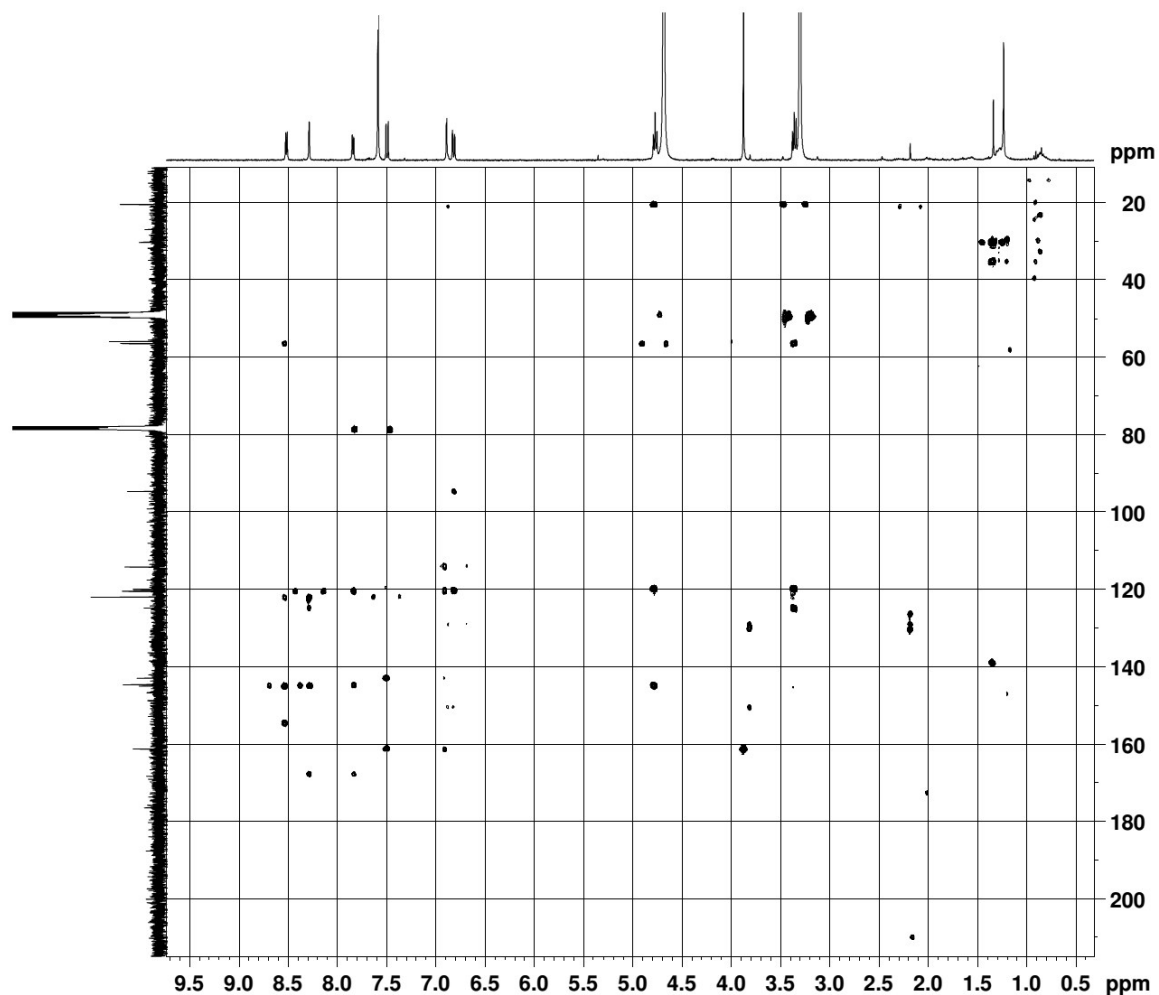
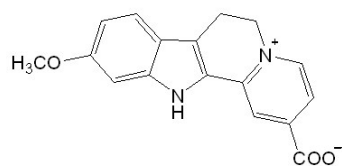
Solvent : CD₃OD and CDCl₃

¹³C-NMR 150 MHz

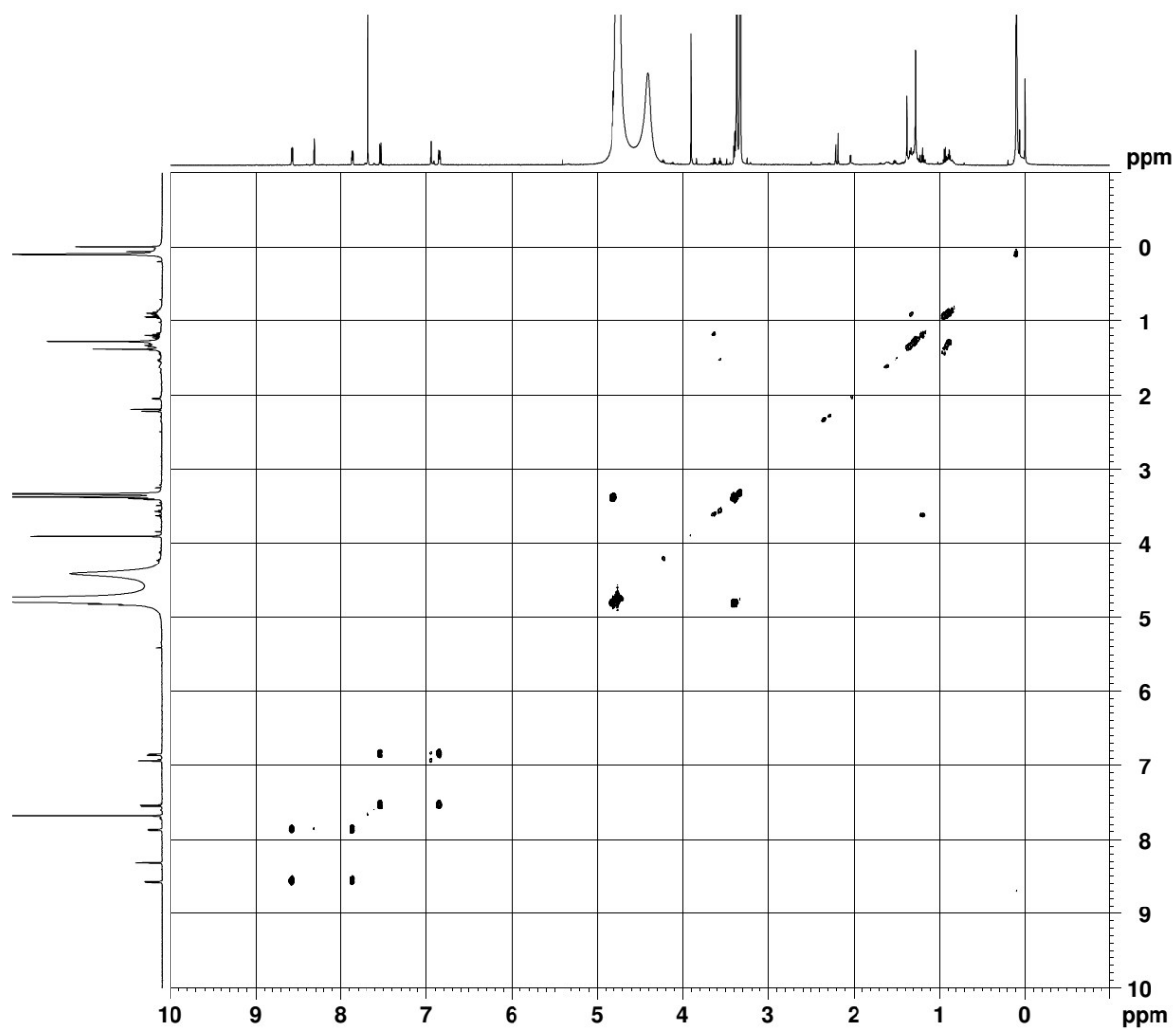
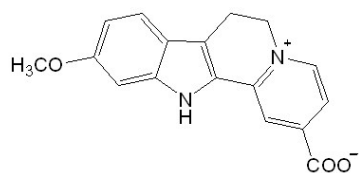
¹H-NMR 600 MHz



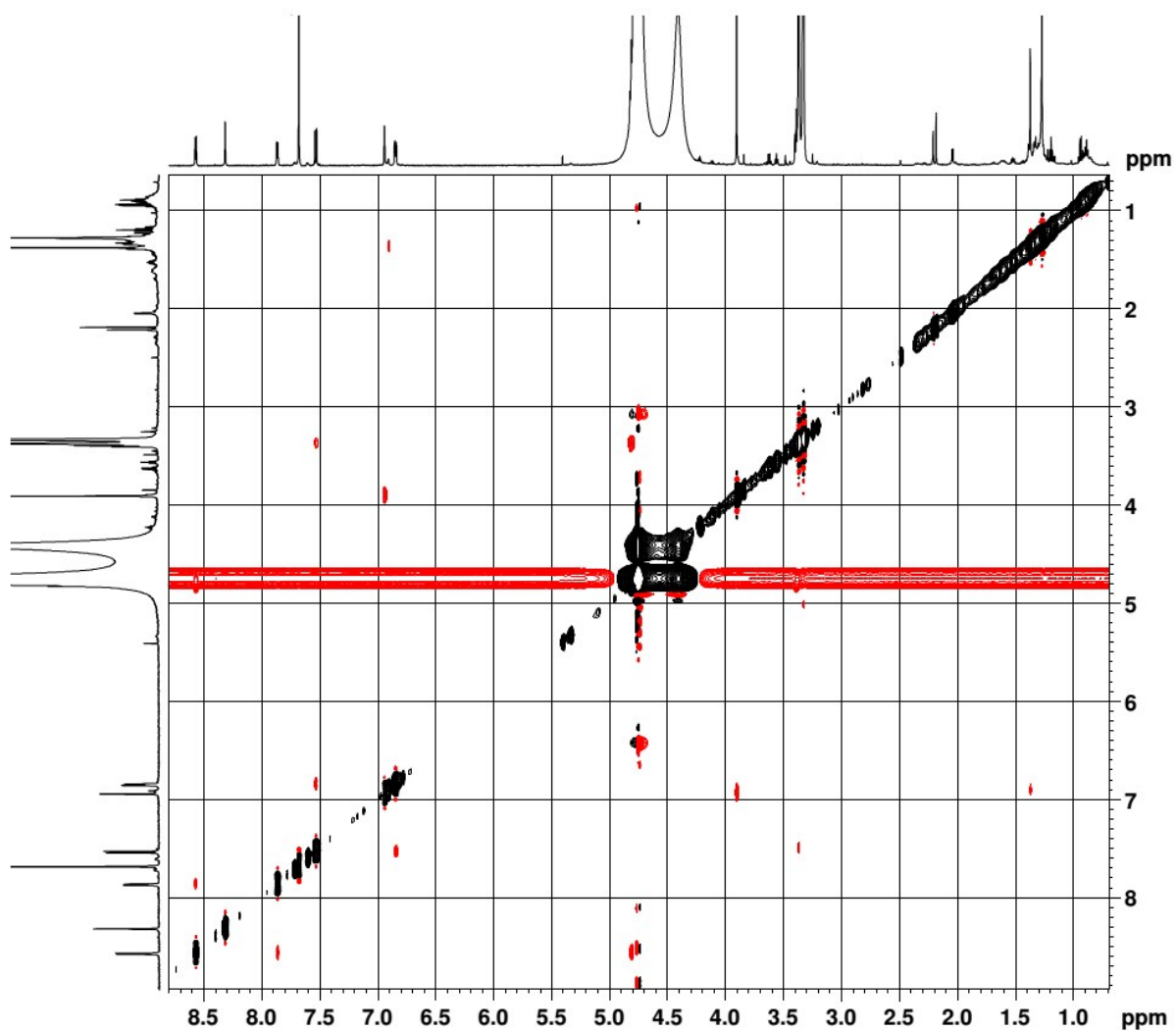
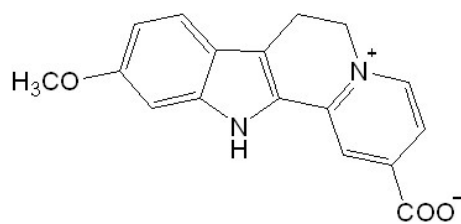
HMBC spectra of Compound 7
 Solvent : CD₃OD and CDCl₃
¹³C-NMR 150 MHz
¹H-NMR 600 MHz



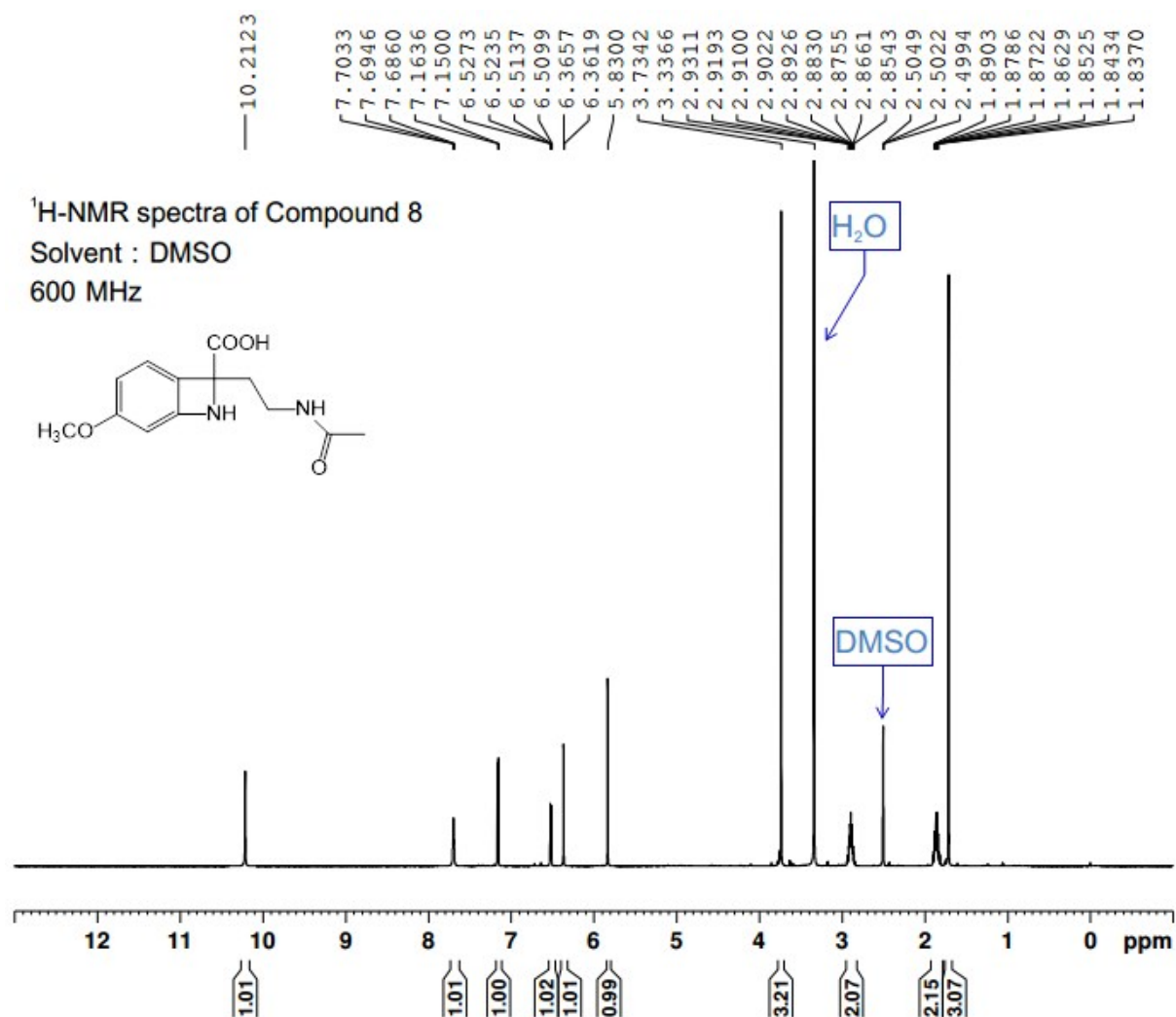
COSY spectra of Compound 7
 Solvent : CD₃OD and CDCl₃
 600 MHz

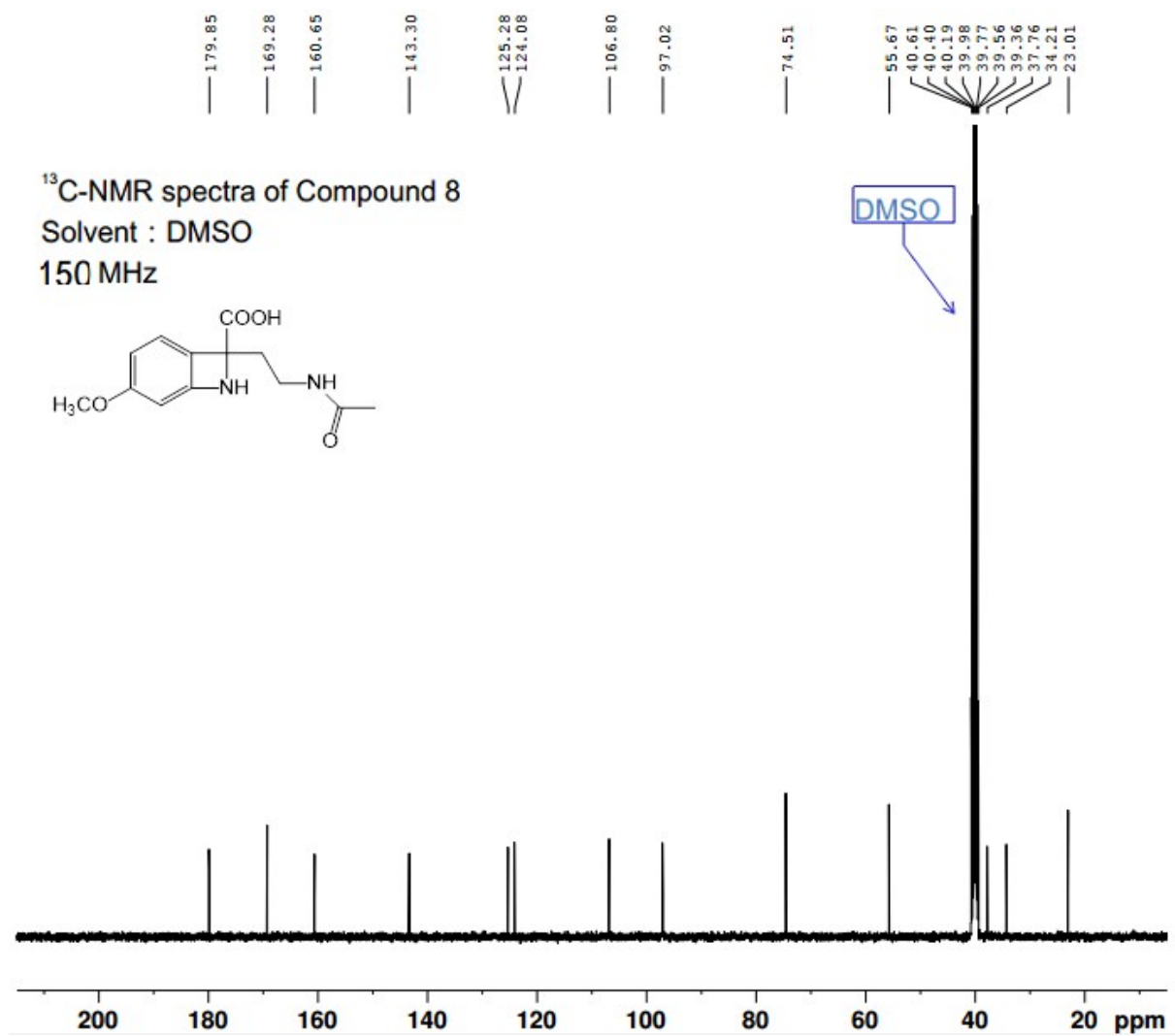


NOESY spectra of Compound 7
 Solvent : CD₃OD and CDCl₃
 600 MHz



1.8 NMR spectrum of compound 8



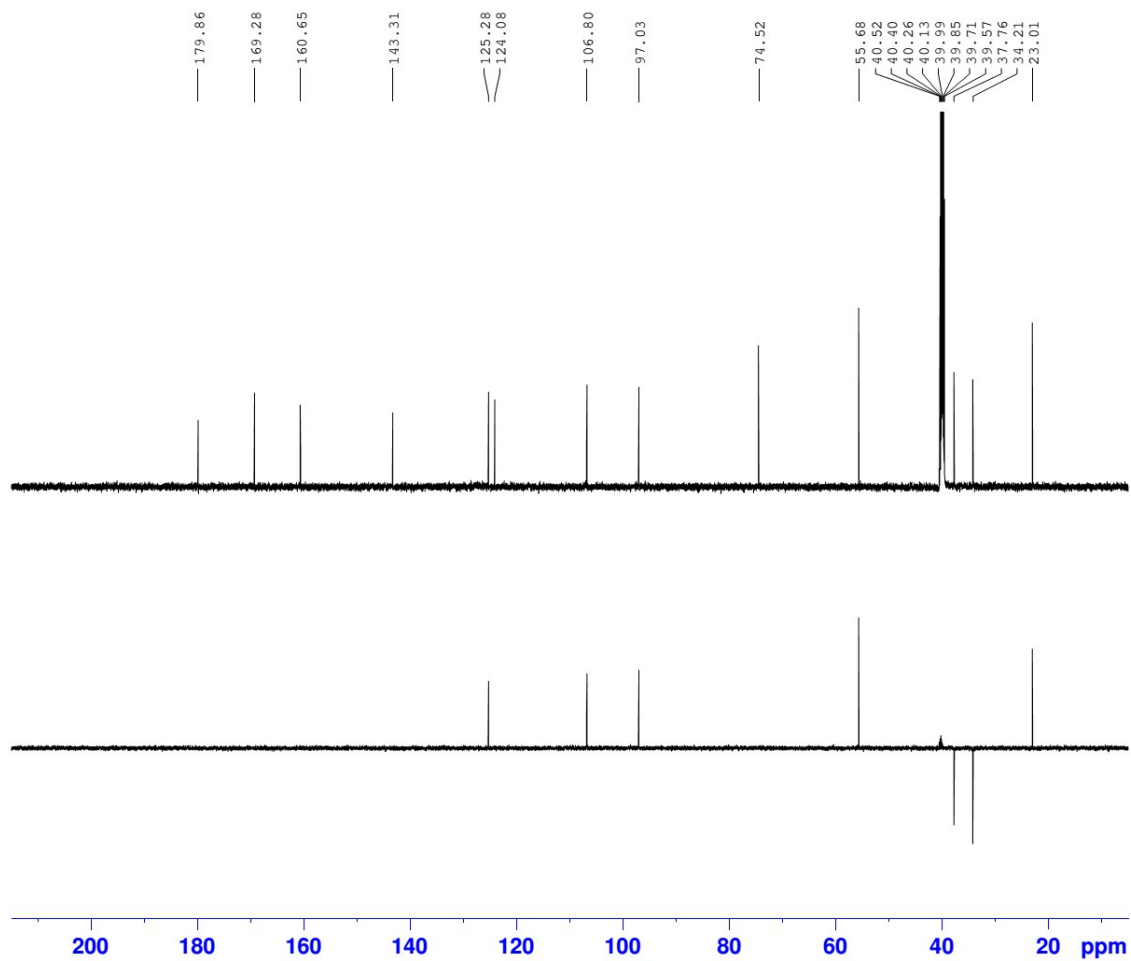
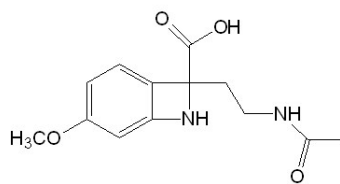


DEPT spectra of Compound 8

Solvent : DMSO

^{13}C -NMR 150 MHz

^1H -NMR 600 MHz

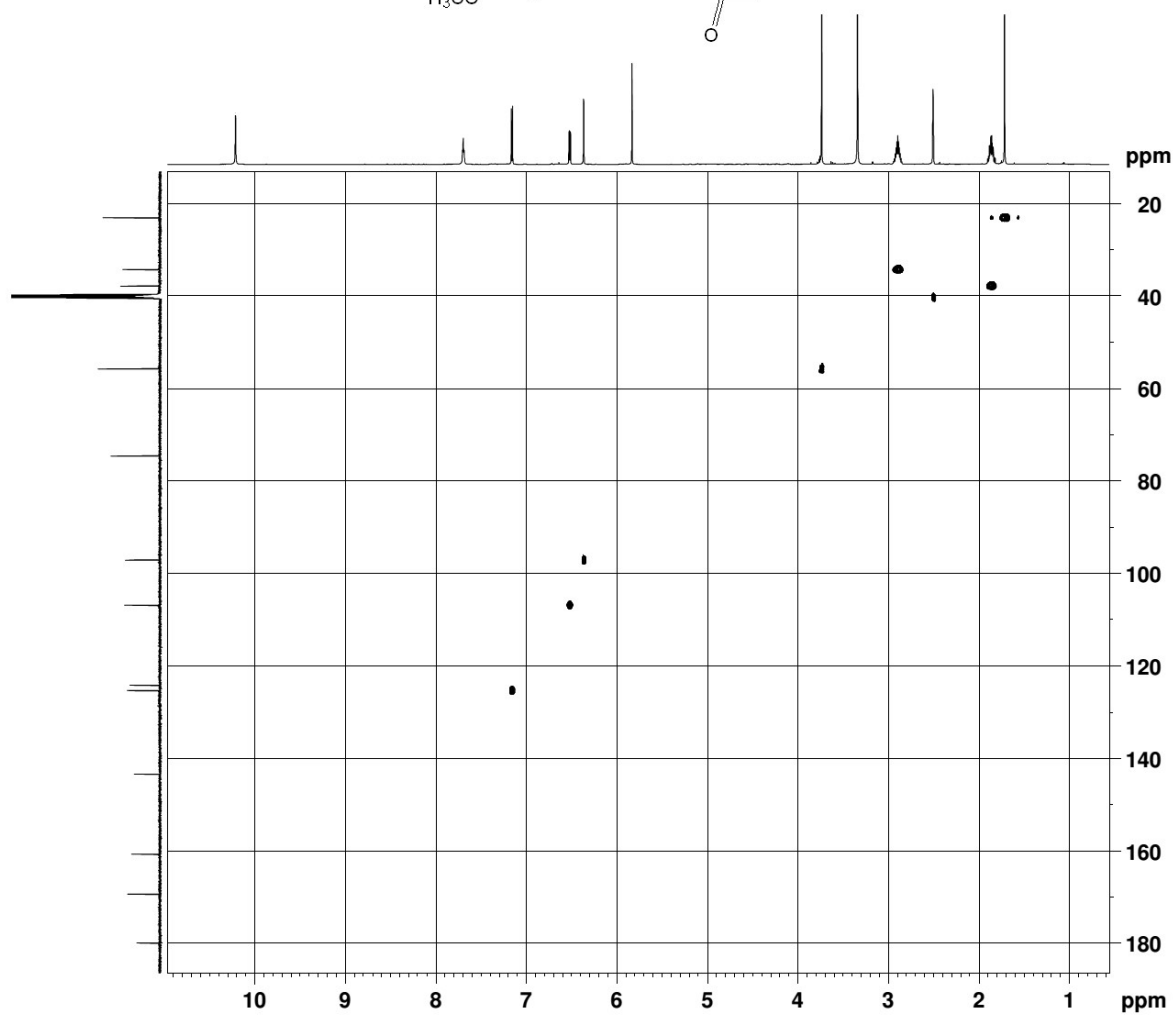
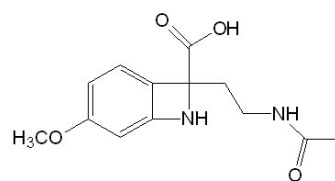


HMQC spectra of Compound 8

Solvent : DMSO

^{13}C -NMR 150 MHz

^1H -NMR 600 MHz

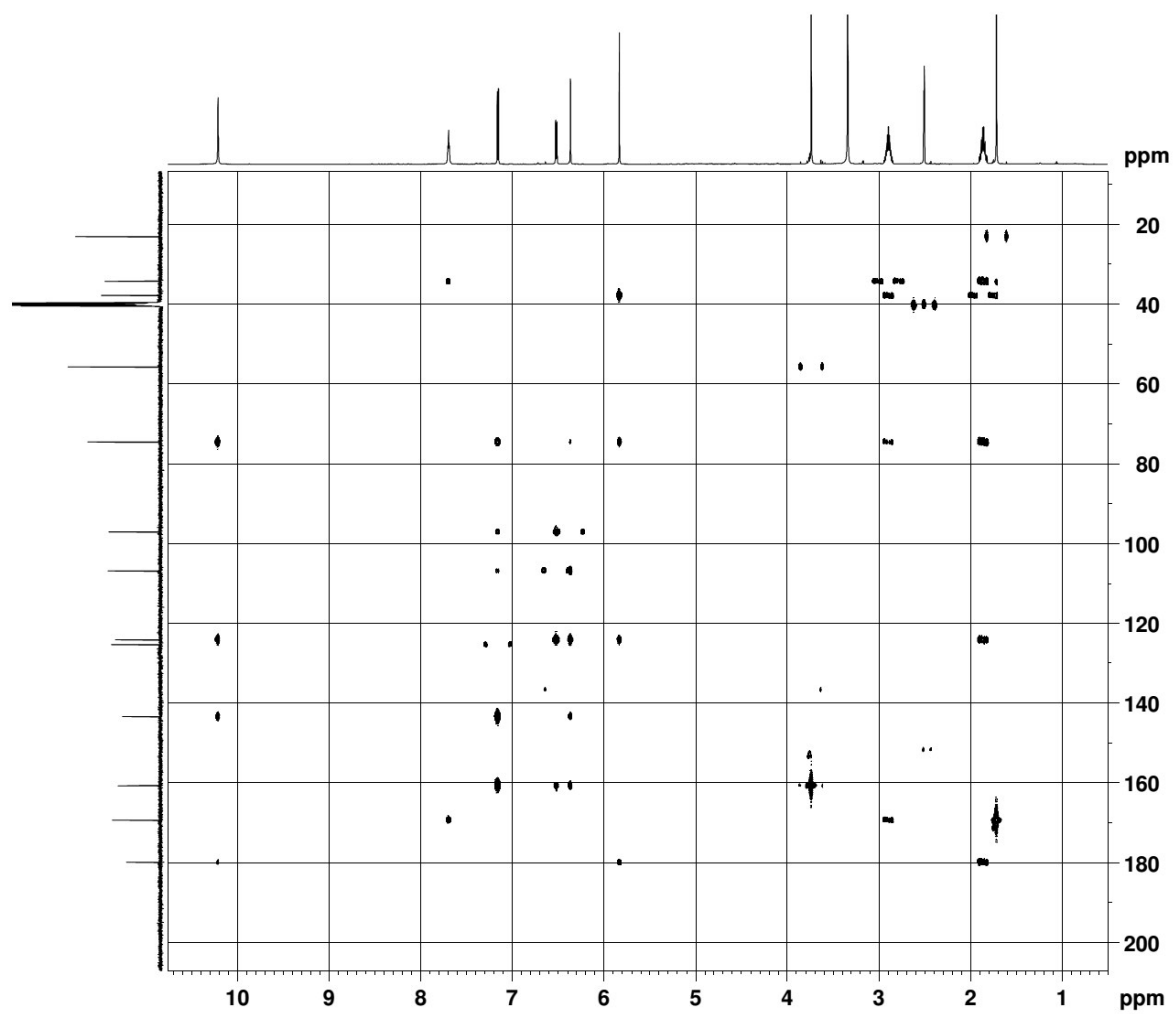
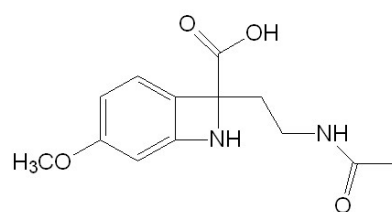


HMBC spectra of Compound 8

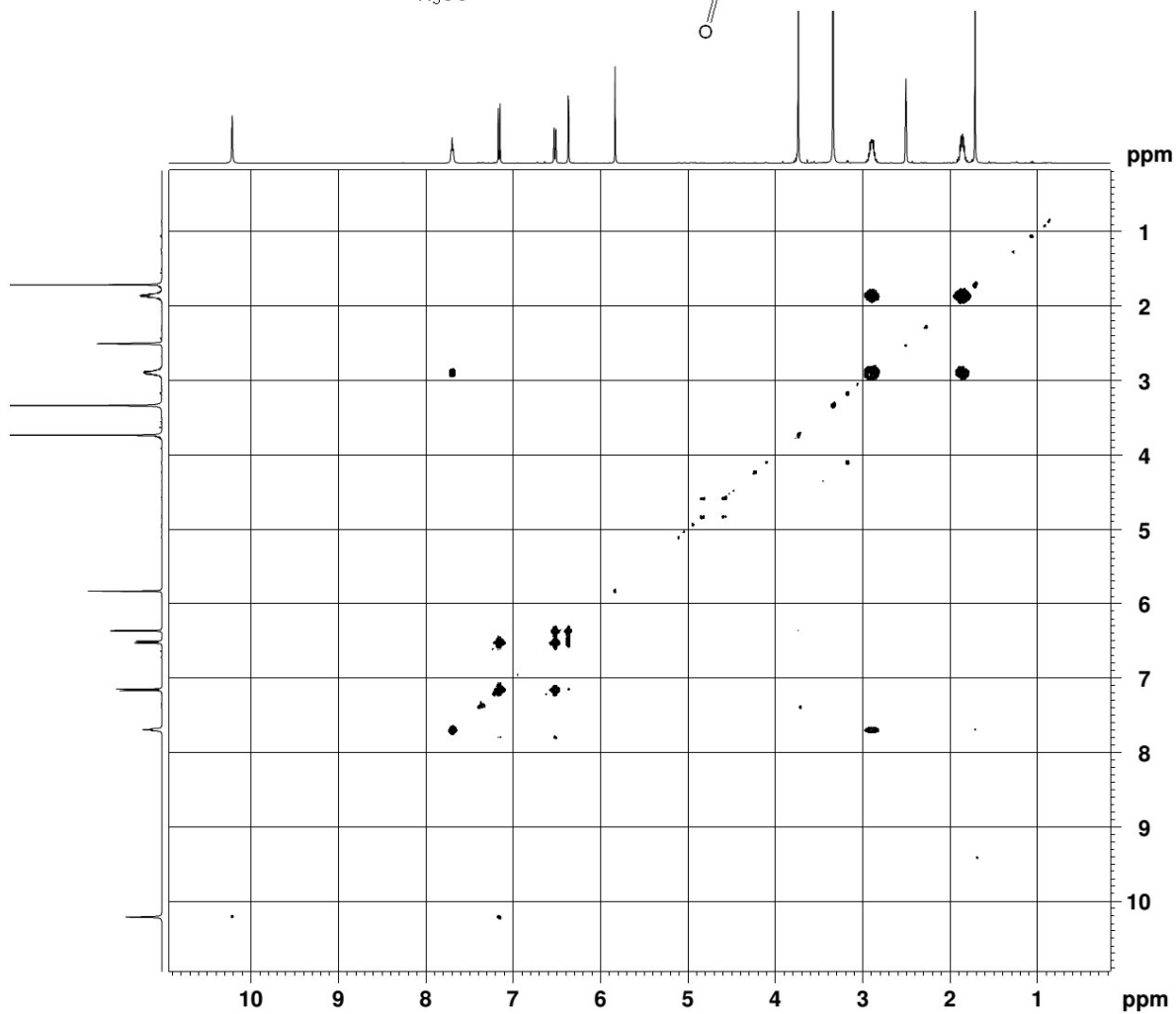
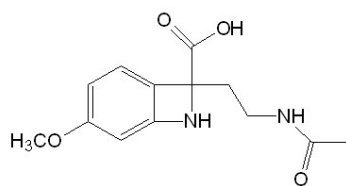
Solvent : DMSO

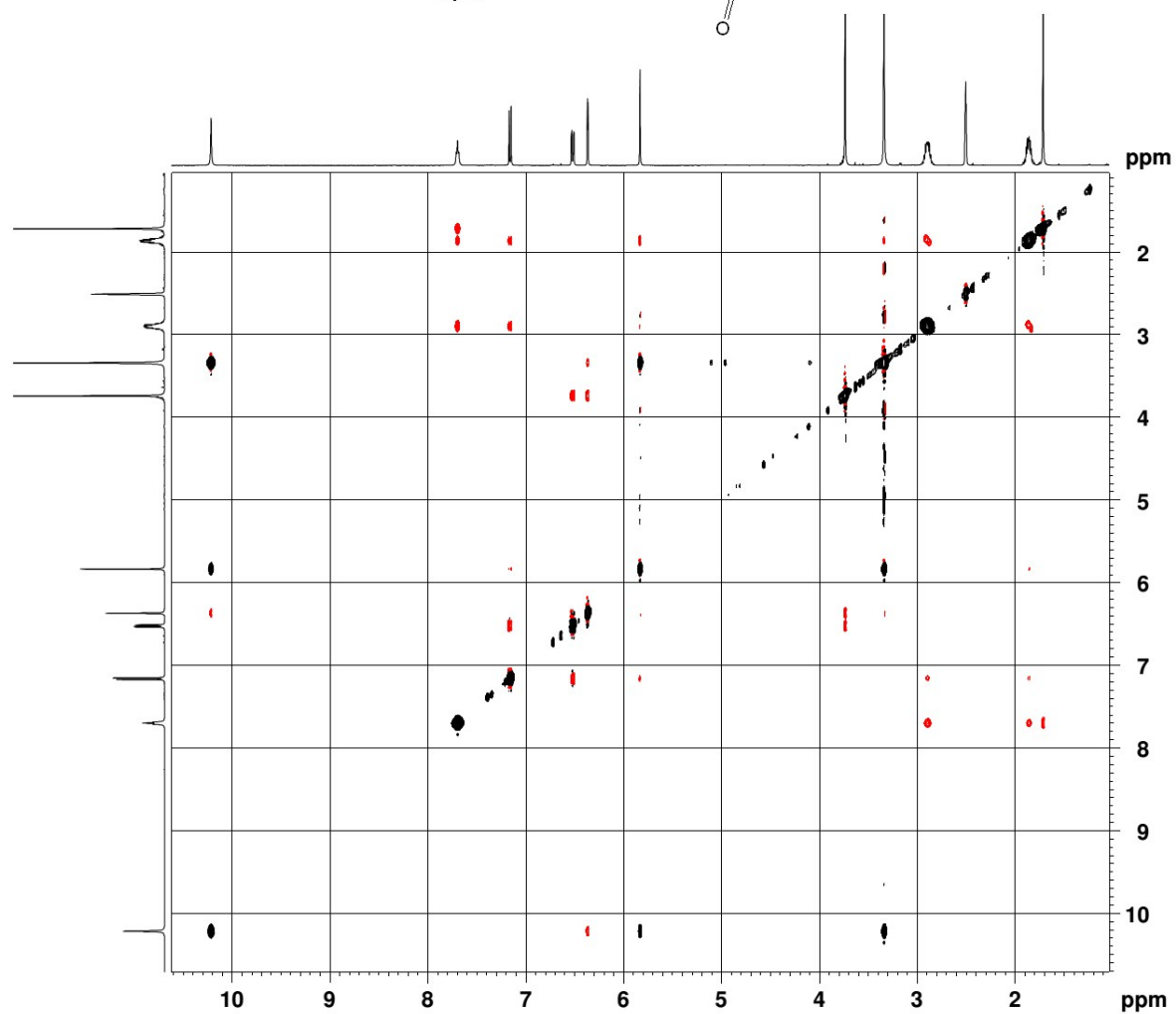
^{13}C -NMR 150 MHz

^1H -NMR 600 MHz



400 MHz



CC(=O)NCC1C(=O)C2=CC=C(C=C2C1)OC

2 IR Spectrum of new compounds

