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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1.1 NMR spectrum of compound 1

\[ ^1 \text{H}-\text{NMR spectra of Compound 1} \]

Solvent: CD\textsubscript{3}OD
600 MHz

\[ ^1 \text{C and } ^1 \text{H NMR spectrum of new compounds} \]
$^{13}$C-NMR spectra of Compound 1
Solvent: CD$_3$OD
150 MHz
HMOC spectra of Compound 1
Solvent: CD$_2$OD
$^{13}$C-NMR 150.9202056 MHz
$^1$H-NMR 600.2000000 MHz
HMBC spectra of Compound 1
Solvent: CD$_2$OD
$^{13}$C-NMR 150.9202056MHz
$^1$H-NMR 600.200000 MHz
$^1$H-$^1$H COSY spectra of Compound 1
Solvent: CD$_3$OD
$^1$H-NMR 600.2000000 MHz
NOESY spectra of Compound 1
Solvent: CD$_2$OD
$^1$H-NMR 150.9202056 MHz
$^{13}$C-NMR 600.2000000 MHz
1.2 NMR spectrum of compound 2

'H-NMR spectra of Compound 2
Solvent : DMSO
600 MHz
$^{13}$C-NMR spectra of Compound 2

Solvent: DMSO

150 MHz
DEPT spectra of Compound 2
Solvent: DMSO
$^1$H-NMR 600 MHz
$^{13}$C-NMR 150 MHz
HMOC spectra of Compound 2
Solvent: DMSO
$^1$H-NMR 600 MHz
$^{13}$C-NMR 150 MHz
HMBC spectra of Compound 2
Solvent: DMSO
$^1$H-NMR 600 MHz
$^{13}$C-NMR 150 MHz
$^1$H-$^1$H 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

'H-NMR spectra of Compound 3
Solvent: CD$_2$OD
400 MHz
$^1$H-NMR spectra of Compound 3
Solvent: CD$_2$OD
100 MHz
DEPT spectra of Compound 3
Solvent: CD$_2$OD
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMQC spectra of Compound 3
Solvent: CD$_2$OD
$^{13}$C-NMR 100 MHz
$^1$H-NMR 400 MHz
HMBC spectra of Compound 3
Solvent: CD$_2$OD
$^{13}$C-NMR 100 MHz
$^1$H-NMR 400 MHz
$^1$H-$^1$H COSY spectra of Compound 3
Solvent: CD$_3$OD
400 MHz
NOESY spectra of Compound 3
Solvent: CD$_3$OD
600 MHz
1.4 NMR spectrum of compound 4
$^{13}$C-NMR spectra of Compound 4
Solvent: CD$_2$OD
150 MHz
HMQC spectra of Compound 4
Solvent: CD$_3$OD
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMBC spectra of Compound 4
Solvent: CD$_2$OD
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
$^1$H-$^1$H COSY spectra of Compound 4
Solvent: CD$_3$OD
600 MHz
NOESY spectra of Compound 4
Solvent: CD$_2$OD
600 MHz
1.5 NMR spectrum of compound 5

$^1$H-NMR spectra of Compound 5
Solvent: CD$_3$OD and CDCl$_3$
400 MHz
$^{13}$C-NMR spectra of Compound 5
Solvent: CD$_3$OD and CDCl$_3$
100 MHz
DEPT spectra of Compound 5
Solvent: CD3OD and CDCl3
13C-NMR 100 MHz
1H-NMR 400 MHz
HMQC spectra of Compound 5
Solvent: CD$_3$OD and CDCl$_3$
$^{13}$C-NMR 100 MHz
$^1$H-NMR 400 MHz
HMBC spectra of Compound 5
Solvent: CD$_2$OD and CDCl$_3$
$^1$H-NMR 400 MHz
$^13$C-NMR 100 MHz
$^1$H-$^1$H COSY spectra of Compound 5
Solvent: CD$_3$OD and CDCl$_3$
600 MHz
NOESY spectra of Compound 5
Solvent: CD$_3$OD and CDCl$_3$
600 MHz
1.6 NMR spectrum of compound 6

$^1$H-NMR spectra of Compound 6
Solvent: CD$_3$OD and CDCl$_3$
600 MHz
$^{13}$C-NMR spectra of Compound 6
Solvent: CD$_3$OD and CDCl$_3$
150 MHz
DEPT spectra of Compound 6
Solvent: CD$_3$OD and CDCl$_3$
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMCO spectra of Compound 6
Solvent: CD$_3$OD and CDCl$_3$
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMBC spectra of Compound 6
Solvent: CD$_2$OD and CDCl$_3$
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
COSY spectra of Compound 6
Solvent: CD$_3$OD and CDCl$_3$
600 MHz
NOESY spectra of Compound 6
Solvent: CD$_2$OD and CDCl$_3$
600 MHz
1.7 NMR spectrum of compound 7

'H-NMR spectra of Compound 7
Solvent: CD$_3$OD and CDCl$_3$
400 MHz
$^{13}$C-NMR spectra of Compound 7
Solvent: CD$_3$OD and CDCl$_3$
100 MHz
DEPT spectra of Compound 7
Solvent: CD$_2$OD and CDC$_3$
$^{13}$C-NMR 100 MHz
$^1$H-NMR 400 MHz
HMOC spectra of Compound 7
Solvent: CD$_3$OD and CDCl$_3$
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMBC spectra of Compound 7
Solvent : CD$_3$OD and CDCl$_3$
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
COSY spectra of Compound 7
Solvent: CD$_3$OD and CDCl$_3$
600 MHz
NOESY spectra of Compound 7
Solvent: CD\textsubscript{3}OD and CDC\textsubscript{3}
600 MHz
1.8 NMR spectrum of compound 8

'H-NMR spectra of Compound 8
Solvent: DMSO
600 MHz
$^{13}$C-NMR spectra of Compound 8
Solvent: DMSO
150 MHz

![Chemical structure](image)

DMSO
DEPT spectra of Compound 8
Solvent: DMSO
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMQC spectra of Compound 8
Solvent : DMSO
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
HMBC spectra of Compound 8
Solvent: DMSO
$^{13}$C-NMR 150 MHz
$^1$H-NMR 600 MHz
COSY spectra of Compound 8
Solvent: DMSO
400 MHz
NOESY spectra of Compound 8
Solvent: DMSO
400 MHz
2 IR Spectrum of new compounds