

Supplementary Information

Stephapierrines A–H, new tetrahydroprotoberberine and aporphine alkaloids from the tubers of *Stephania pierrei* Diels and their anti-cholinesterase activities

Waraluck Chaichompoo,^a Pornchai Rojsitthisak,^{*a,b} Wachirachai Pabuprapap,^c Yuttana Siritattanasathien,^c Pathumwadee Yotmanee,^c Woraphot Haritakun^d and Apichart Suksamrarn^c

^a*Department of Food and Pharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok 10330, Thailand*

^b*Natural Products for Aging and Chronic Diseases Research Unit, Chulalongkorn University, Bangkok 10330, Thailand*

^c*Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Ramkhamhaeng University, Bangkok 10240, Thailand*

^d*Program in Chemical Technology, Faculty of Science and Technology, Suan Dusit University, Bangkok 10700, Thailand*

* Correspondence: pornchai.r@chula.ac.th; Tel.: +66-2-218-8310; Fax: +66-2-254-5195

List of Figures

Figure	Contents	Page
S1.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine A (1)	10
S2.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine A (1) (1)	10
S3.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine A (1) (2)	11
S4.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of stephapierrine A (1)	11
S5.	DEPT135 spectrum (CDCl ₃ , 100 MHz) of stephapierrine A (1)	12
S6.	COSY spectrum of stephapierrine A (1) in CDCl ₃	12
S7.	Expansion of COSY spectrum of stephapierrine A (1) in CDCl ₃	13
S8.	HMQC spectrum of stephapierrine A (1) in CDCl ₃	13
S9.	Expansion of HMQC spectrum of stephapierrine A (1) in CDCl ₃ (1)	14
S10.	Expansion of HMQC spectrum of stephapierrine A (1) in CDCl ₃ (2)	14
S11.	HMBC spectrum of stephapierrine A (1) in CDCl ₃	15
S12.	Expansion of HMBC spectrum of stephapierrine A (1) in CDCl ₃ (1)	15
S13.	Expansion of HMBC spectrum of stephapierrine A (1) in CDCl ₃ (2)	16
S14.	Expansion of HMBC spectrum of stephapierrine A (1) in CDCl ₃ (3)	16
S15.	NOESY spectrum of stephapierrine A (1) in CDCl ₃	17
S16.	Expansion of NOESY spectrum of stephapierrine A (1) in CDCl ₃ (1)	17
S17.	Expansion of NOESY spectrum of stephapierrine A (1) in CDCl ₃ (2)	18
S18.	ESI-TOF-MS of stephapierrine A (1)	18
S19.	IR spectrum of stephapierrine A (1)	19
S20.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine B (2)	19
S21.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine B (2) (1)	20
S22.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine B (2) (2)	20
S23.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of stephapierrine B (2)	21
S24.	DEPT135 spectrum (CDCl ₃ , 100 MHz) of stephapierrine B (2)	21
S25.	COSY spectrum of stephapierrine B (2) in CDCl ₃	22
S26.	Expansion of COSY spectrum of stephapierrine B (2) in CDCl ₃	22
S27.	HMQC spectrum of stephapierrine B (2) in CDCl ₃	23
S28.	Expansion of HMQC spectrum of stephapierrine B (2) in CDCl ₃ (1)	23
S29.	Expansion of HMQC spectrum of stephapierrine B (2) in CDCl ₃ (2)	24
S30.	HMBC spectrum of stephapierrine B (2) in CDCl ₃	24
S31.	Expansion of HMBC spectrum of stephapierrine B (2) in CDCl ₃ (1)	25

Figure	Contents	Page
S32.	Expansion of HMBC spectrum of stephapierrine B (2) in CDCl ₃ (2)	25
S33.	Expansion of HMBC spectrum of stephapierrine B (2) in CDCl ₃ (3)	26
S34.	NOESY spectrum of stephapierrine B (2) in CDCl ₃	26
S35.	Expansion of NOESY spectrum of stephapierrine B (2) in CDCl ₃ (1)	27
S36.	Expansion of NOESY spectrum of stephapierrine B (2) in CDCl ₃ (2)	27
S37.	ESI-TOF-MS of stephapierrine B (2)	28
S38.	IR spectrum of stephapierrine B (2)	28
S39.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine C (3)	29
S40.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine C (3) (1)	29
S41.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine C (3) (2)	30
S42.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of stephapierrine C (3)	30
S43.	DEPT135 spectrum (CDCl ₃ , 100 MHz) of stephapierrine C (3)	31
S44.	COSY spectrum of stephapierrine C (3) in CDCl ₃	31
S45.	Expansion of COSY spectrum of stephapierrine C (3) in CDCl ₃	32
S46.	HMQC spectrum of stephapierrine C (3) in CDCl ₃	32
S47.	Expansion of HMQC spectrum of stephapierrine C (3) in CDCl ₃ (1)	33
S48.	Expansion of HMQC spectrum of stephapierrine C (3) in CDCl ₃ (2)	33
S49.	HMBC spectrum of stephapierrine C (3) in CDCl ₃	34
S50.	Expansion of HMBC spectrum of stephapierrine C (3) in CDCl ₃ (1)	34
S51.	Expansion of HMBC spectrum of stephapierrine C (3) in CDCl ₃ (2)	35
S52.	NOESY spectrum of stephapierrine C (3) in CDCl ₃	35
S53.	Expansion of NOESY spectrum of stephapierrine C (3) in CDCl ₃ (1)	36
S54.	Expansion of NOESY spectrum of stephapierrine C (3) in CDCl ₃ (2)	36
S55.	ESI-TOF-MS of stephapierrine C (3)	37
S56.	IR spectrum of stephapierrine C (3)	37
S57.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine D (4)	38
S58.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine D (4) (1)	38
S59.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine D (4) (2)	39
S60.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine D (4) (3)	39
S61.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of stephapierrine D (4)	40
S62.	DEPT135 spectrum (CD ₃ OD, 100 MHz) of stephapierrine D (4)	40
S63.	COSY spectrum of stephapierrine D (4) in CD ₃ OD	41
S64.	Expansion of COSY spectrum of stephapierrine D (4) in CD ₃ OD	41

Figure	Contents	Page
S65.	Expansion of COSY spectrum of stephapierrine D (4) in CD ₃ OD	42
S66.	HMQC spectrum of stephapierrine D (4) in CD ₃ OD	42
S67.	Expansion of HMQC spectrum of stephapierrine D (4) in CD ₃ OD (1)	43
S68.	Expansion of HMQC spectrum of stephapierrine D (4) in CD ₃ OD (2)	43
S69.	HMBC spectrum of stephapierrine D (4) in CD ₃ OD	44
S70.	Expansion of HMBC spectrum of stephapierrine D (4) in CD ₃ OD (1)	44
S71.	Expansion of HMBC spectrum of stephapierrine D (4) in CD ₃ OD (2)	45
S72.	Expansion of HMBC spectrum of stephapierrine D (4) in CD ₃ OD (3)	45
S73.	Expansion of HMBC spectrum of stephapierrine D (4) in CD ₃ OD (4)	46
S74.	NOESY spectrum of stephapierrine D (4) in CD ₃ OD	46
S75.	Expansion of NOESY spectrum of stephapierrine D (4) in CD ₃ OD (1)	47
S76.	Expansion of NOESY spectrum of stephapierrine D (4) in CD ₃ OD (2)	47
S77.	ESI-TOF-MS of stephapierrine D (4)	48
S78.	IR spectrum of stephapierrine D (4)	48
S79.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine E (5)	49
S80.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine E (5) (1)	49
S81.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine E (5) (2)	50
S82.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of stephapierrine E (5)	50
S83.	DEPT135 spectrum (CD ₃ OD, 100 MHz) of stephapierrine E (5)	51
S84.	COSY spectrum of stephapierrine E (5) in CD ₃ OD	51
S85.	Expansion of COSY spectrum of stephapierrine E (5) in CD ₃ OD (1)	52
S86.	Expansion of COSY spectrum of stephapierrine E (5) in CD ₃ OD (2)	52
S87.	HMQC spectrum of stephapierrine E (5) in CD ₃ OD	53
S88.	Expansion of HMQC spectrum of stephapierrine E (5) in CD ₃ OD (1)	53
S89.	Expansion of HMQC spectrum of stephapierrine E (5) in CD ₃ OD (2)	54
S90.	HMBC spectrum of stephapierrine E (5) in CD ₃ OD	54
S91.	Expansion of HMBC spectrum of stephapierrine E (5) in CD ₃ OD (1)	55
S92.	Expansion of HMBC spectrum of stephapierrine E (5) in CD ₃ OD (2)	55
S93.	Expansion of HMBC spectrum of stephapierrine E (5) in CD ₃ OD (3)	56
S94.	NOESY spectrum of stephapierrine E (5) in CD ₃ OD	56
S95.	Expansion of NOESY spectrum of stephapierrine E (5) in CD ₃ OD	57
S96.	ESI-TOF-MS of stephapierrine E (5)	57
S97.	IR spectrum of stephapierrine E (5)	58

Figure	Contents	Page
S98.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine F (6)	58
S99.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine F (6) (1)	59
S100.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine F (6) (2)	59
S101.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine F (6) (3)	60
S102.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of stephapierrine F (6)	60
S103.	DEPT135 spectrum (CD ₃ OD, 100 MHz) of stephapierrine F (6)	61
S104.	COSY spectrum of stephapierrine F (6) in CD ₃ OD	61
S105.	Expansion of COSY spectrum of stephapierrine F (6) in CD ₃ OD (1)	62
S106.	Expansion of COSY spectrum of stephapierrine F (6) in CD ₃ OD (2)	62
S107.	HMQC spectrum of stephapierrine F (6) in CD ₃ OD	63
S108.	Expansion of HMQC spectrum of stephapierrine F (6) in CD ₃ OD (1)	63
S109.	Expansion of HMQC spectrum of stephapierrine F (6) in CD ₃ OD (2)	64
S110.	HMBC spectrum of stephapierrine F (6) in CD ₃ OD	64
S111.	Expansion of HMBC spectrum of stephapierrine F (6) in CD ₃ OD (1)	65
S112.	Expansion of HMBC spectrum of stephapierrine F (6) in CD ₃ OD (2)	65
S113.	Expansion of HMBC spectrum of stephapierrine F (6) in CD ₃ OD (3)	66
S114.	Expansion of HMBC spectrum of stephapierrine F (6) in CD ₃ OD (4)	66
S115.	NOESY spectrum of stephapierrine F (6) in CD ₃ OD	67
S116.	Expansion of NOESY spectrum of stephapierrine F (6) in CD ₃ OD (1)	67
S117.	Expansion of NOESY spectrum of stephapierrine F (6) in CD ₃ OD (2)	68
S118.	ESI-TOF-MS of stephapierrine F (6)	68
S119.	IR spectrum of stephapierrine F (6)	69
S120.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine G (7)	69
S121.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine G (7) (1)	70
S122.	Expansion of ¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stephapierrine G (7) (2)	70
S123.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of stephapierrine G (7)	71
S124.	DEPT135 spectrum (CD ₃ OD, 100 MHz) of stephapierrine G (7)	71
S125.	COSY spectrum of stephapierrine G (7) in CD ₃ OD	72
S126.	HMQC spectrum of stephapierrine G (7) in CD ₃ OD	72
S127.	HMBC spectrum of stephapierrine G (7) in CD ₃ OD	73
S128.	Expansion of HMBC spectrum of stephapierrine G (7) in CD ₃ OD	73
S129.	NOESY spectrum of stephapierrine G (7) in CD ₃ OD	74
S130.	ESI-TOF-MS of stephapierrine G (7)	74

Figure	Contents	Page
S131.	IR spectrum of stephapierrine G (7)	75
S132.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine H (8)	75
S133.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine H (8) (1)	76
S134.	Expansion of ¹ H NMR spectrum (CDCl ₃ , 400 MHz) of stephapierrine H (8) (2)	76
S135.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of stephapierrine H (8)	77
S136.	DEPT135 spectrum (CDCl ₃ , 100 MHz) of stephapierrine H (8)	77
S137.	COSY spectrum of stephapierrine H (8) in CDCl ₃	78
S138.	HMQC spectrum of stephapierrine H (8) in CDCl ₃	78
S139.	Expansion of HMQC spectrum of stephapierrine H (8) in CDCl ₃	79
S140.	HMBC spectrum of stephapierrine H (8) in CDCl ₃	79
S141.	Expansion of HMBC spectrum of stephapierrine H (8) in CDCl ₃	80
S142.	NOESY spectrum of stephapierrine H (8) in CDCl ₃	80
S143.	ESI-TOF-MS of stephapierrine H (8)	81
S144.	IR spectrum of stephapierrine H (8)	81
S145.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of <i>O,N</i> -diacetylasimilobine (9)	82
S146.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of <i>O,N</i> -diacetylasimilobine (9)	82
S147.	DEPT135 spectrum (CD ₃ OD, 100 MHz) of <i>O,N</i> -diacetylasimilobine (9)	83
S148.	COSY spectrum of <i>O,N</i> -diacetylasimilobine (9) in CD ₃ OD	83
S149.	HMQC spectrum of <i>O,N</i> -diacetylasimilobine (9) in CD ₃ OD	84
S150.	HMBC spectrum of <i>O,N</i> -diacetylasimilobine (9) in CD ₃ OD	84
S151.	NOESY spectrum of <i>O,N</i> -diacetylasimilobine (9) in CD ₃ OD	85
S152.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of <i>N</i> -acetamideseccrebanine (10)	85
S153.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of <i>N</i> -acetamideseccrebanine (10)	86
S154.	DEPT135 spectrum (CDCl ₃ , 100 MHz) of <i>N</i> -acetamideseccrebanine (10)	86
S155.	COSY spectrum of <i>N</i> -acetamideseccrebanine (10) in CDCl ₃	87
S156.	HMQC spectrum of <i>N</i> -acetamideseccrebanine (10) in CDCl ₃	87
S157.	HMBC spectrum of <i>N</i> -acetamideseccrebanine (10) in CDCl ₃	88
S158.	NOESY spectrum of <i>N</i> -acetamideseccrebanine (10) in CDCl ₃	88
S159.	¹ H NMR spectrum (DMSO- <i>d</i> ₆ , 400 MHz) of 2,3-didemethyltetrahydropalmatine (11)	89
S160.	¹³ C NMR spectrum (DMSO- <i>d</i> ₆ , 100 MHz) of 2,3-didemethyltetrahydropalmatine (11)	89
S161.	DEPT135 spectrum (DMSO- <i>d</i> ₆ , 100 MHz) of 2,3-didemethyltetrahydropalmatine (11)	90
S162.	COSY spectrum of 2,3-didemethyltetrahydropalmatine (11) in DMSO- <i>d</i> ₆	90
S163.	HMQC spectrum of 2,3-didemethyltetrahydropalmatine (11) in DMSO- <i>d</i> ₆	91

Figure	Contents	Page
S164.	HMBC spectrum of 2,3-didemethyltetrahydropalmatine (11) in DMSO- <i>d</i> ₆	91
S165.	NOESY spectrum of 2,3-didemethyltetrahydropalmatine (11) in DMSO- <i>d</i> ₆	92
S166.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of stepholidine (12)	92
S167.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of stepholidine (12)	93
S168.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of discretamine (13)	93
S169.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of discretamine (13)	94
S170.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of tetrahydropalmatine (14)	94
S171.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of tetrahydropalmatine (14)	95
S172.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of <i>N</i> -methylstepholidine (15)	95
S173.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of <i>N</i> -methylstepholidine (15)	96
S174.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of cyclanoline (16)	96
S175.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of cyclanoline (16)	97
S176.	¹ H NMR spectrum (CDCl ₃ + 5 drops CD ₃ OD, 400 MHz) of <i>N</i> -methyltetrahydropalmatine (17)	97
S177.	¹³ C NMR spectrum (CDCl ₃ + 5 drops CD ₃ OD, 100 MHz) of <i>N</i> -methyltetrahydropalmatine (17)	98
S178.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of jatrorrhizine (18)	98
S179.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of jatrorrhizine (18)	99
S180.	¹ H NMR spectrum (DMSO- <i>d</i> ₆ , 400 MHz) of palmatine (19)	99
S181.	¹³ C NMR spectrum (DMSO- <i>d</i> ₆ , 100 MHz) of palmatine (19)	100
S182.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of dehydrocorydaline (20)	100
S183.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of dehydrocorydaline (20)	101
S184.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of pseudodehydrocorydaline (21)	101
S185.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of pseudodehydrocorydaline (21)	102
S186.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of roemerine (22)	102
S187.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of roemerine (22)	103
S188.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of (–)-stephanine (23)	103
S189.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of (–)-stephanine (23)	104
S190.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of (–)-isolaureline (24)	104
S191.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of (–)-isolaureline (24)	105
S192.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of crebanine (25)	105
S193.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of crebanine (25)	106
S194.	¹ H NMR spectrum (CDCl ₃ + 5 drops CD ₃ OD, 400 MHz) of dicentrine (26)	106

Figure	Contents	Page
S195.	¹³ C NMR spectrum (CDCl ₃ + 5 drops CD ₃ OD, 100 MHz) of dicentrine (26)	107
S196.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of (-)-ushinsunine (27)	107
S197.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of (-)-ushinsunine (27)	108
S198.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of (-)-ayuthianine (28)	108
S199.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of (-)-ayuthianine (28)	109
S200.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of sukhodianine (29)	109
S201.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of sukhodianine (29)	110
S202.	¹ H NMR spectrum (Acetone- <i>d</i> ₆ , 400 MHz) of (-)- <i>N</i> -fonnylanonaine (30)	110
S203.	¹³ C NMR spectrum (Acetone- <i>d</i> ₆ , 100 MHz) of (-)- <i>N</i> -fonnylanonaine (30)	111
S204.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of (-)- <i>N</i> -methylassimilobine (31)	111
S205.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of (-)- <i>N</i> -methylassimilobine (31)	112
S206.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of (-)-asimilobine (32)	112
S207.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of (-)-asimilobine (32)	113
S208.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of (-)-asimilobine-2- <i>O</i> -β-D-glucoside (33)	113
S209.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of (-)-asimilobine-2- <i>O</i> -β-D-glucoside (33)	114
S210.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of lanuginosine (34)	114
S211.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of lanuginosine (34)	115
S212.	¹ H NMR spectrum (CDCl ₃ + 5 drops CD ₃ OD, 400 MHz) of dicentrinone (35)	115
S213.	¹³ C NMR spectrum (CDCl ₃ + 5 drops CD ₃ OD, 100 MHz) of dicentrinone (35)	116
S214.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of oxocrebanine (36)	116
S215.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of oxocrebanine (36)	117
S216.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of 8-methoxyuvoriopsine (37)	117
S217.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of 8-methoxyuvoriopsine (37)	118
S218.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of dehydrooemerine (38)	118
S219.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of dehydrooemerine (38)	119
S220.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of dehydrostephanine (39)	119
S221.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of dehydrostephanine (39)	120
S222.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of dehydroisolaureline (40)	120
S223.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of dehydroisolaureline (40)	121
S224.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of dehydrocrebanine (41)	121
S225.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of dehydrocrebanine (41)	122
S226.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of dehydrodicentrine (42)	122
S227.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of dehydrodicentrine (42)	123

Figure	Contents	Page
S228.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of (-)-crebanine-β- <i>N</i> -oxide (43)	123
S229.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of (-)-crebanine-β- <i>N</i> -oxide (43)	124
S230.	¹ H NMR spectrum (CD ₃ OD, 400 MHz) of coclaurine (44)	124
S231.	¹³ C NMR spectrum (CD ₃ OD, 100 MHz) of coclaurine (44)	125
S232.	¹ H NMR spectrum (CDCl ₃ , 400 MHz) of salutaridine (45)	125
S233.	¹³ C NMR spectrum (CDCl ₃ , 100 MHz) of salutaridine (45)	126
S234.	ECD spectra of stephapierrines A-D (1-4)	126
S235.	ECD spectra of stephapierrines E-F (5-6) and <i>O,N</i> -diacetylasimilobine (9)	127

List of Table

Table	Contents	Page
S1.	Cholinesterase inhibitory activities of aporphine alkaloids	128

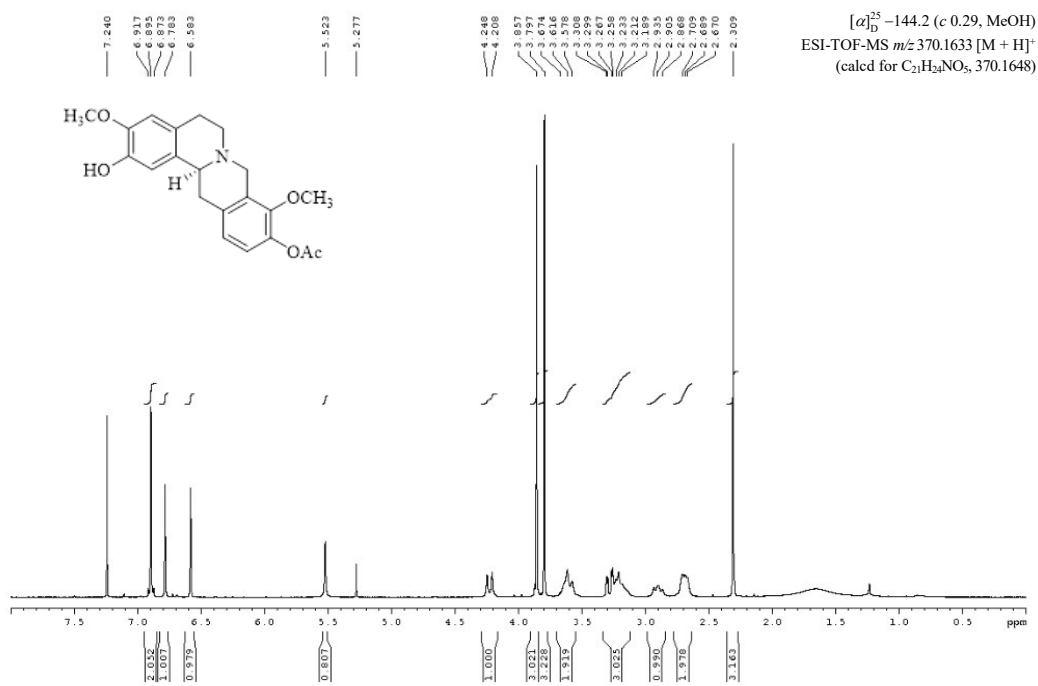


Figure S1. ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine A (1)

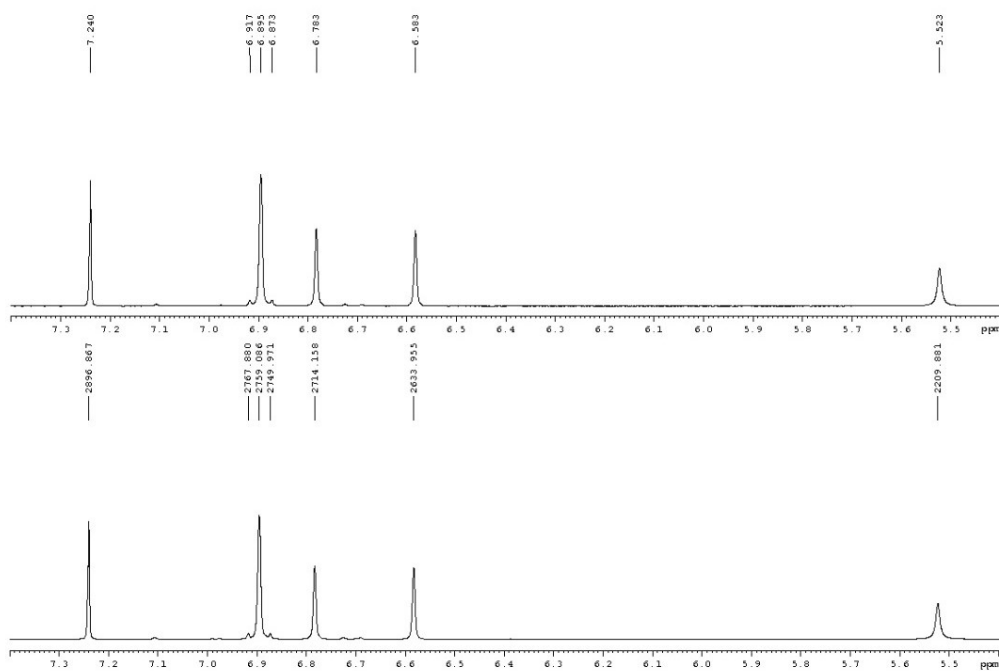


Figure S2. Expansion of ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine A (1) (1)

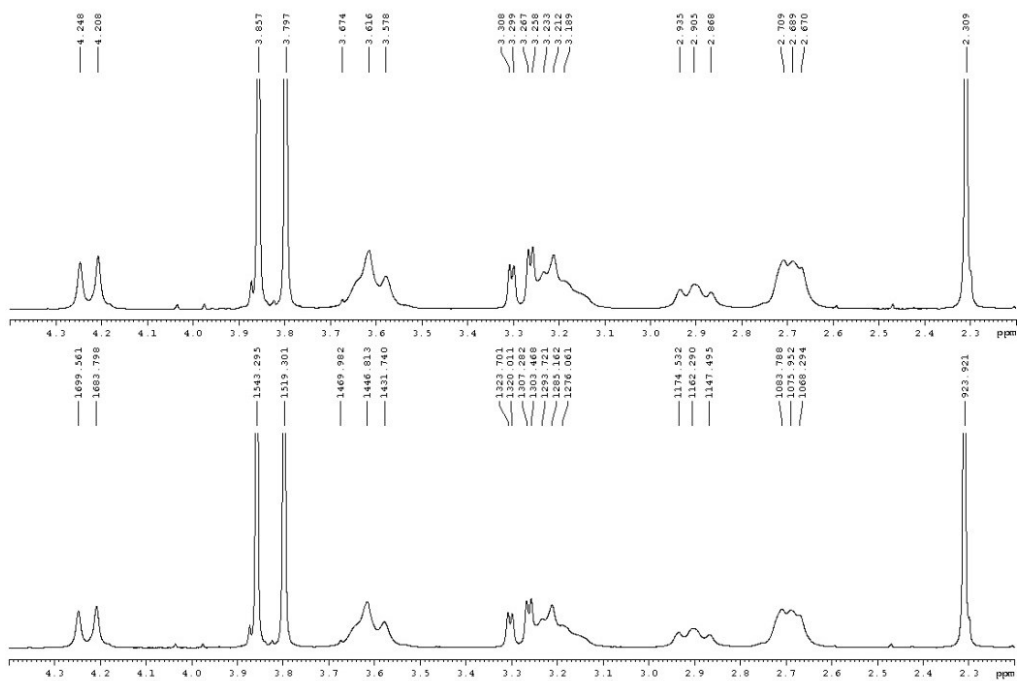


Figure S3. Expansion of ^1H NMR spectrum (CDCl_3 , 400 MHz) of stephapierrine A (1) (2)

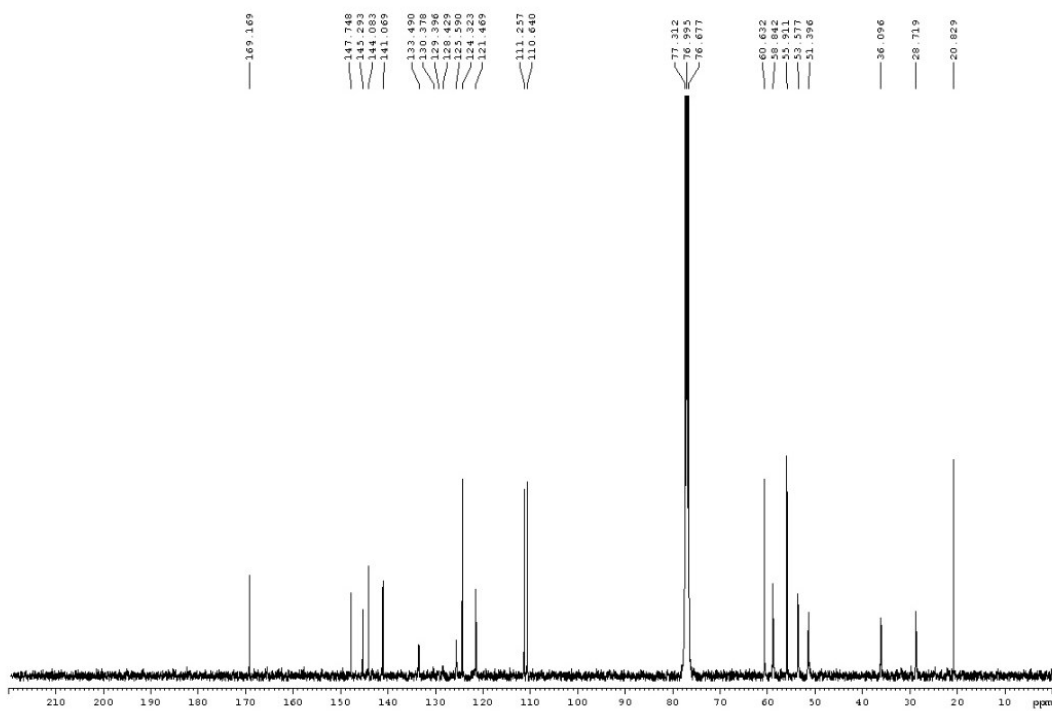


Figure S4. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of stephapierrine A (1)

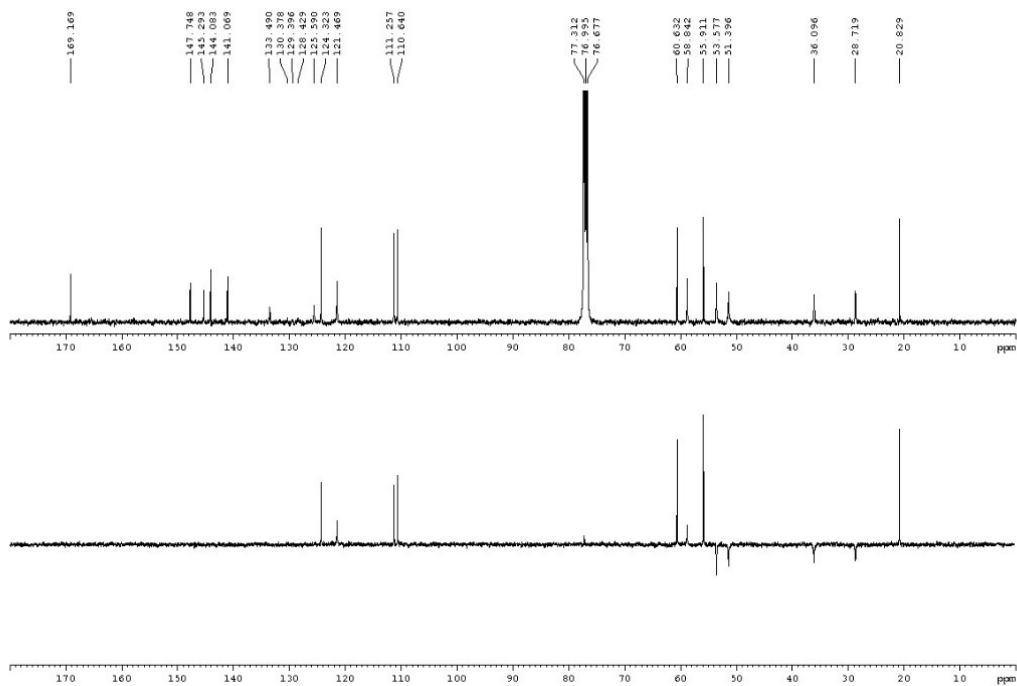


Figure S5. DEPT135 spectrum (CDCl₃, 100 MHz) of stephapierrine A (1)

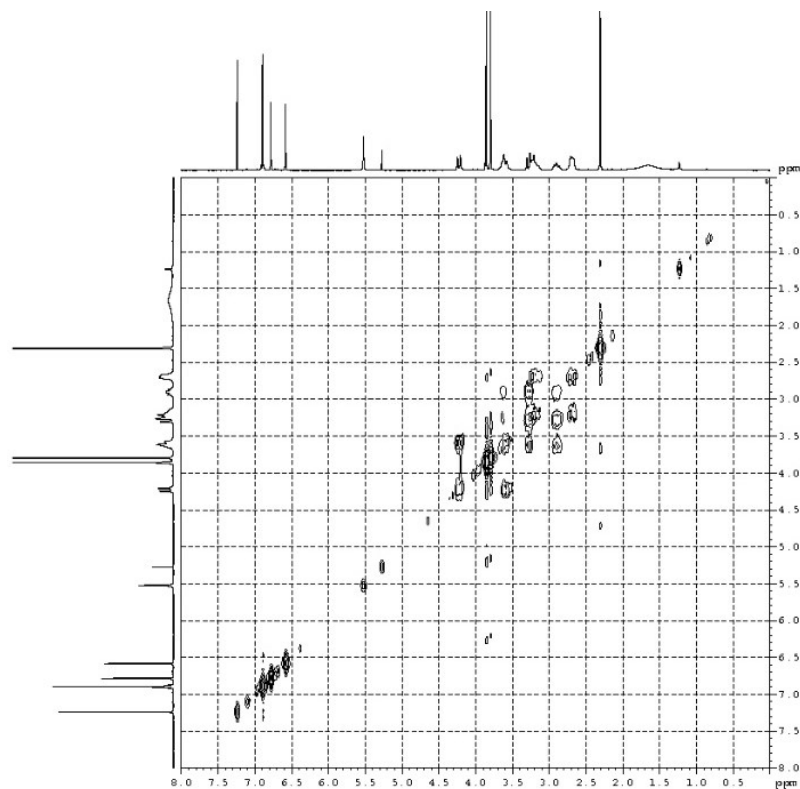


Figure S6. COSY spectrum of stephapierrine A (1) in CDCl₃

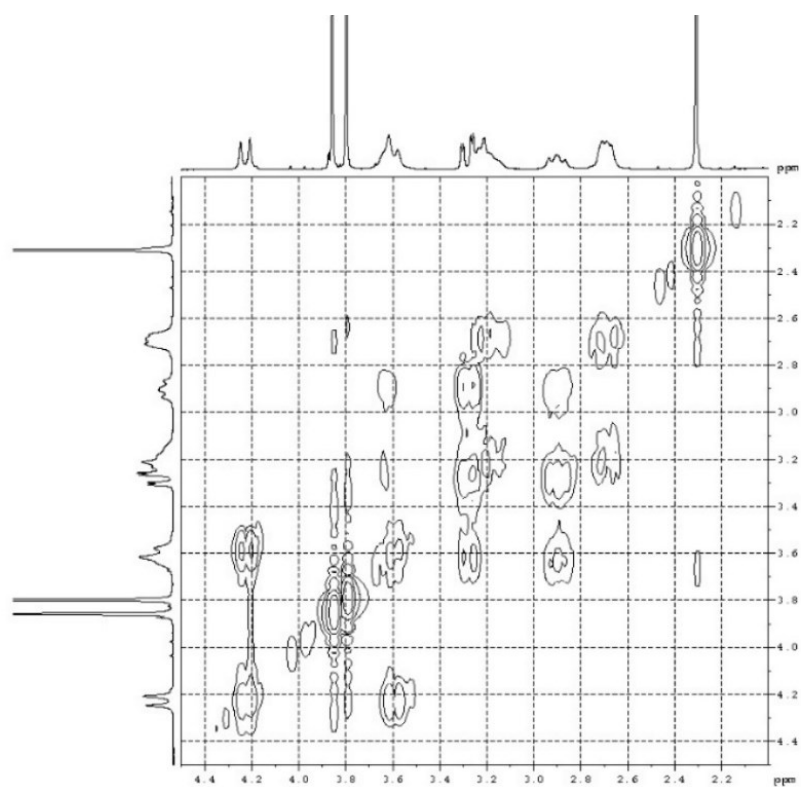


Figure S7. Expansion of COSY spectrum of stephapierrine A (**1**) in CDCl₃

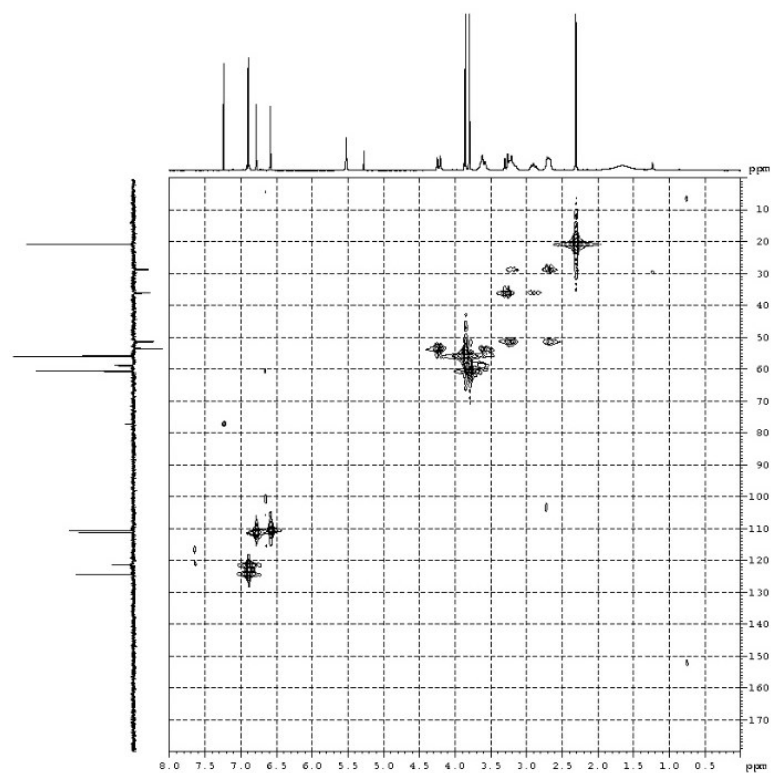


Figure S8. HMQC spectrum of stephapierrine A (**1**) in CDCl₃

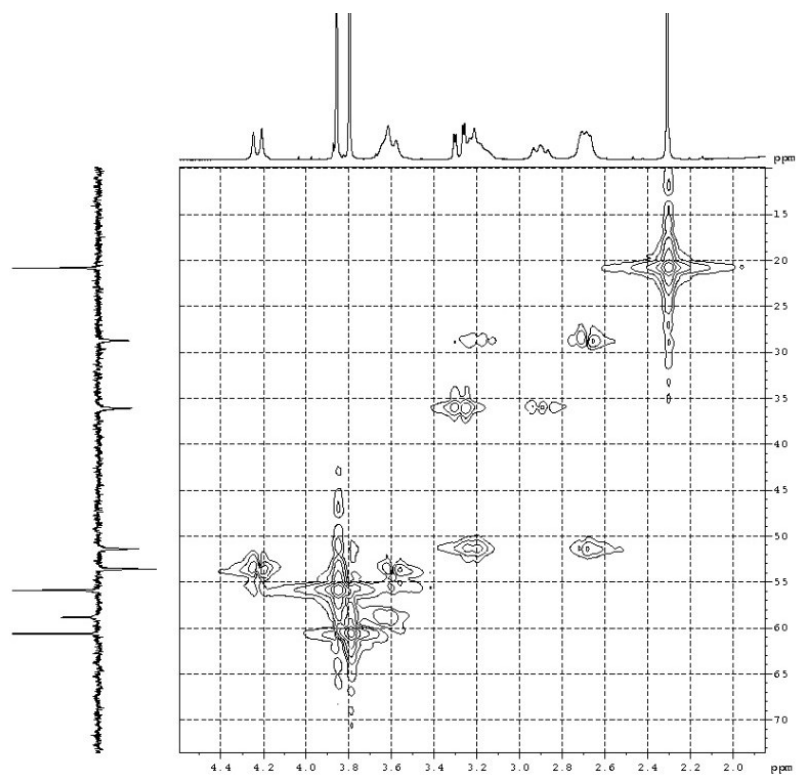


Figure S9. Expansion of HMQC spectrum of stephapierrine A (**1**) in CDCl₃ (1)

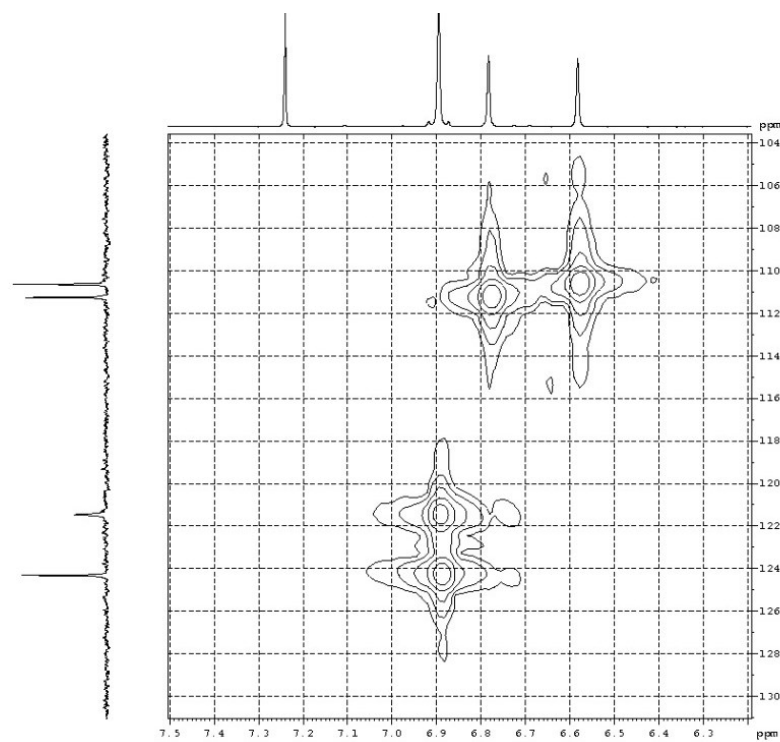


Figure S10. Expansion of HMQC spectrum of stephapierrine A (**1**) in CDCl₃ (2)

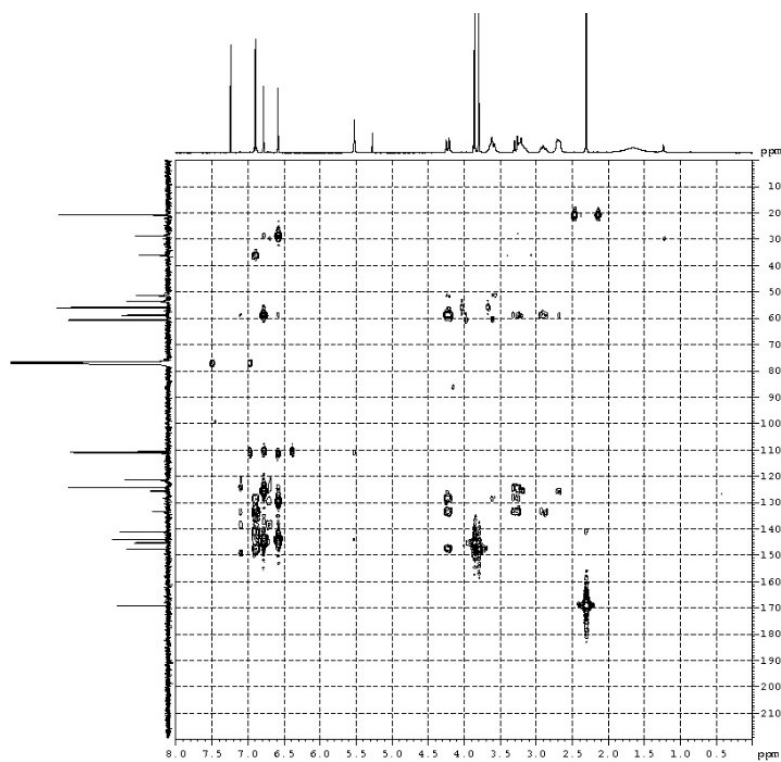


Figure S11. HMBC spectrum of stephapierrine A (**1**) in CDCl_3

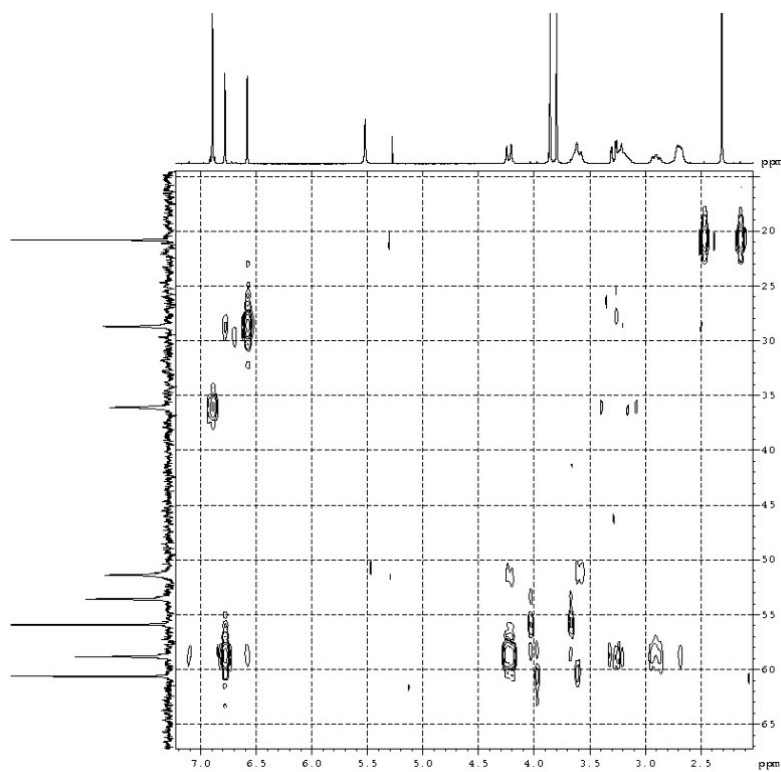


Figure S12. Expansion of HMBC spectrum of stephapierrine A (**1**) in CDCl_3 (1)

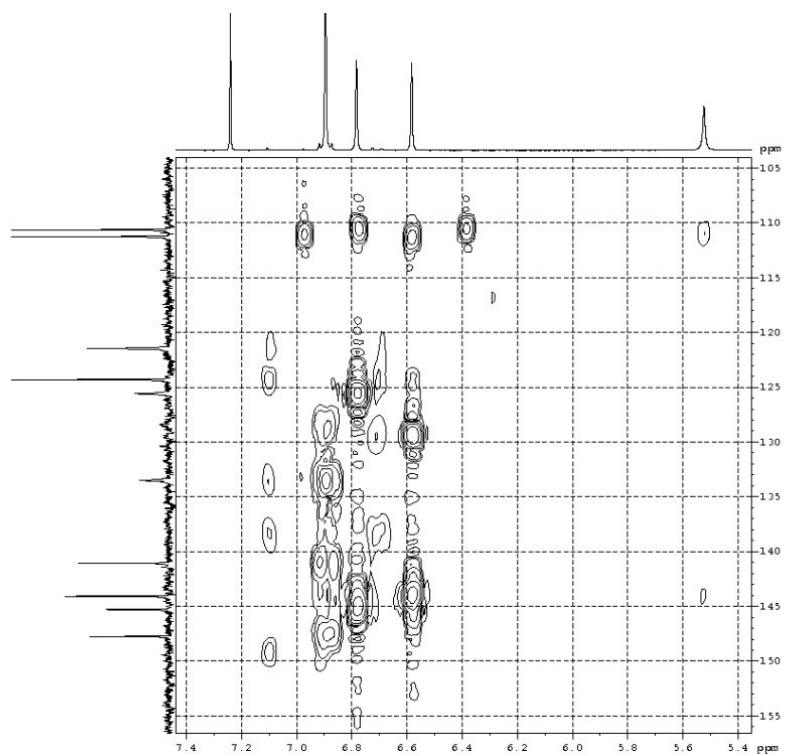


Figure S13. Expansion of HMBC spectrum of stephapierrine A (1) in CDCl₃ (2)

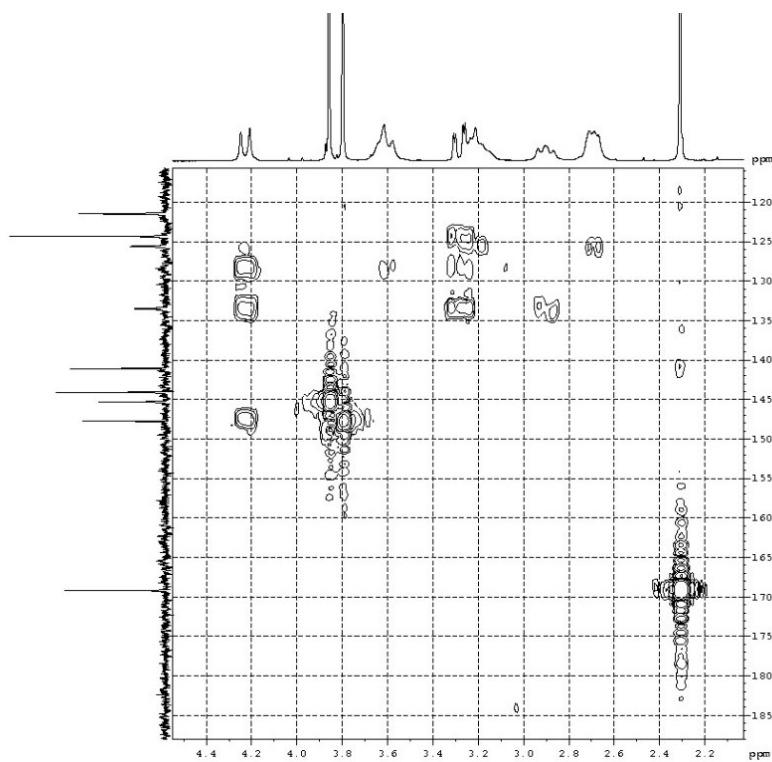


Figure S14. Expansion of HMBC spectrum of stephapierrine A (1) in CDCl₃ (3)

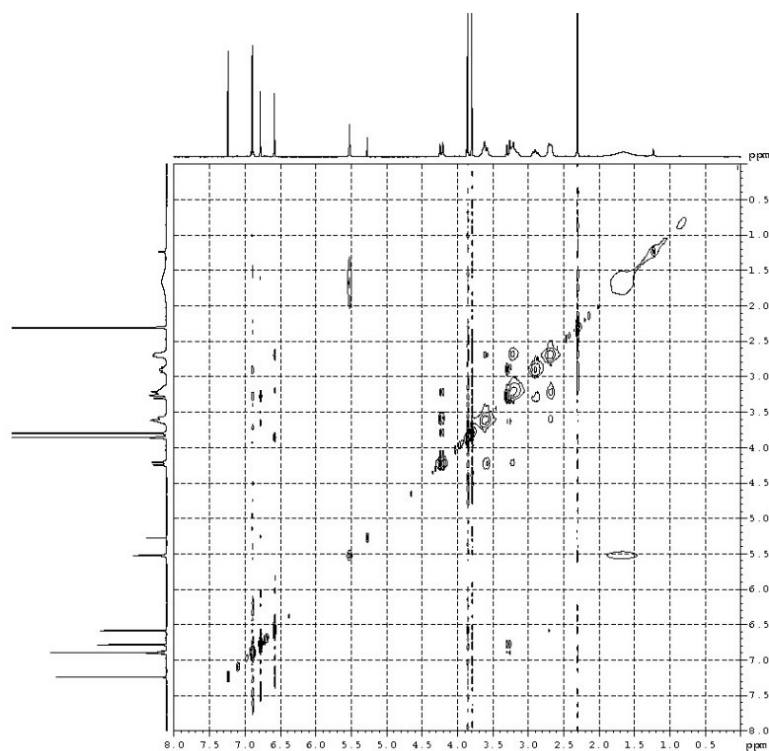


Figure S15. NOESY spectrum of stephapierrine A (**1**) in CDCl_3

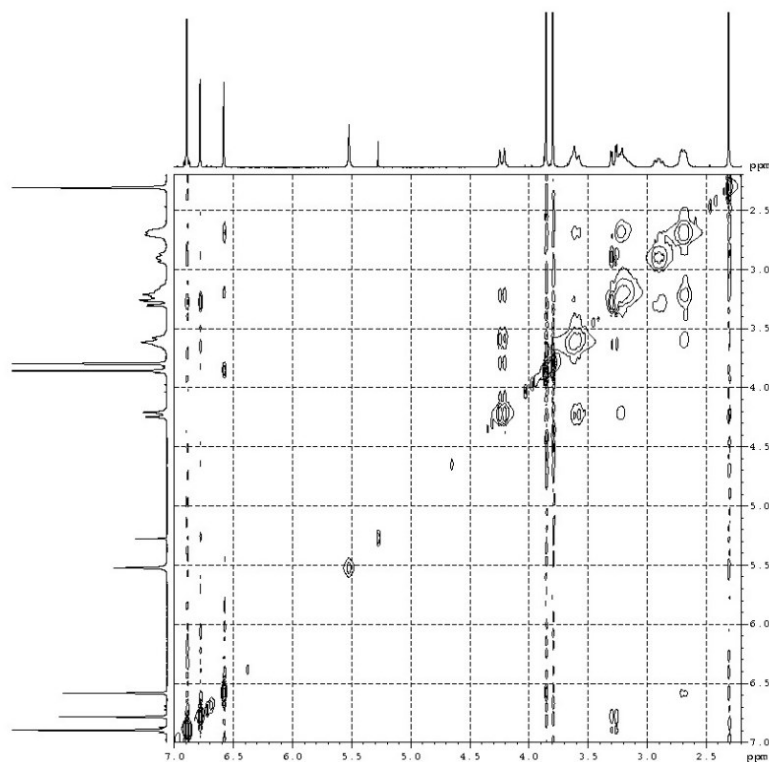


Figure S16. Expansion of NOESY spectrum of stephapierrine A (**1**) in CDCl_3 (1)

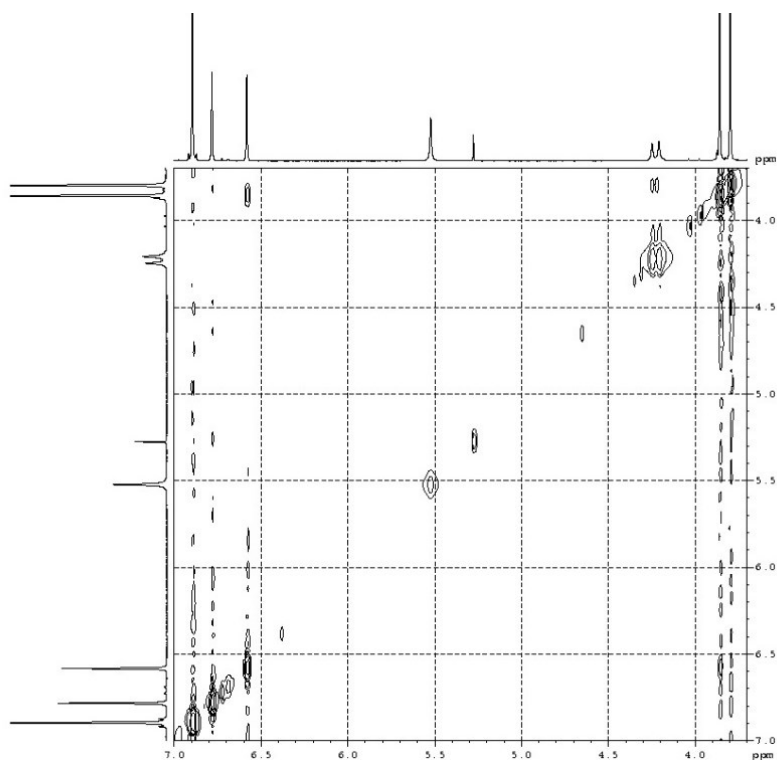


Figure S17. Expansion of NOESY spectrum of stephapierrine A (1) in CDCl_3 (2)

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date 12/7/2020 3:00:01 PM			
Analysis Name	D:\Data\Apichart\ESIVAS-HRMS 1242 (pos).d	Operator	RU		
Method	tune_wide-RU.m	Instrument	micrOTOF	8213750.10411	
Sample Name	AS-RU 19497	Comment			
Acquisition Parameter					
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	100 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste

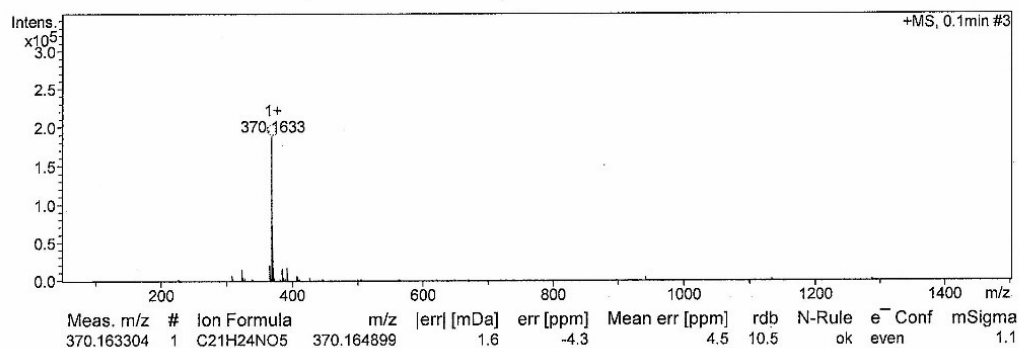


Figure S18. ESI-TOF-MS of stephapierrine A (1)

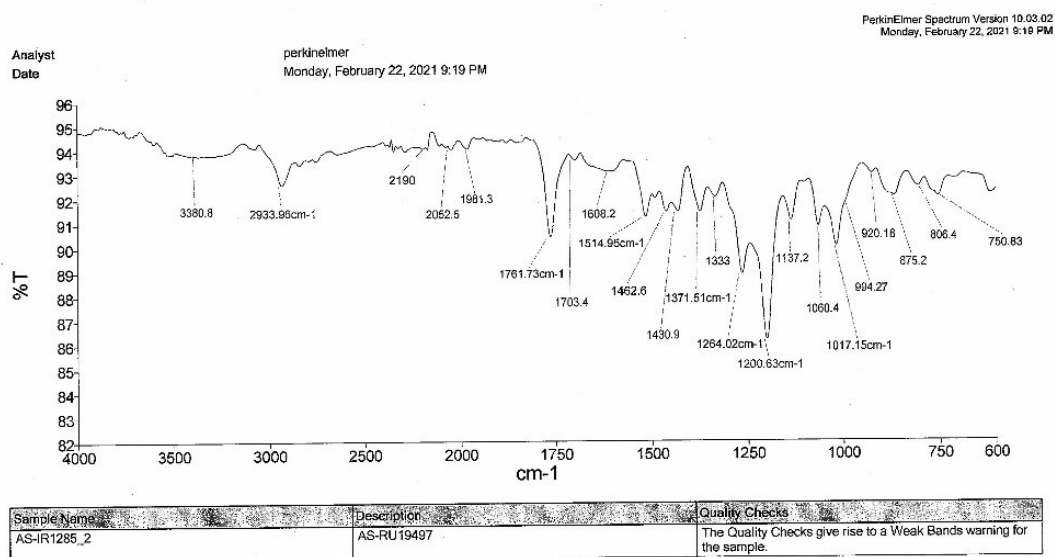


Figure S19. IR spectrum of stephapierrine A (1)

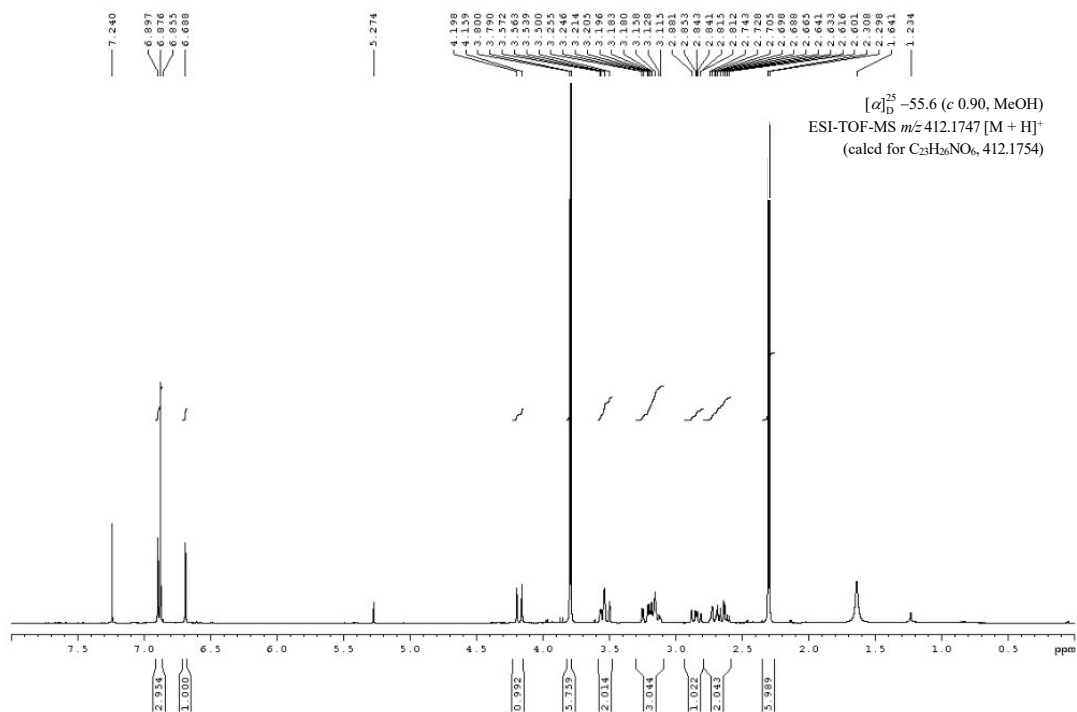


Figure S20. ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine B (2)

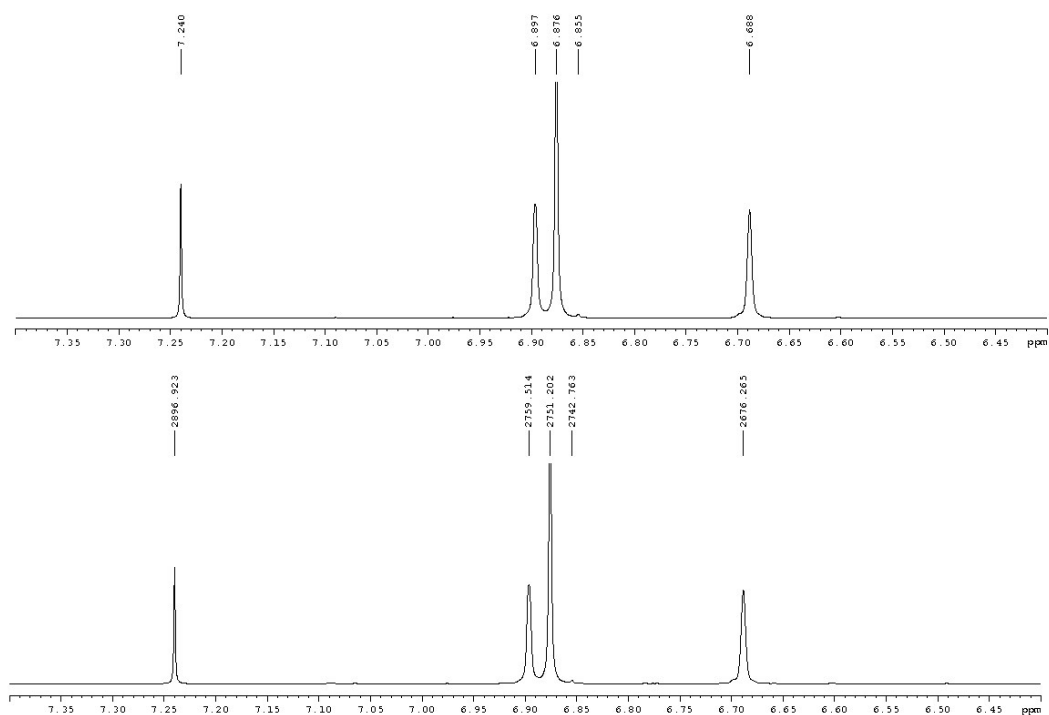


Figure S21. Expansion of ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine B (2) (1)

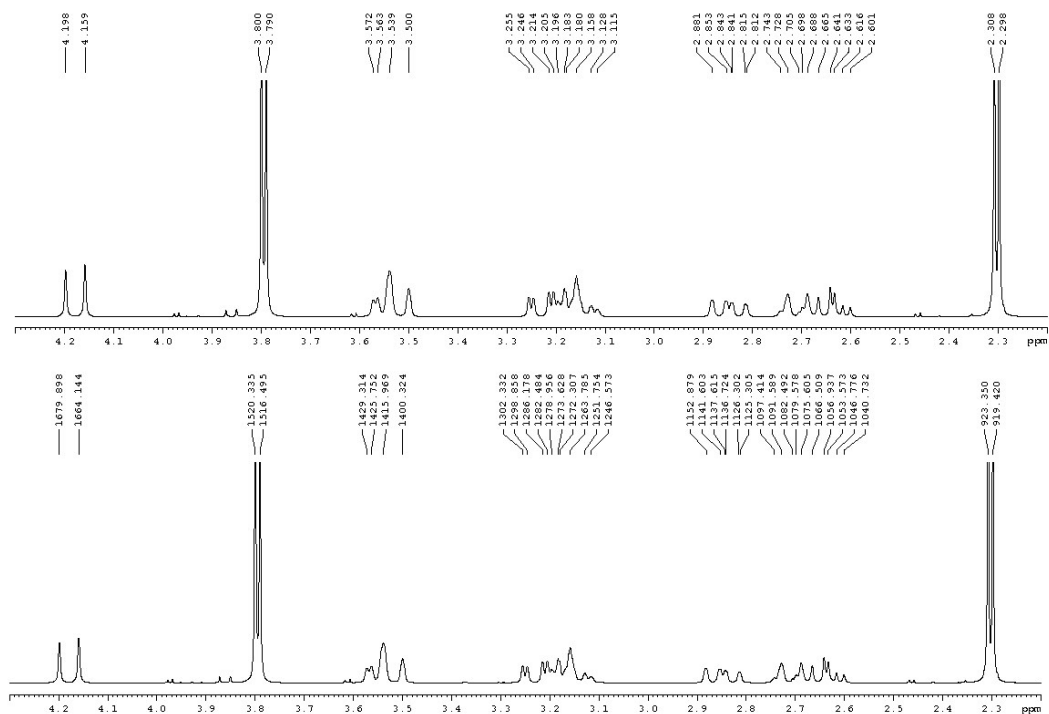


Figure S22. Expansion of ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine B (2) (2)

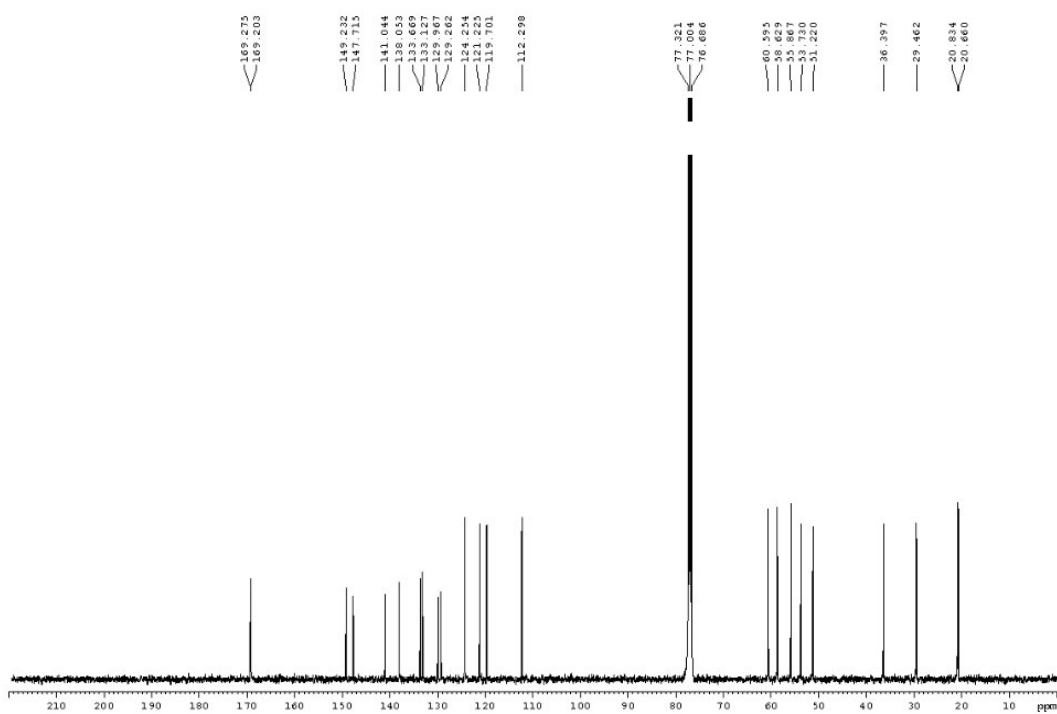


Figure S23. ¹³C NMR spectrum (CDCl₃, 100 MHz) of stephapierrine B (2)

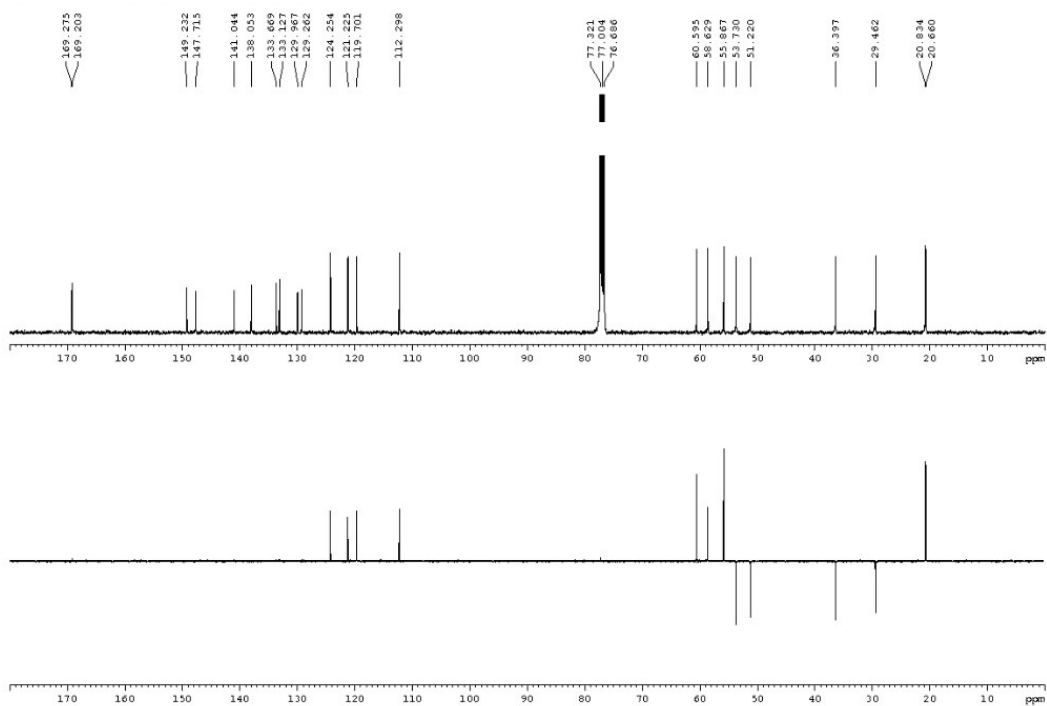


Figure S24. DEPT135 spectrum (CDCl₃, 100 MHz) of stephapierrine B (2)

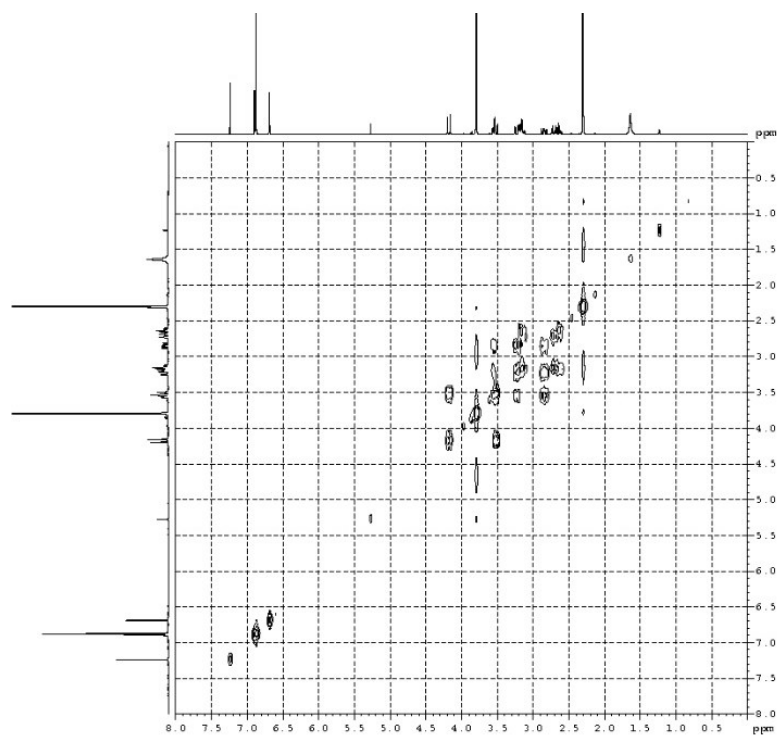


Figure S25. COSY spectrum of stephapierrine B (**2**) in CDCl_3

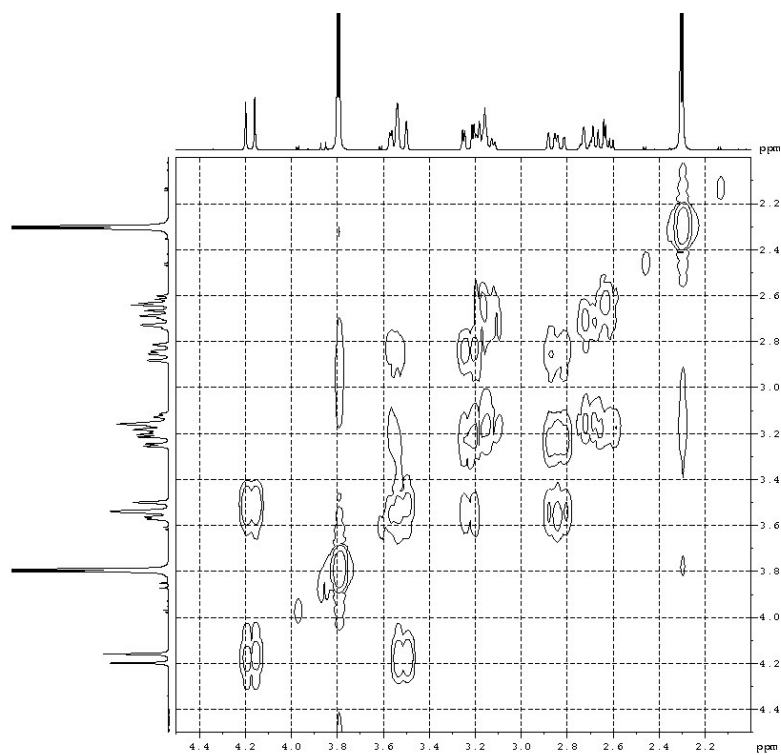


Figure S26. Expansion of COSY spectrum of stephapierrine B (**2**) in CDCl_3

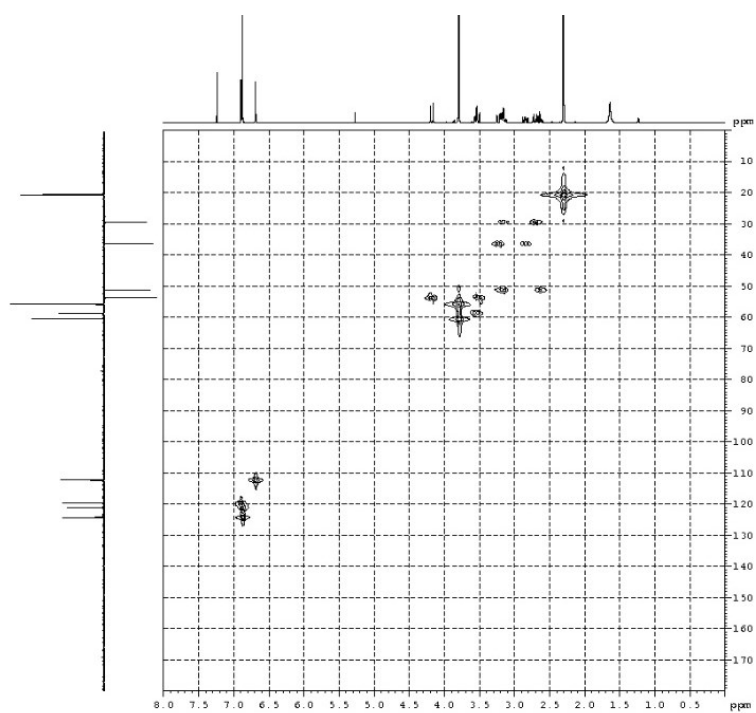


Figure S27. HMQC spectrum of stephapierrine B (2) in CDCl_3

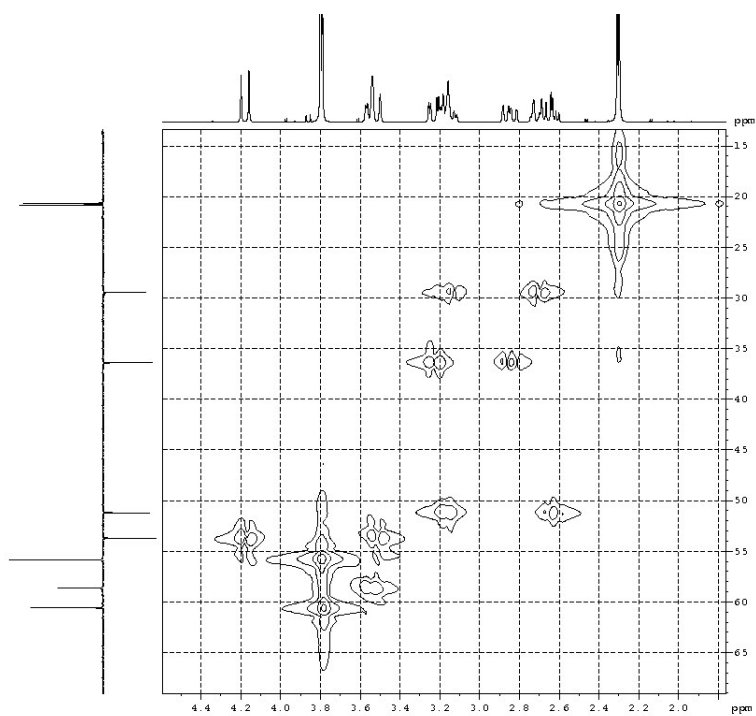


Figure S28. Expansion of HMQC spectrum of stephapierrine B (2) in CDCl_3 (1)

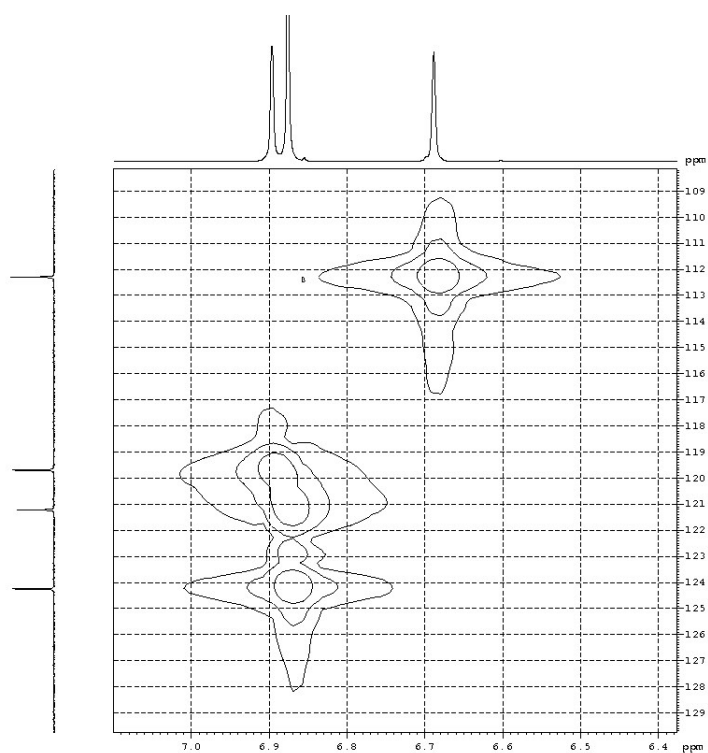


Figure S29. Expansion of HMQC spectrum of stephapierrine B (**2**) in CDCl_3 (**2**)

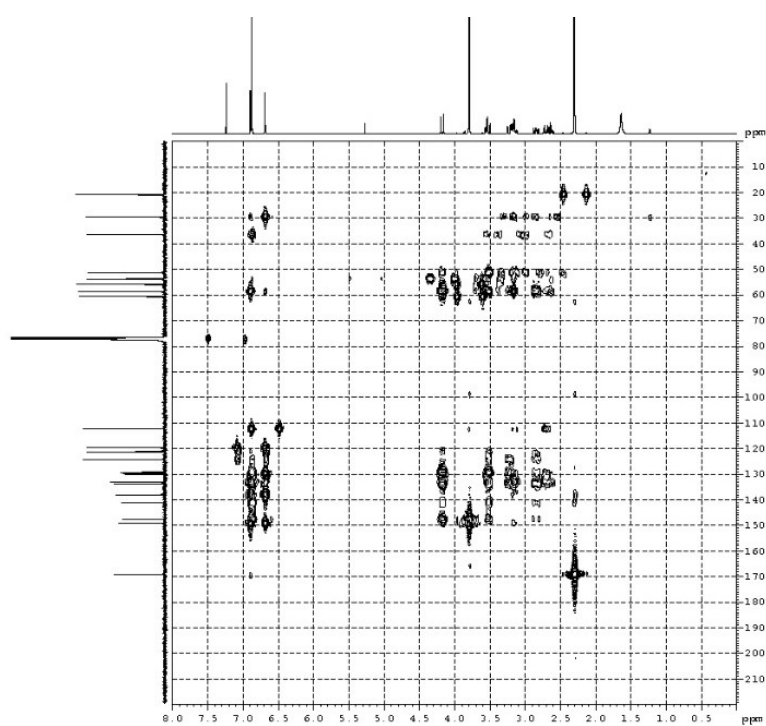


Figure S30. HMBC spectrum of stephapierrine B (**2**) in CDCl_3

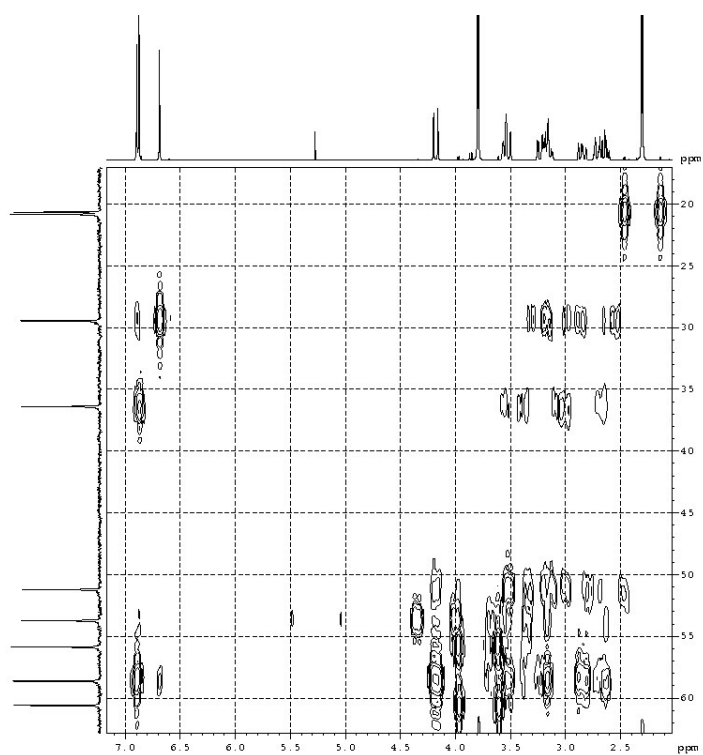


Figure S31. Expansion of HMBC spectrum of stephapierrine B (2) in CDCl₃ (1)

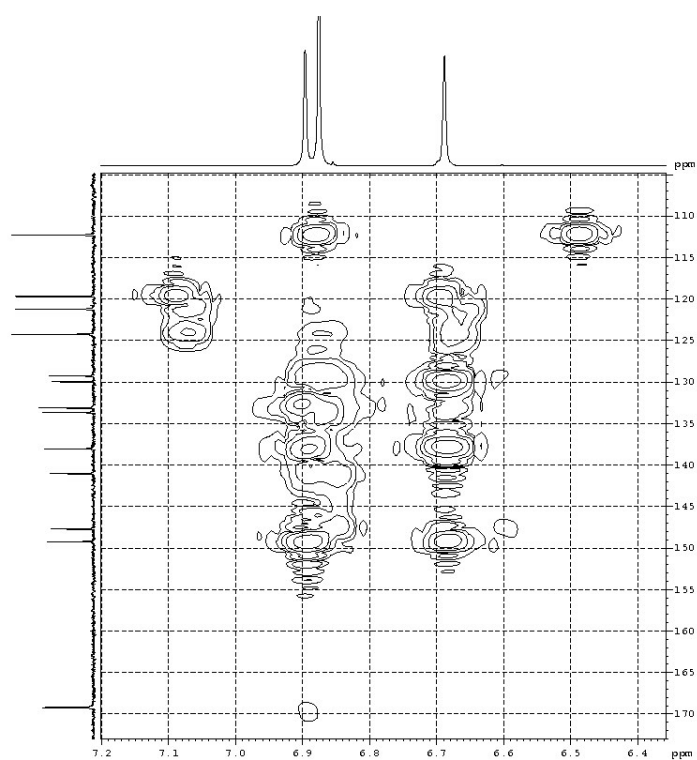


Figure S32. Expansion of HMBC spectrum of stephapierrine B (2) in CDCl₃ (2)

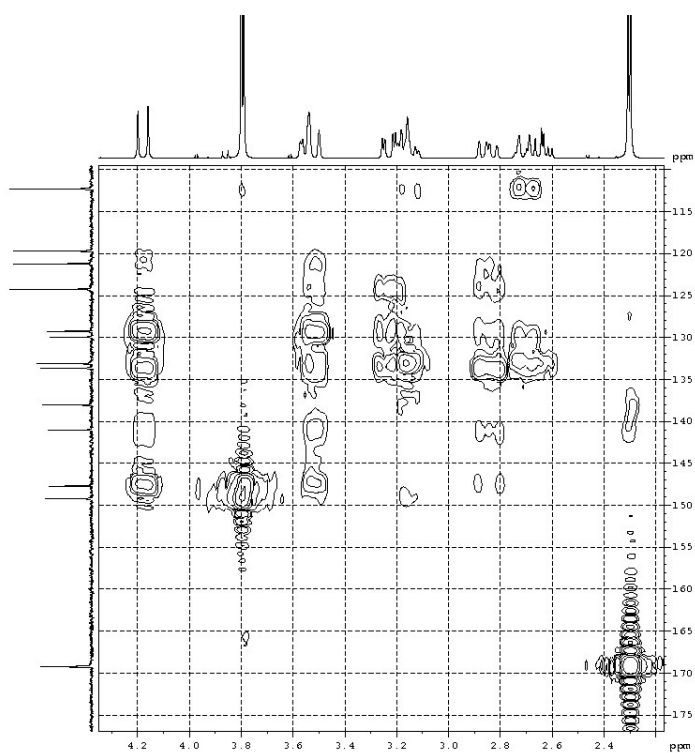


Figure S33. Expansion of HMBC spectrum of stephapierrine B (2) in CDCl_3 (3)

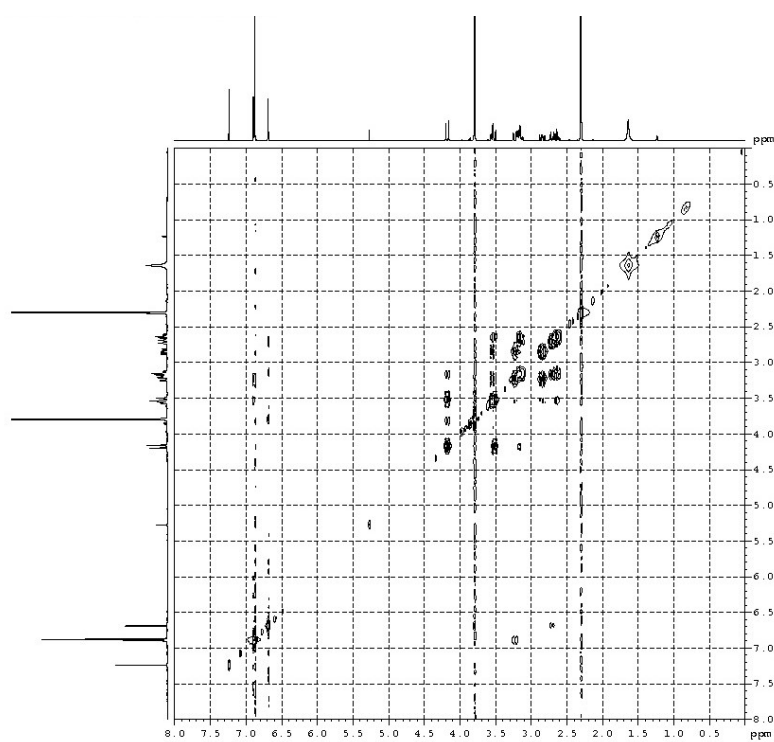


Figure S34. NOESY spectrum of stephapierrine B (2) in CDCl_3

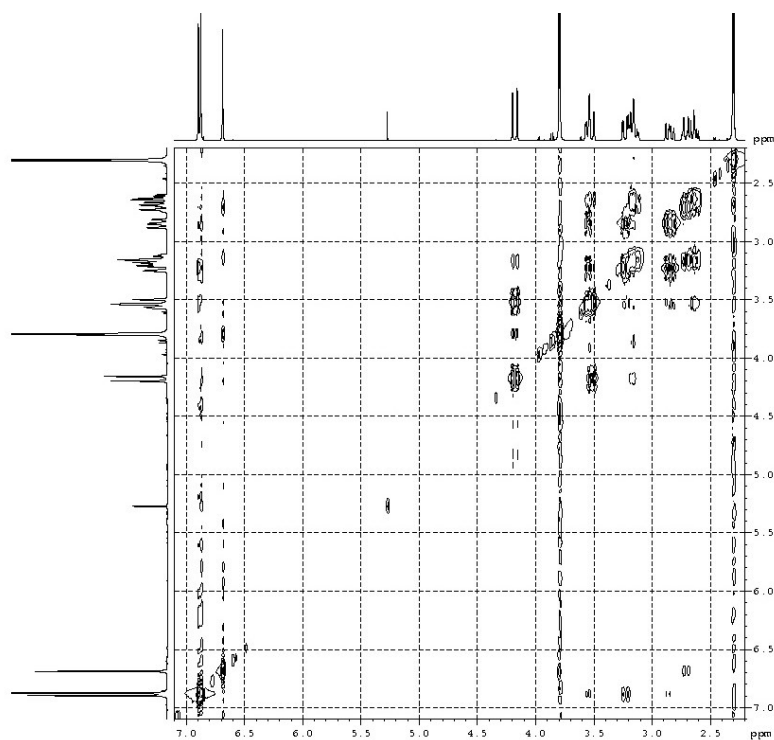


Figure S35. Expansion of NOESY spectrum of stephapierrine B (2) in CDCl₃ (1)

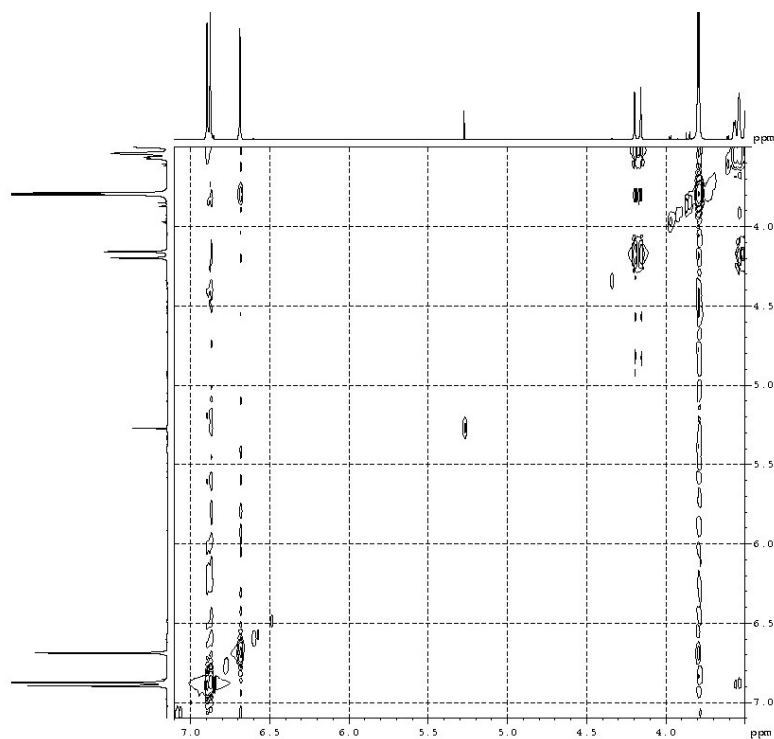


Figure S36. Expansion of NOESY spectrum of stephapierrine B (2) in CDCl₃ (2)

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date 12/7/2020 3:01:05 PM	
Analysis Name	D:\Data\Apichart\ESIVAS-HRMS 1243 (pos).d	Operator	RU
Method	tune_wide-RU.m	Instrument	micrOTOF 8213750.10411
Sample Name	AS-RU 19326	Comment	

Acquisition Parameter			
Source Type	ESI	Ion Polarity	Positive
Focus	Not active	Set Nebulizer	0.3 Bar
Scan Begin	100 m/z	Set Dry Heater	180 °C
Scan End	4000 m/z	Set Capillary	4500 V
		Set End Plate Offset	-500 V
		Set Dry Gas	4.0 l/min
		Set Divert Valve	Waste

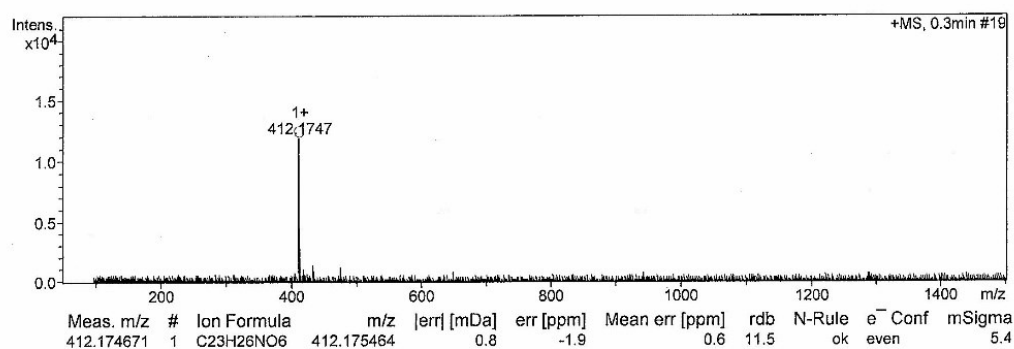


Figure S37. ESI-TOF-MS of stephapierrine B (2)

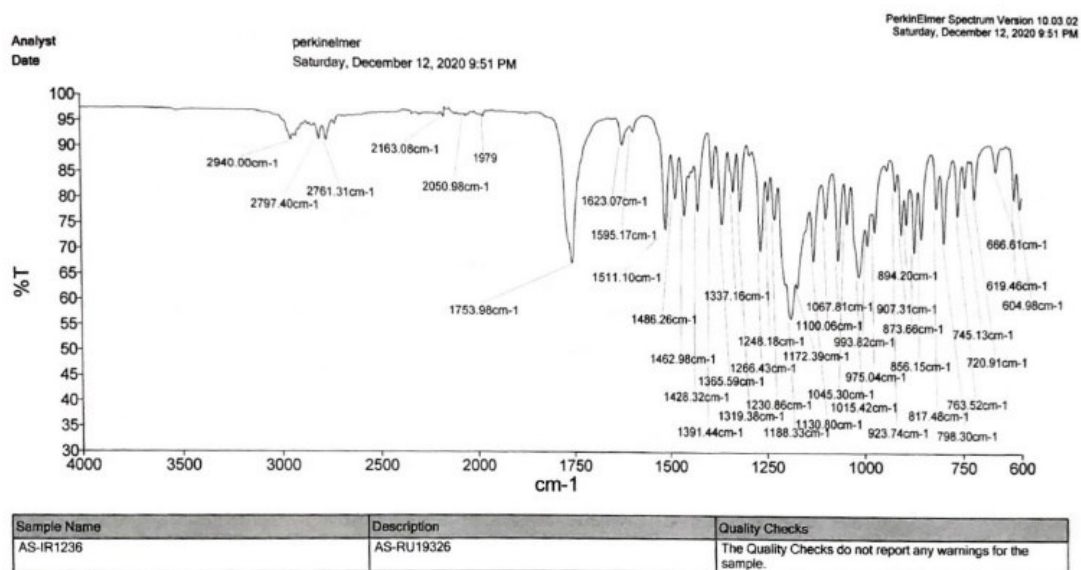


Figure S38. IR spectrum of stephapierrine B (2)

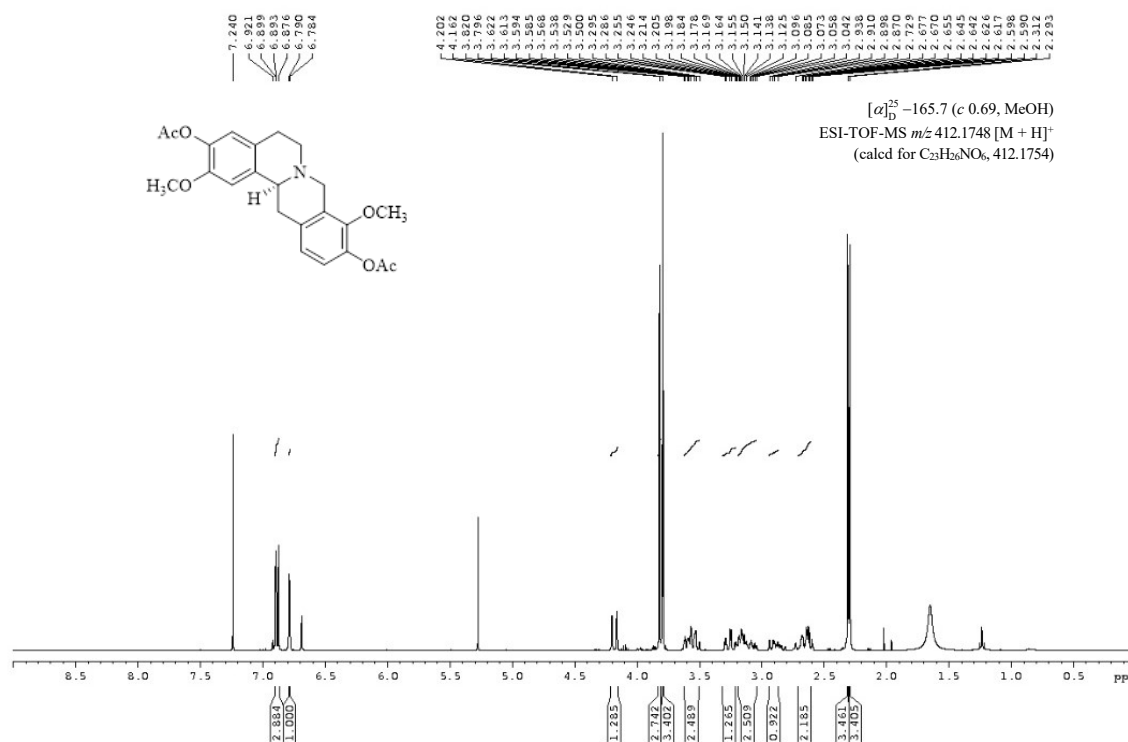


Figure S39. ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine C (3)

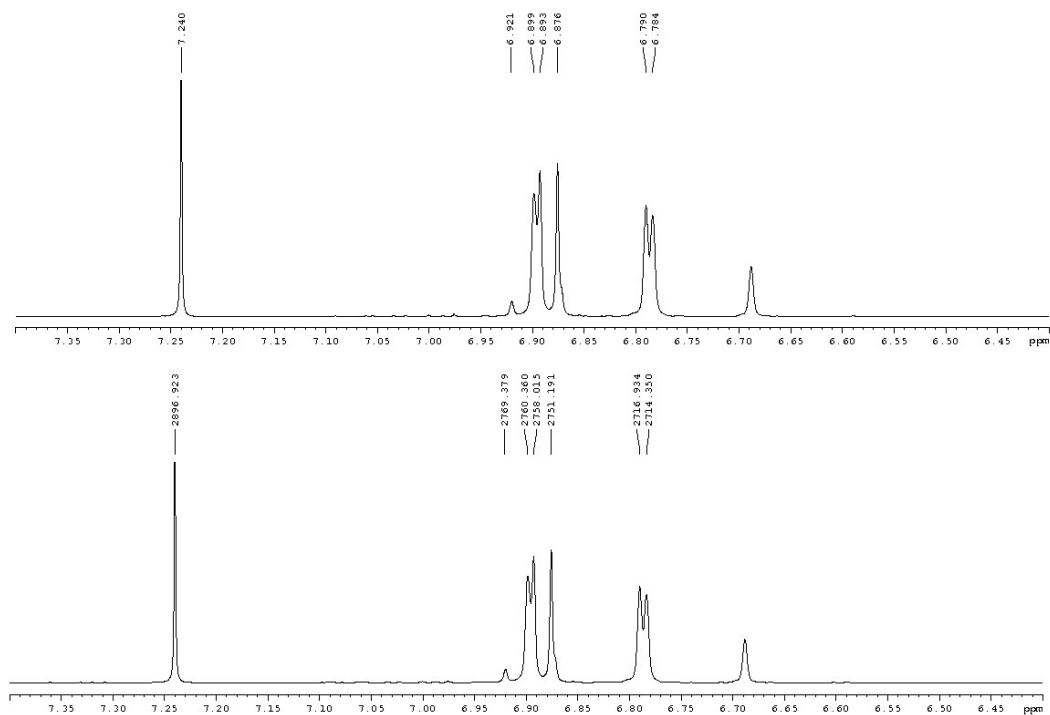


Figure S40. Expansion of ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine C (3) (1)

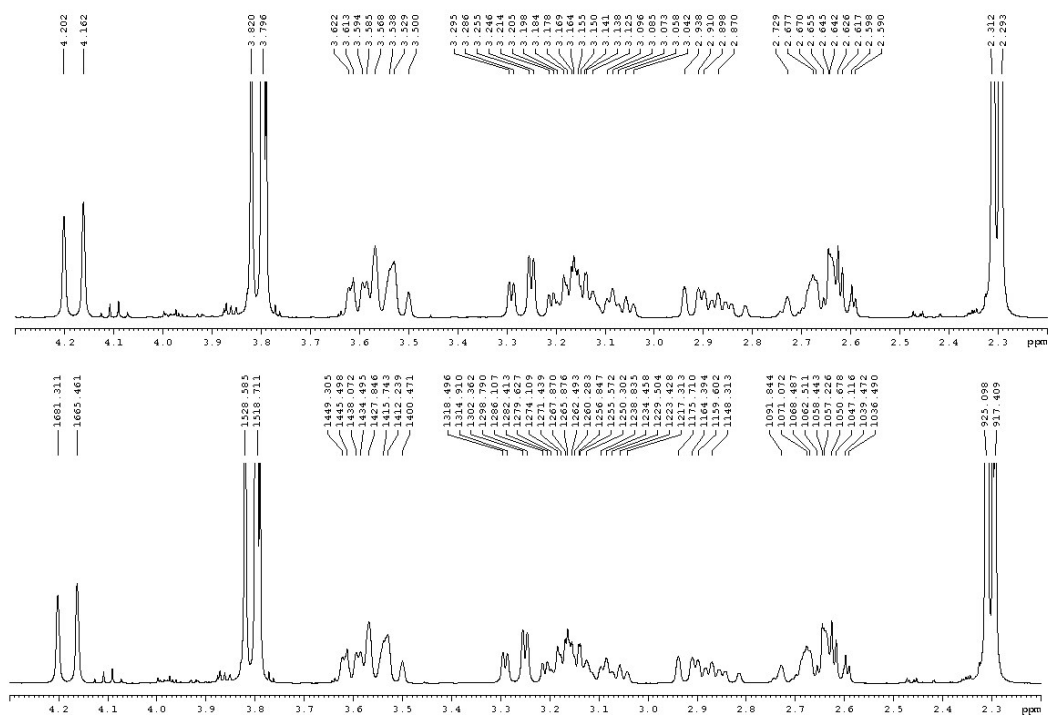


Figure S41. Expansion of ^1H NMR spectrum (CDCl_3 , 400 MHz) of stephapierrine C (**3**) (2)

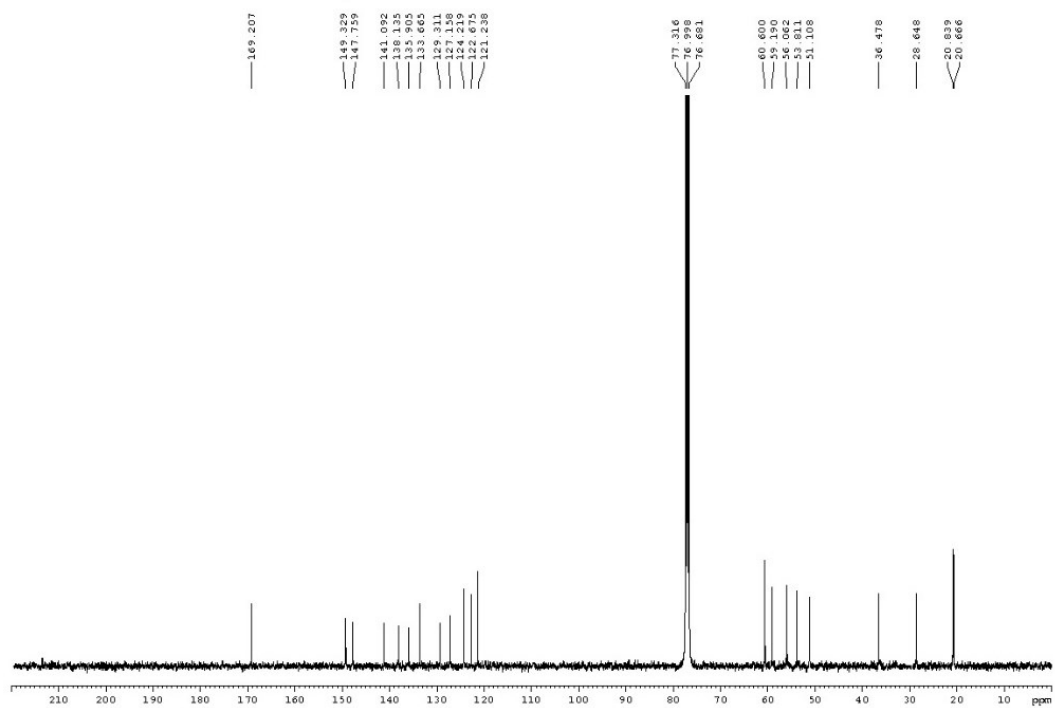


Figure S42. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of stephapierrine C (**3**)

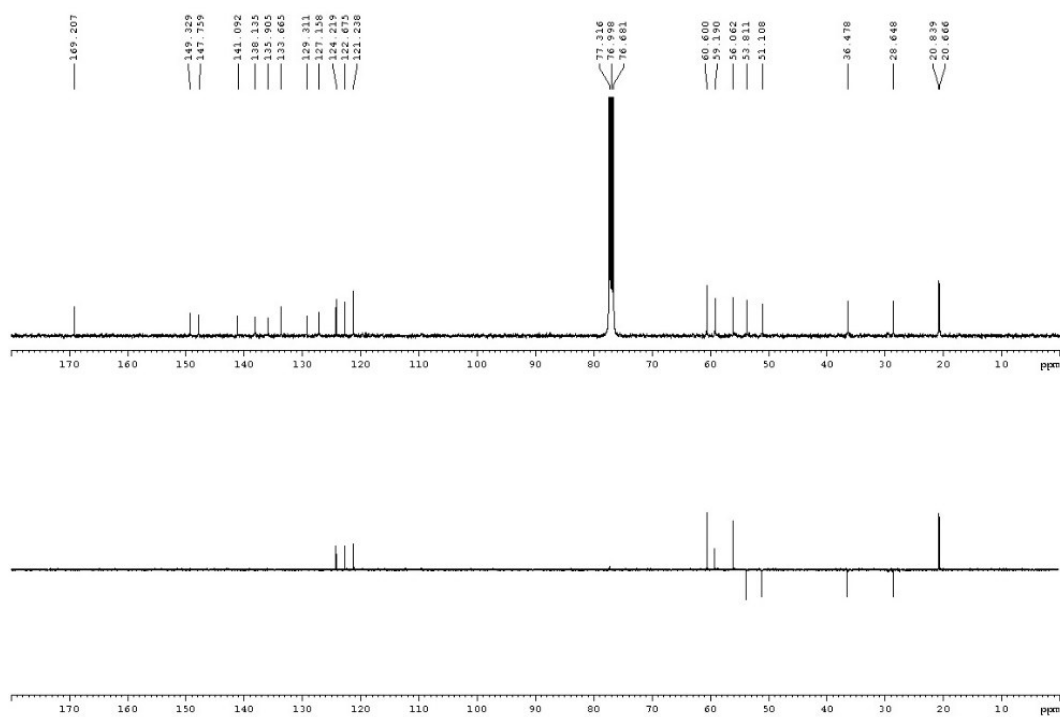


Figure S43. DEPT135 spectrum (CDCl₃, 100 MHz) of stephapierrine C (3)

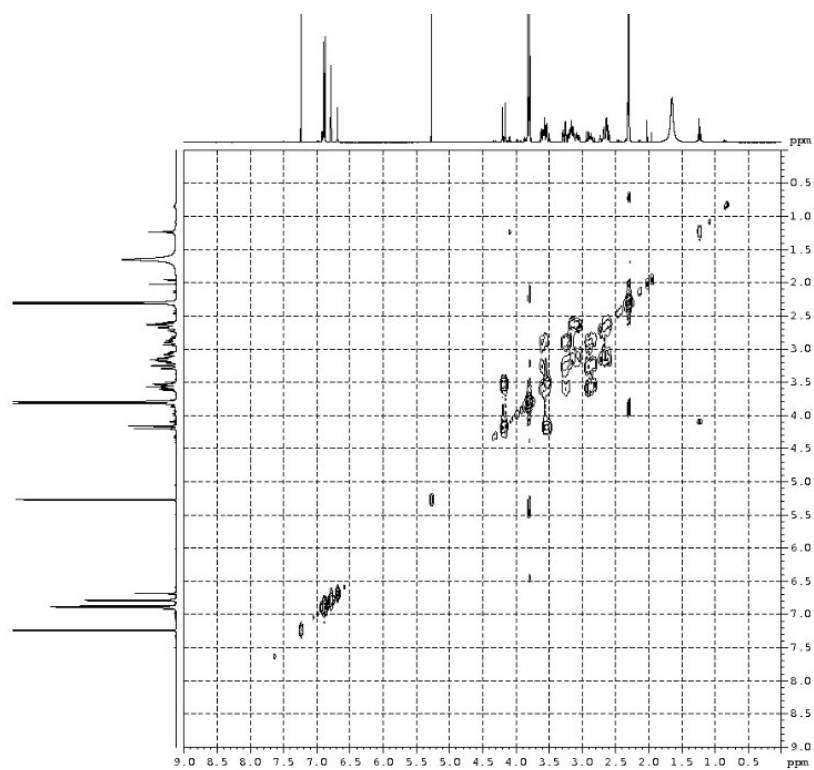


Figure S44. COSY spectrum of stephapierrine C (3) in CDCl₃

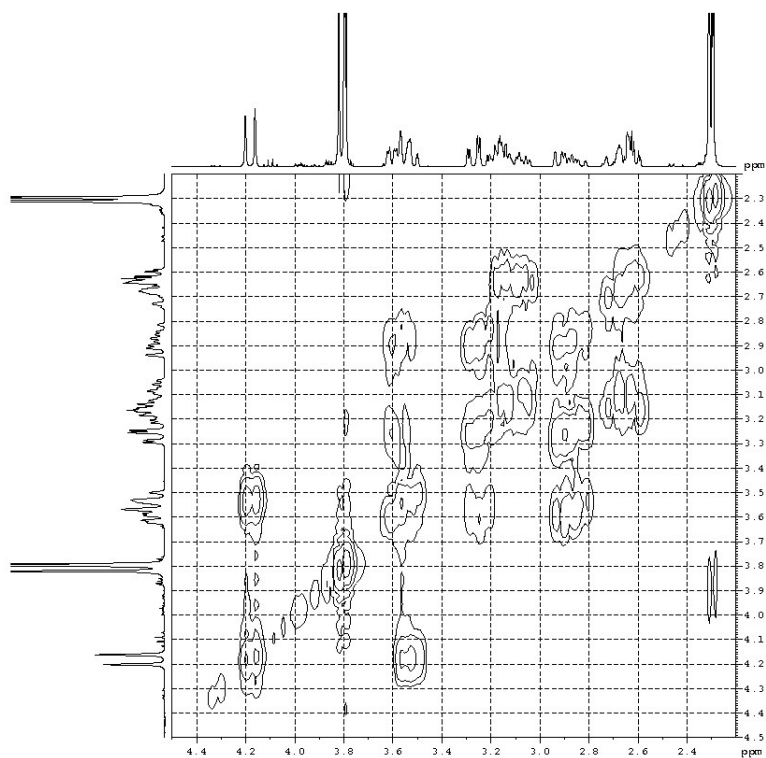


Figure S45. Expansion of COSY spectrum of stephapierrine C (**3**) in CDCl₃

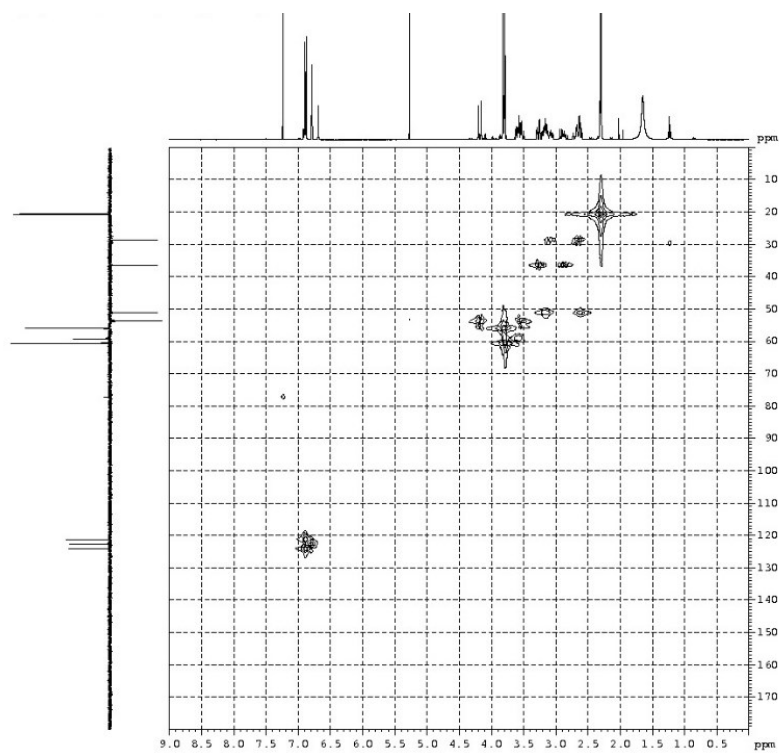


Figure S46. HMQC spectrum of stephapierrine C (**3**) in CDCl₃

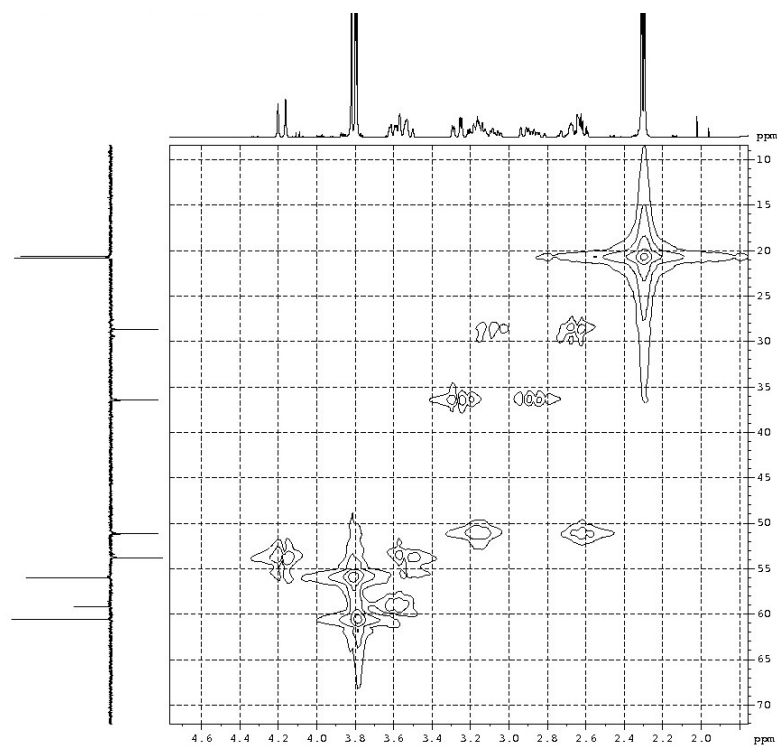


Figure S47. Expansion of HMQC spectrum of stephapierrine C (**3**) in CDCl₃ (1)

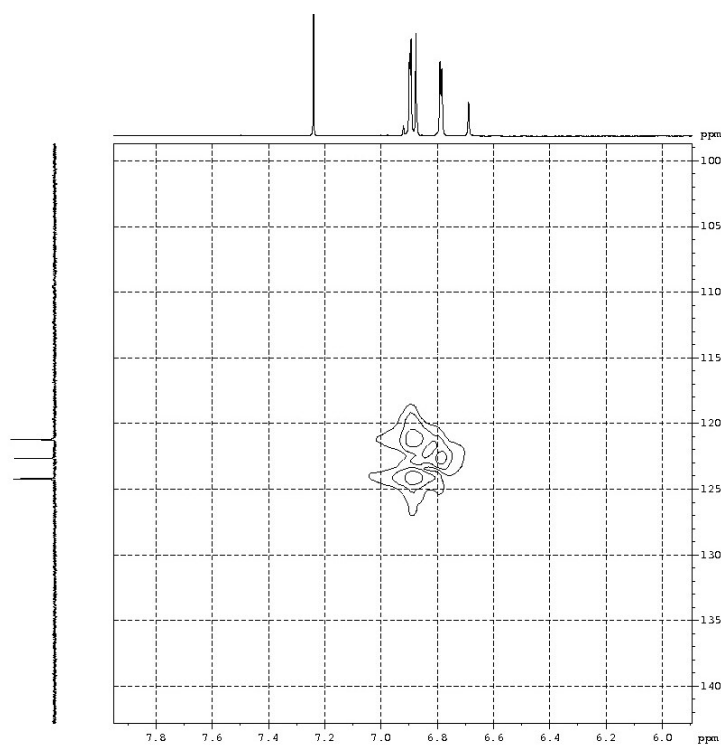


Figure S48. Expansion of HMQC spectrum of stephapierrine C (**3**) in CDCl₃ (2)

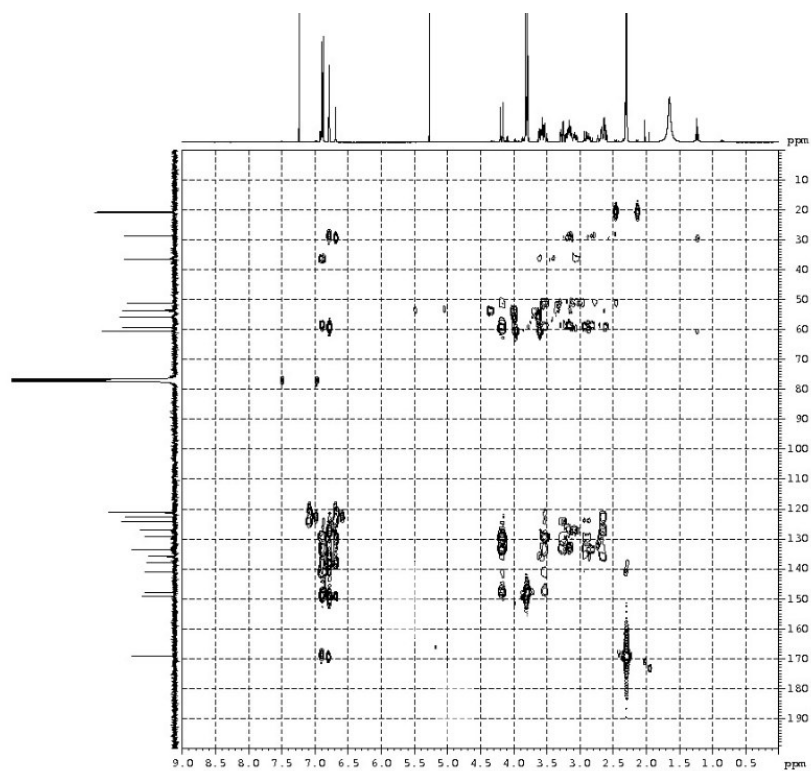


Figure S49. HMBC spectrum of stephapierrine C (3) in CDCl₃

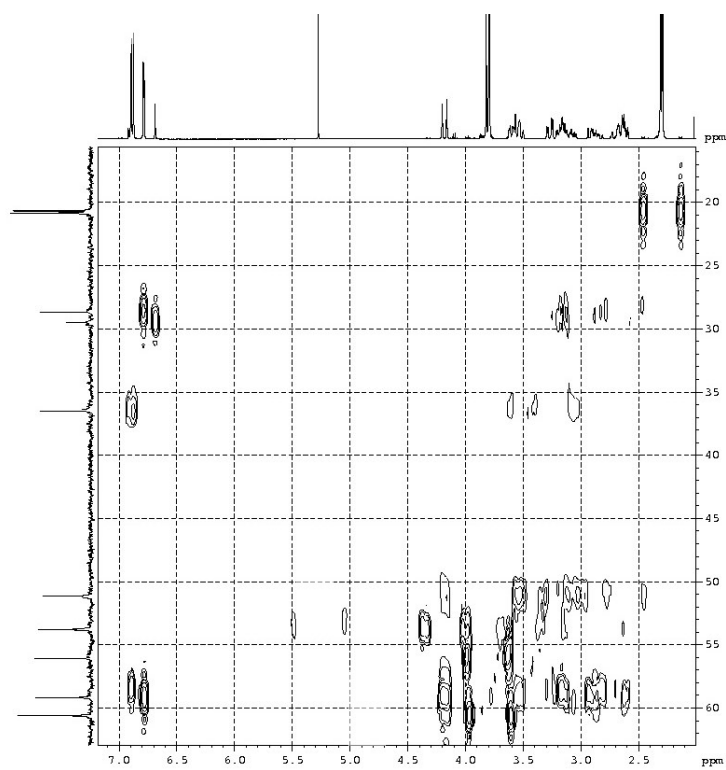


Figure S50. Expansion of HMBC spectrum of stephapierrine C (3) in CDCl₃ (1)

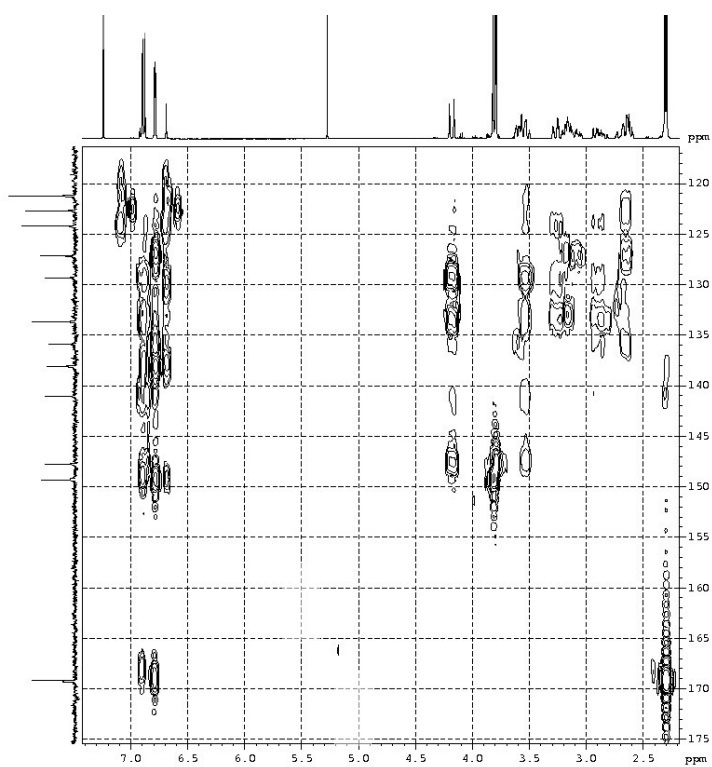


Figure S51. Expansion of HMBC spectrum of stephapierrine C (**3**) in CDCl_3 (**2**)

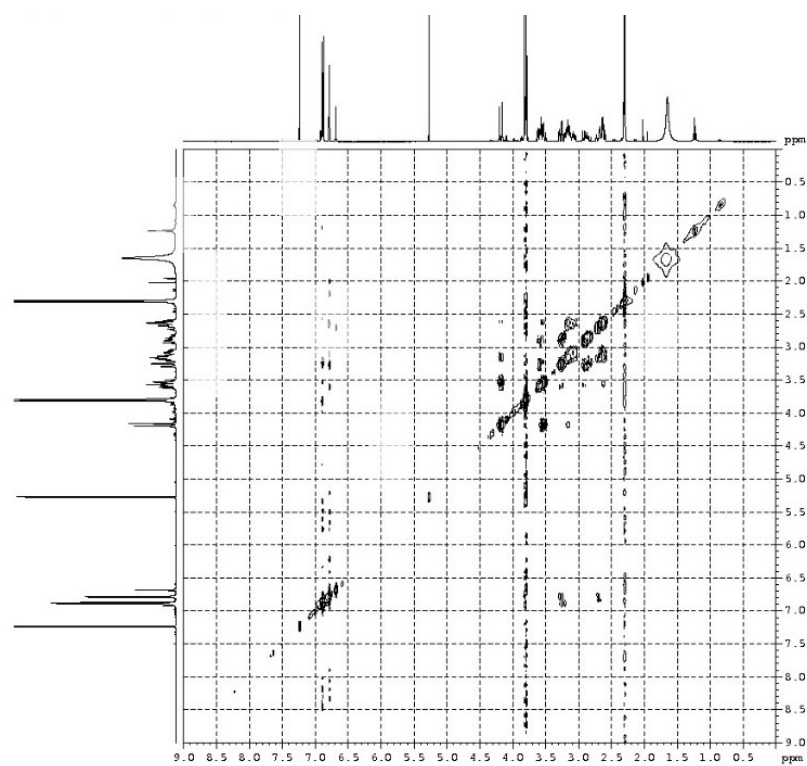


Figure S52. NOESY spectrum of stephapierrine C (**3**) in CDCl_3

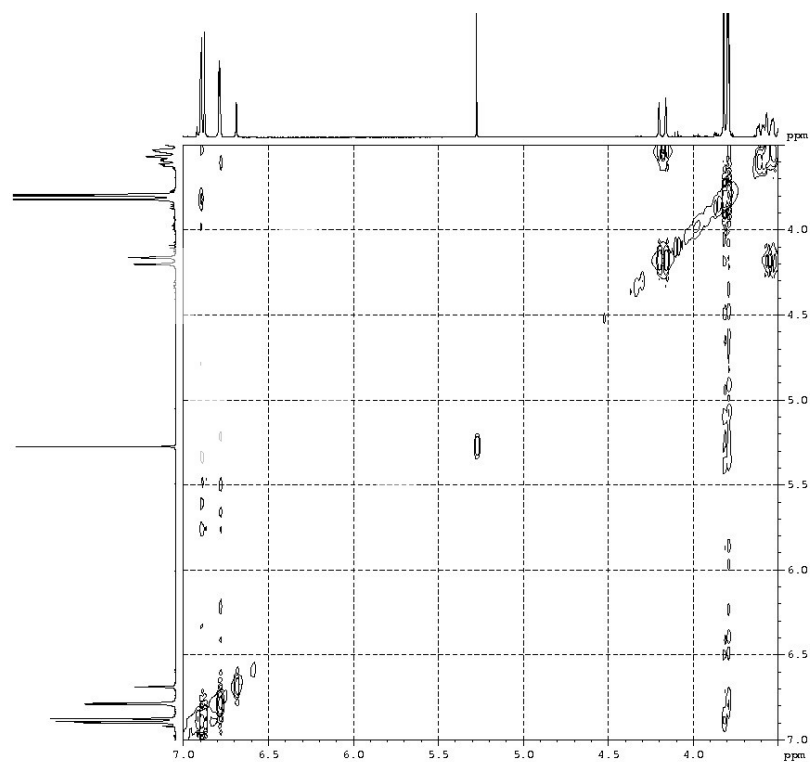


Figure S53. Expansion of NOESY spectrum of stephapierrine C (**3**) in CDCl₃ (1)

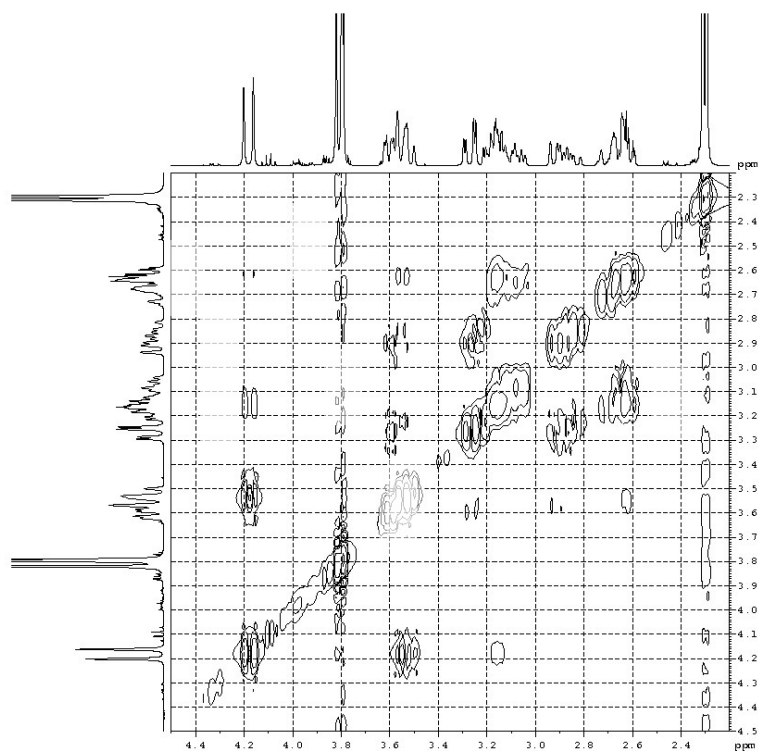


Figure S54. Expansion of NOESY spectrum of stephapierrine C (**3**) in CDCl₃ (2)

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date 12/7/2020 2:57:22 PM
Analysis Name	D:\Data\Apichart\ESI\AS-HRMS 1241 (pos).d	
Method	tune_wide-RU.m	Operator RU
Sample Name	AS-RU 19328	Instrument micrOTOF 8213750.10411
Comment		

Acquisition Parameter					
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	100 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste

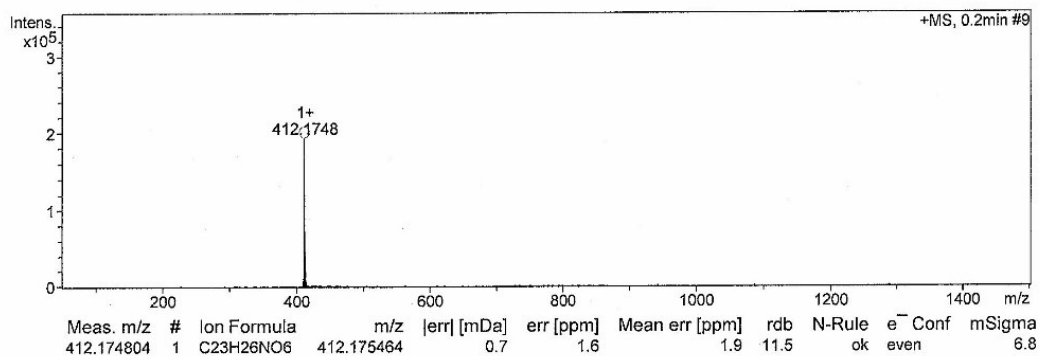
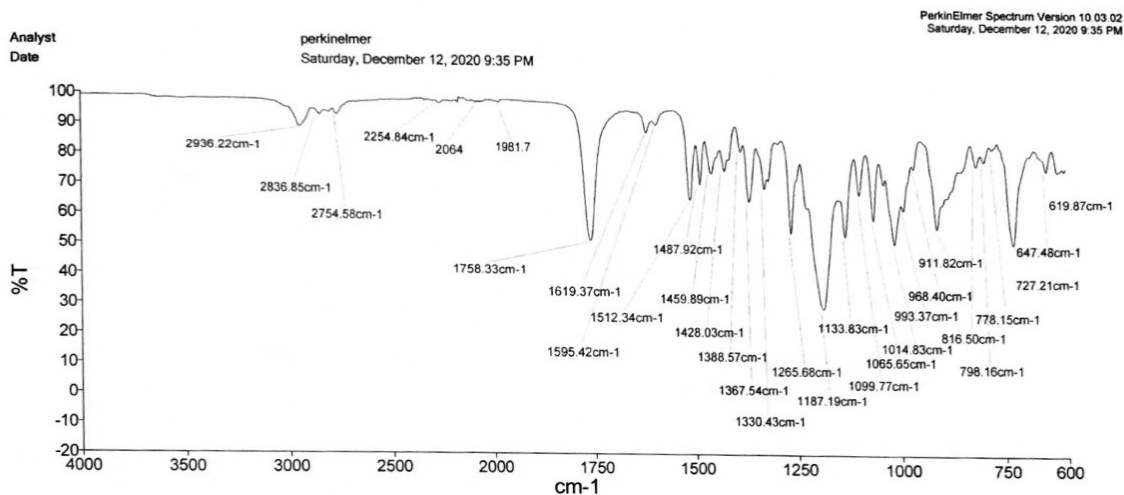


Figure S55. ESI-TOF-MS of stephapierrine C (3)



Sample Name	Description	Quality Checks
AS-IR1234	AS-RU19328	The Quality Checks do not report any warnings for the sample.

Figure S56. IR spectrum of stephapierrine C (3)

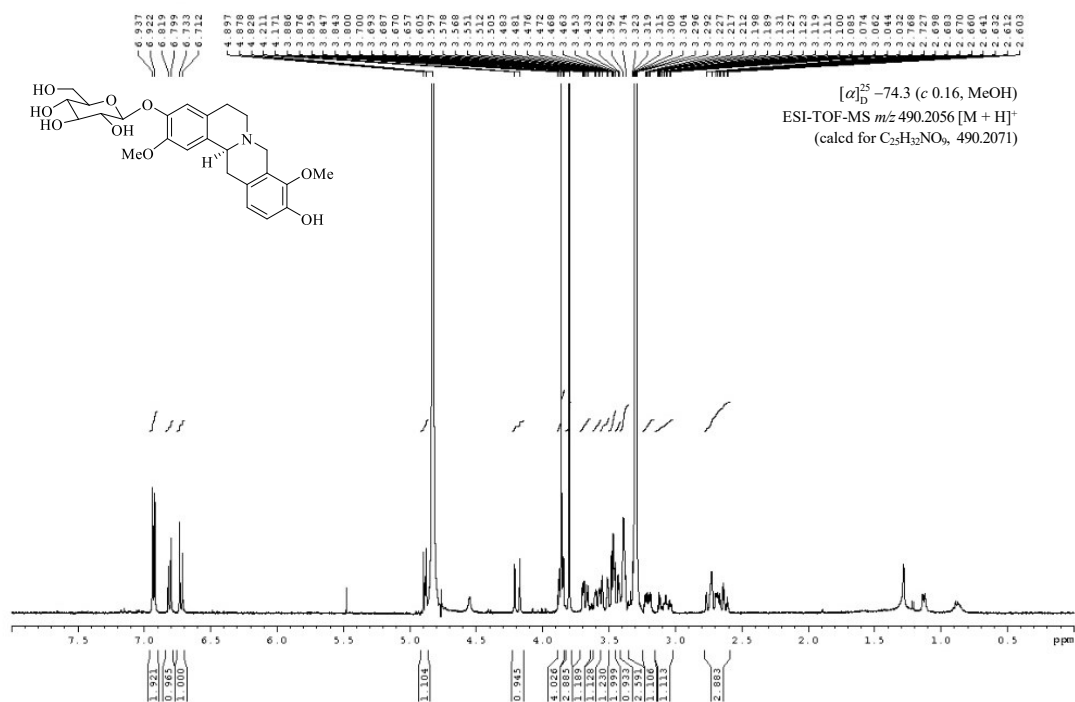


Figure S57. ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine D (4)

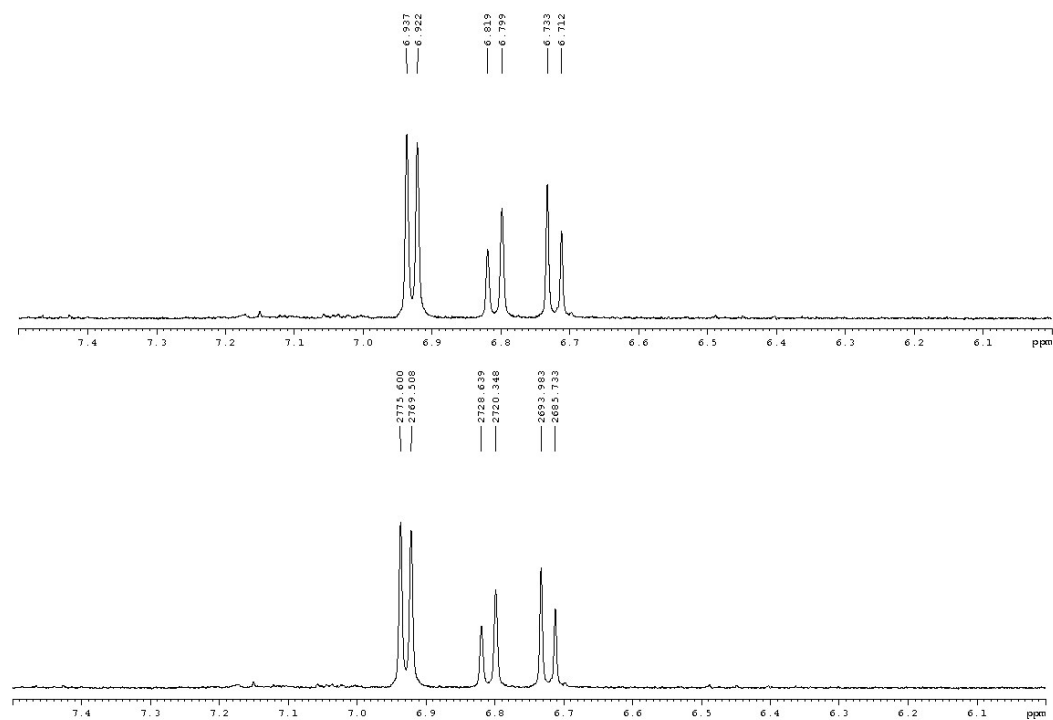


Figure S58. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine D (4) (1)

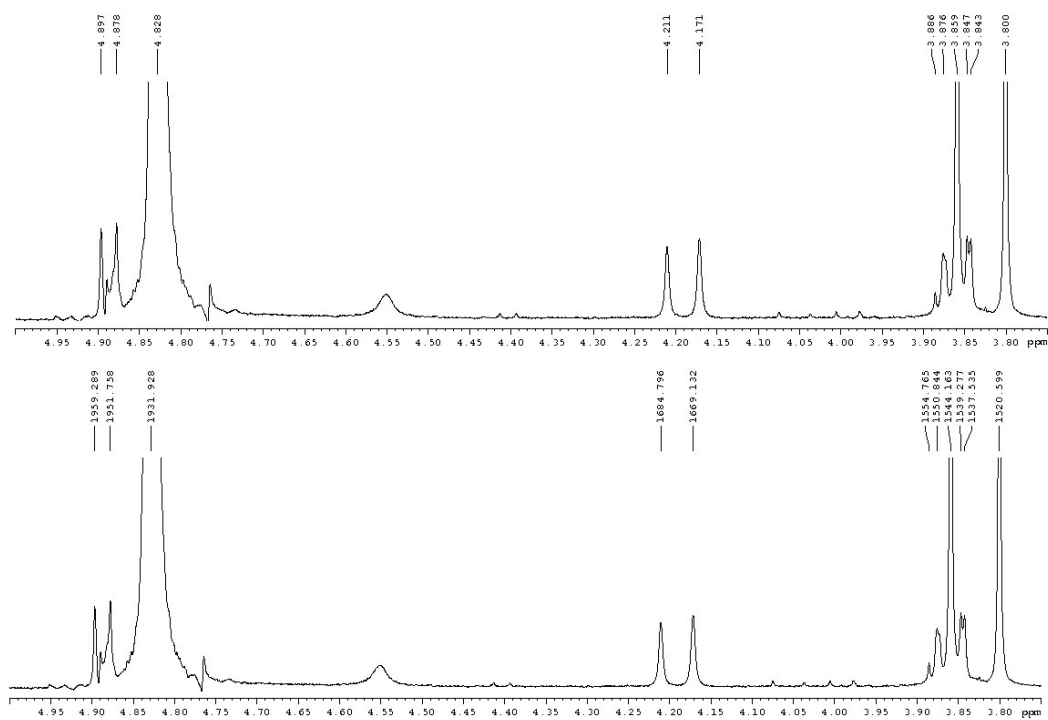


Figure S59. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine D (4) (2)

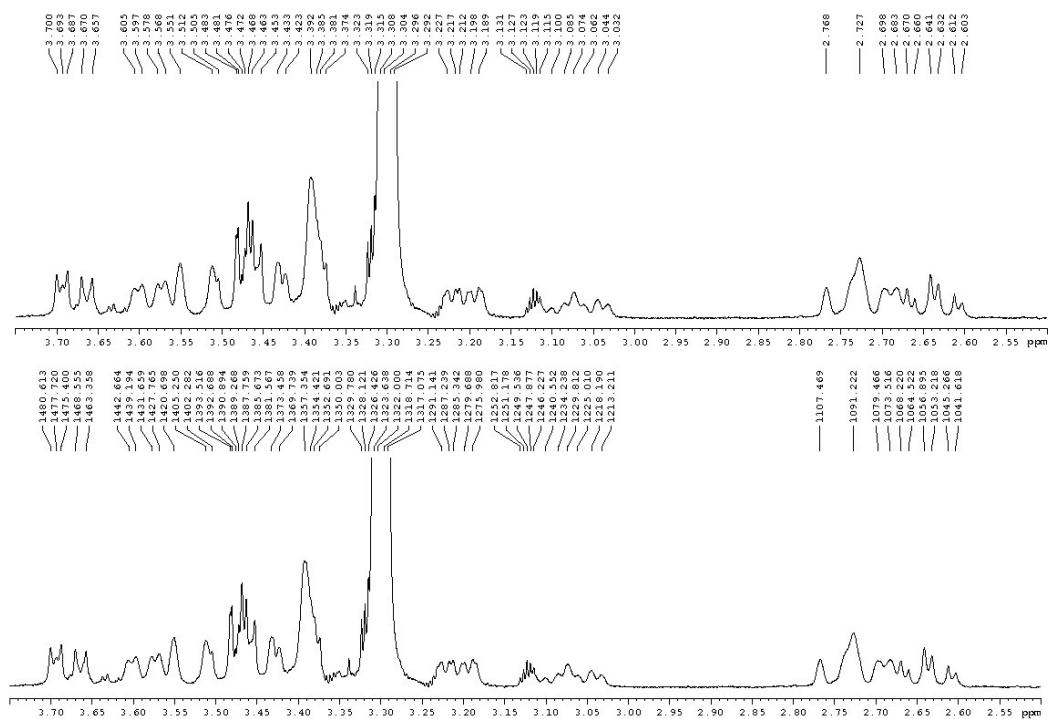


Figure S60. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine D (4) (3)

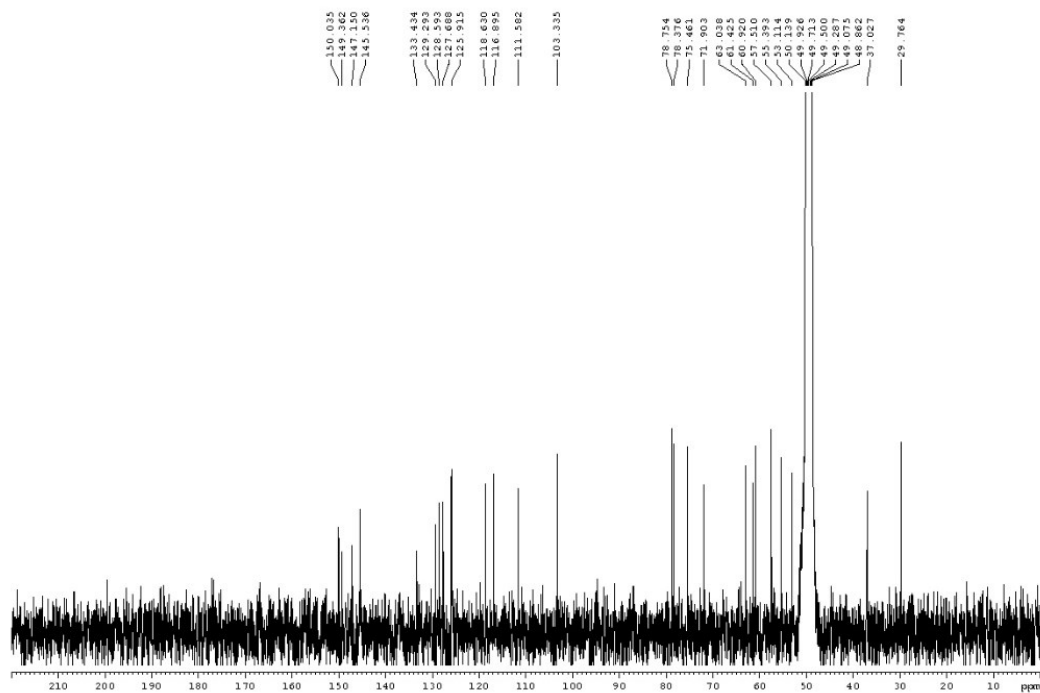


Figure S61. ¹³C NMR spectrum (CD₃OD, 100 MHz) of stephapierrine D (4)

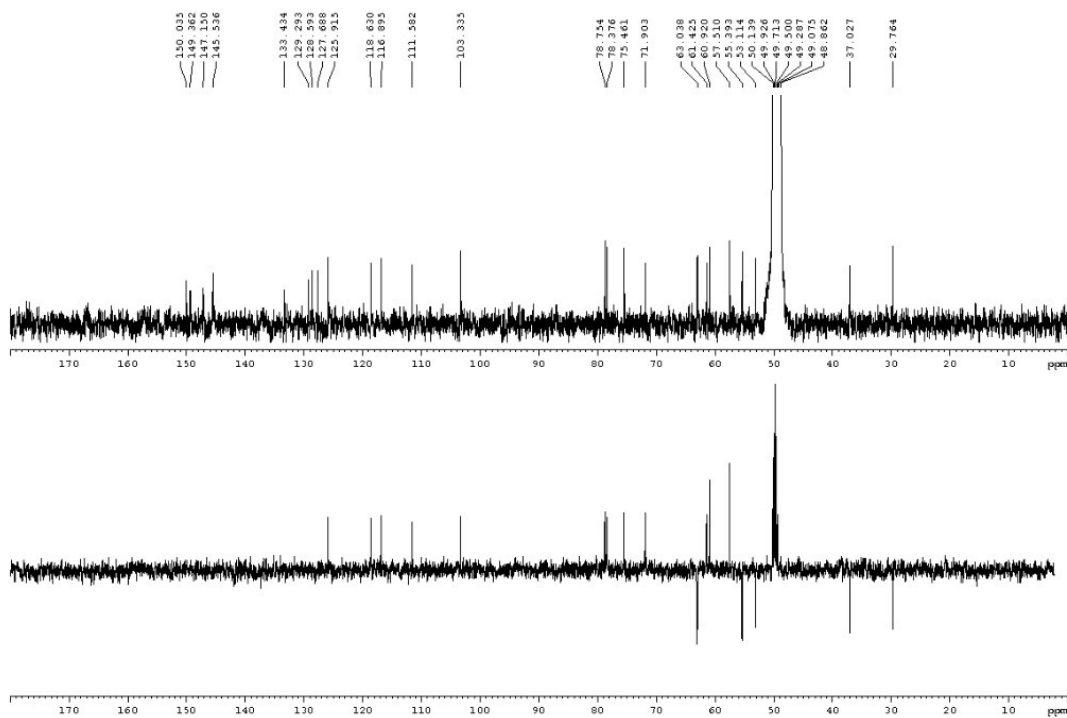


Figure S62. DEPT135 spectrum (CD₃OD, 100 MHz) of stephapierrine D (4)

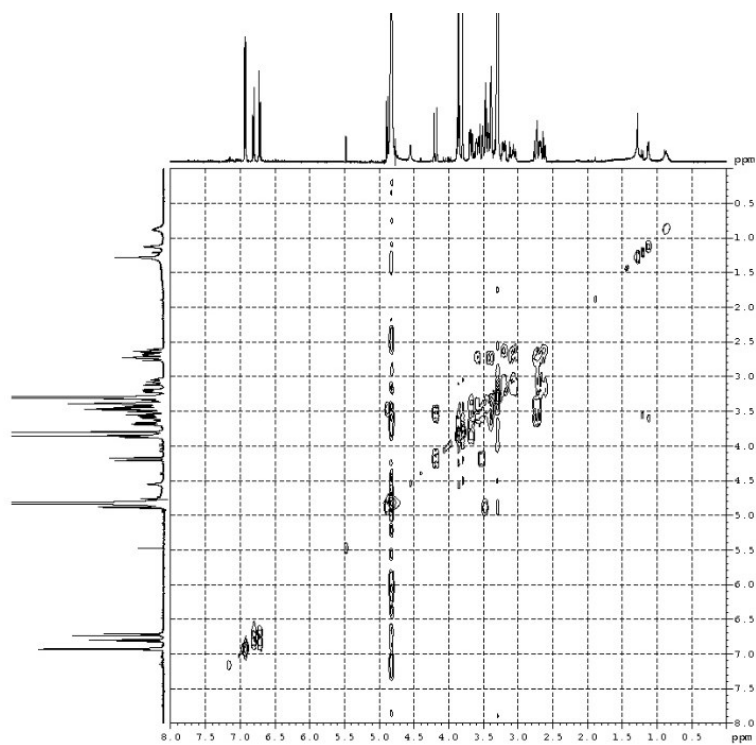


Figure S63. COSY spectrum of stephapierrine D (**4**) in CD₃OD

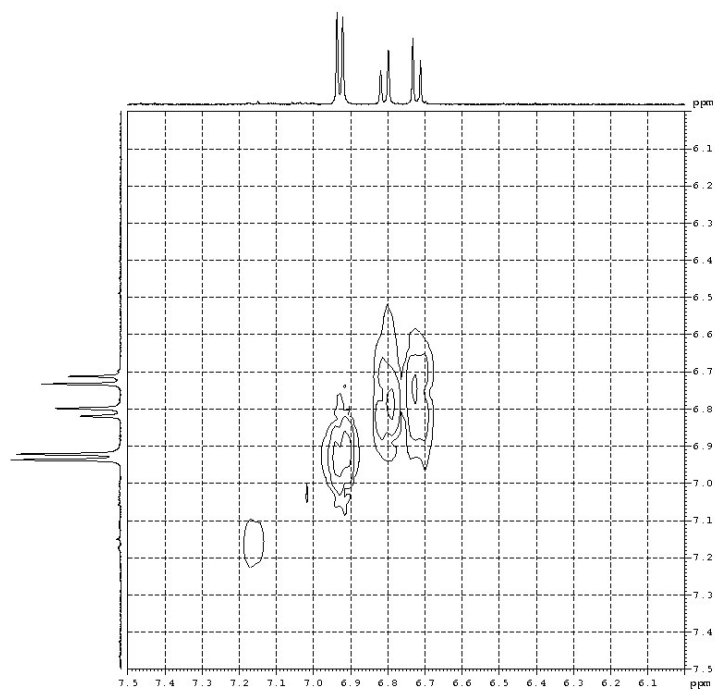


Figure S64. Expansion of COSY spectrum of stephapierrine D (**4**) in CD₃OD (1)

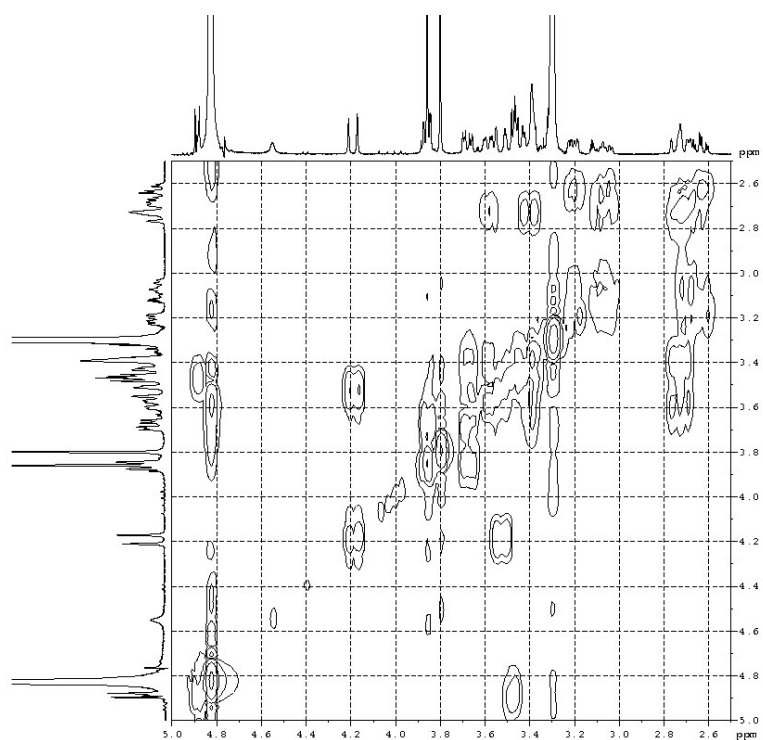


Figure S65. Expansion of COSY spectrum of stephapierrine D (**4**) in CD₃OD (2)

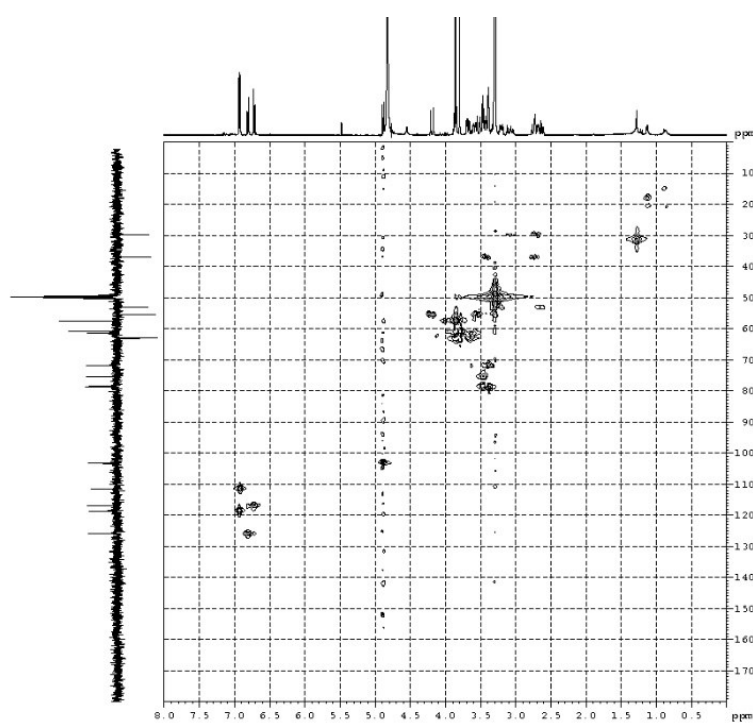


Figure S66. HMQC spectrum of stephapierrine D (**4**) in CD₃OD

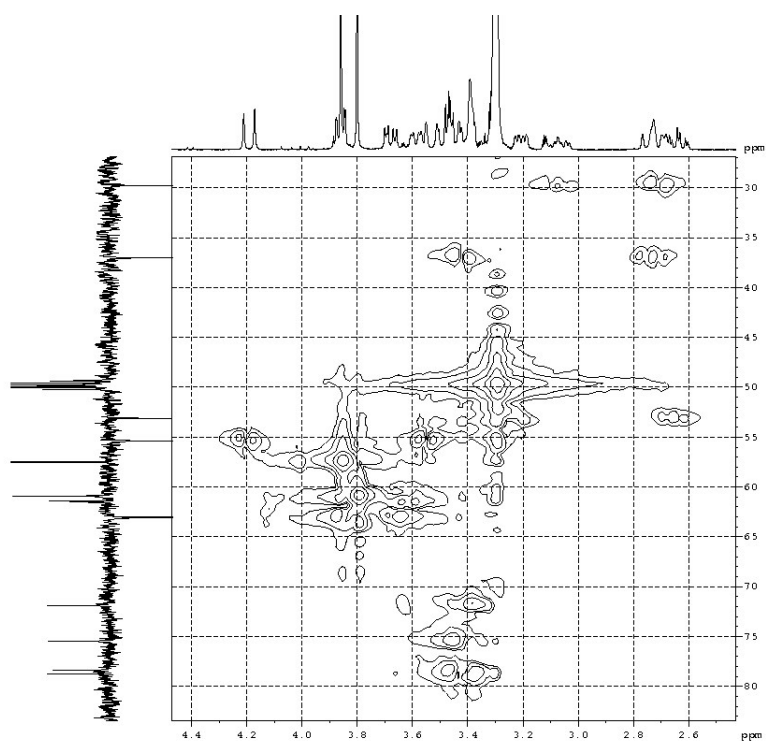


Figure S67. Expansion of HMQC spectrum of stephapierrine D (**4**) in CD₃OD (1)

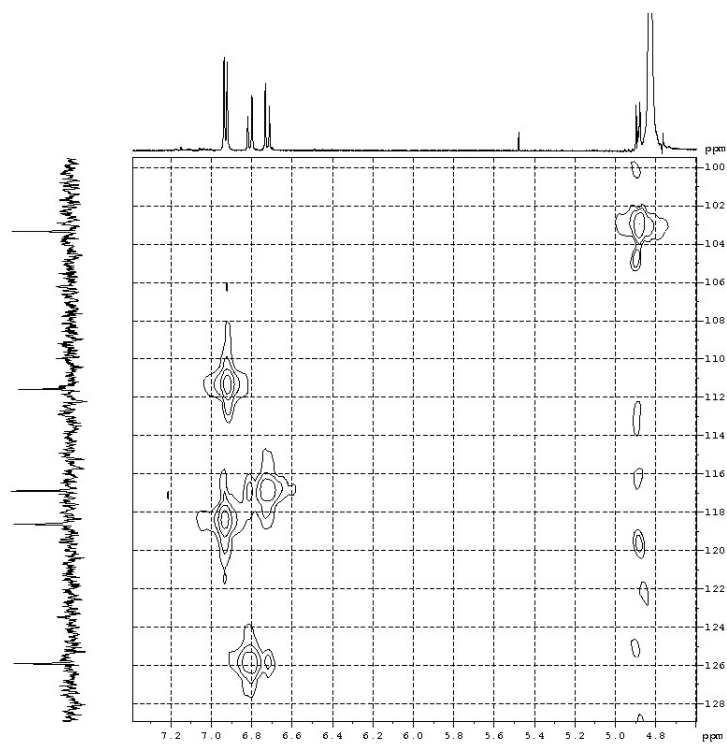


Figure S68. Expansion of HMQC spectrum of stephapierrine D (**4**) in CD₃OD (2)

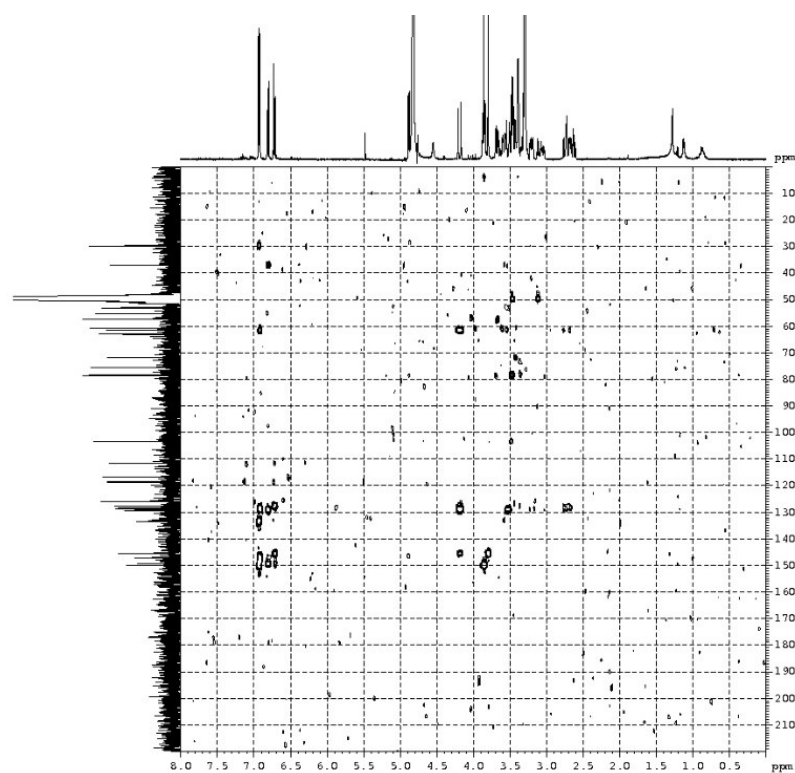


Figure S69. HMBC spectrum of stephapierrine D (**4**) in CD₃OD

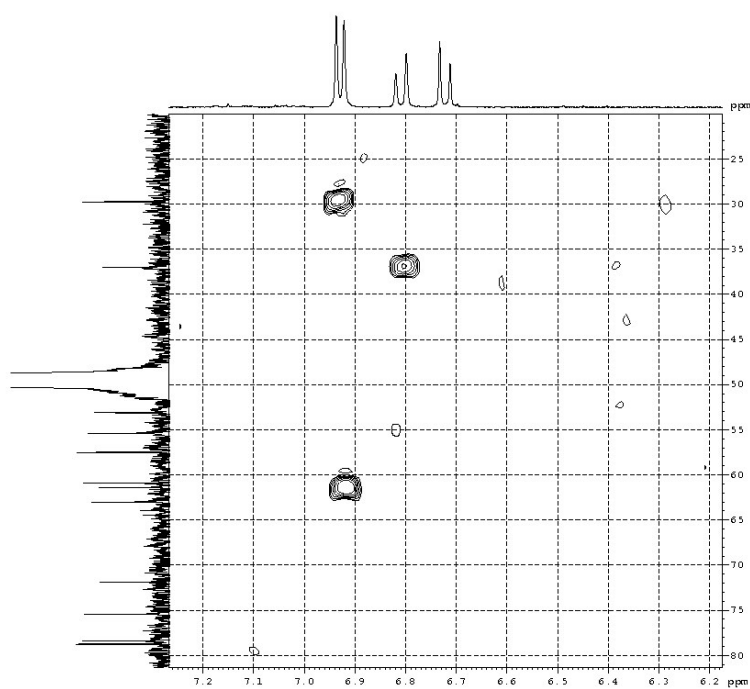


Figure S70. Expansion of HMBC spectrum of stephapierrine D (**4**) in CD₃OD (1)

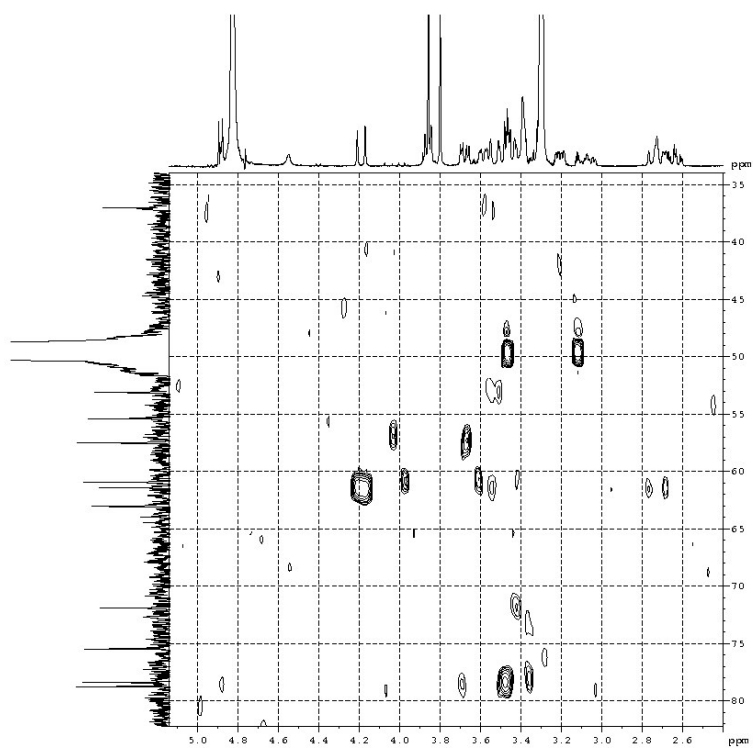


Figure S71. Expansion of HMBC spectrum of stephapierrine D (**4**) in CD₃OD (2)

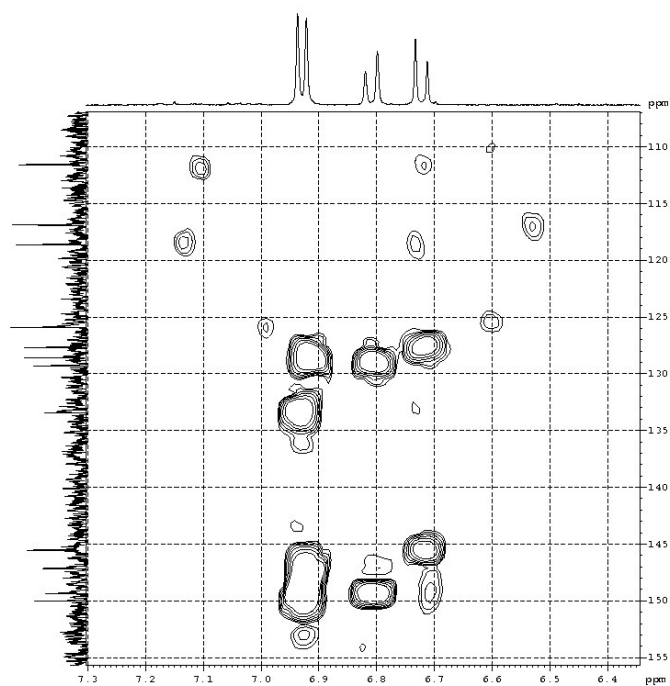


Figure S72. Expansion of HMBC spectrum of stephapierrine D (**4**) in CD₃OD (3)

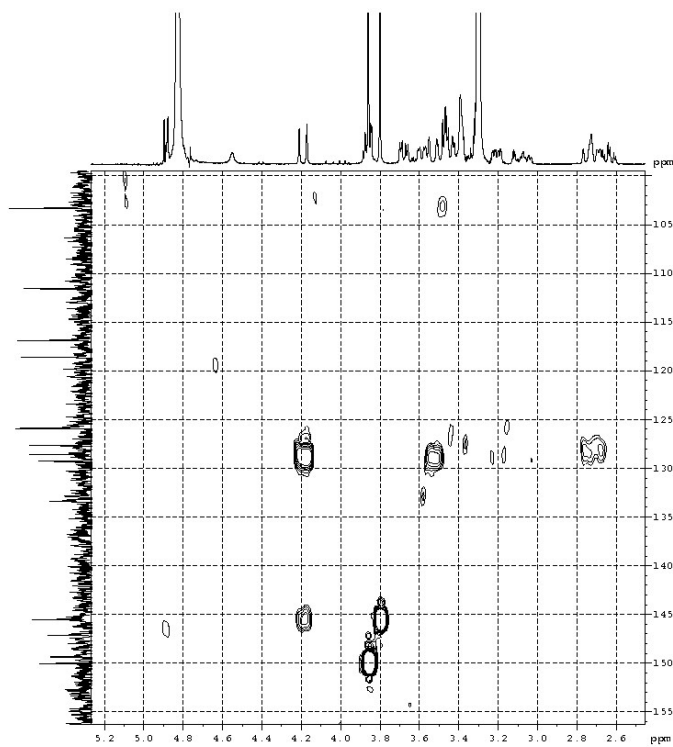


Figure S73. Expansion of HMBC spectrum of stephapierrine D (**4**) in CD₃OD (**4**)

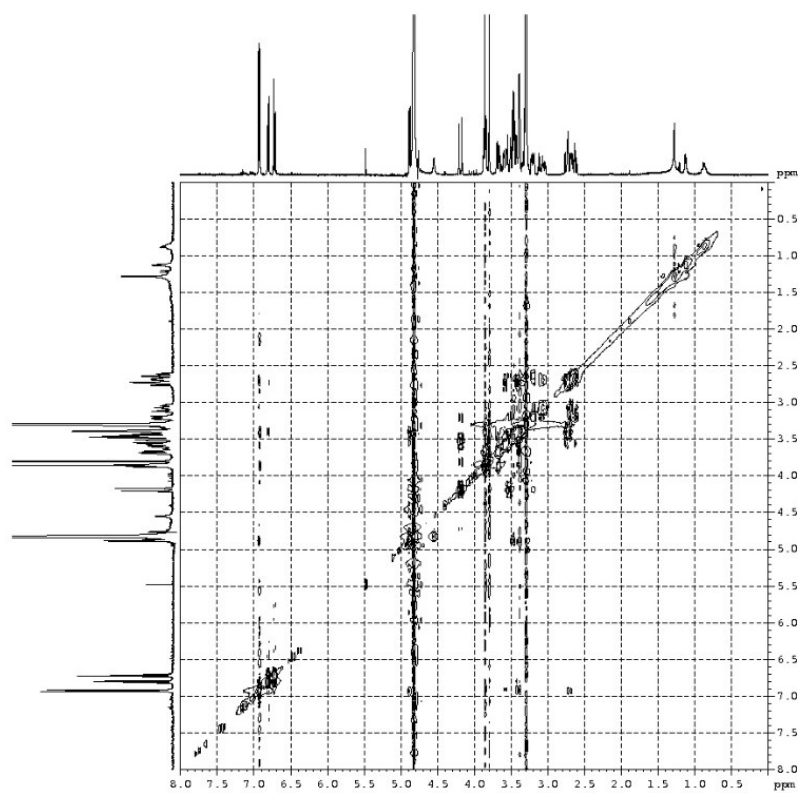


Figure S74. NOESY spectrum of stephapierrine D (**4**) in CD₃OD

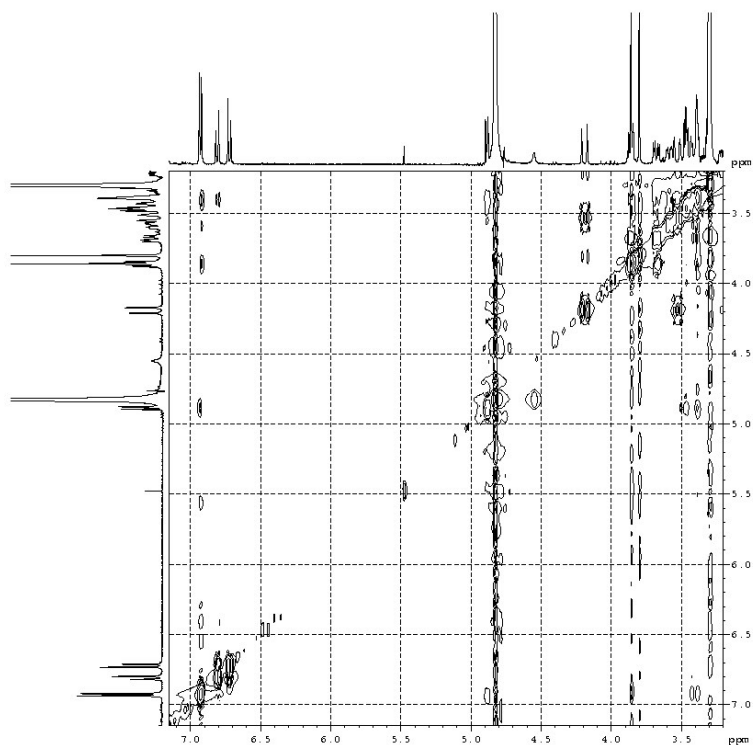


Figure S75. Expansion of NOESY spectrum of stephapierrine D (**4**) in CD₃OD (1)

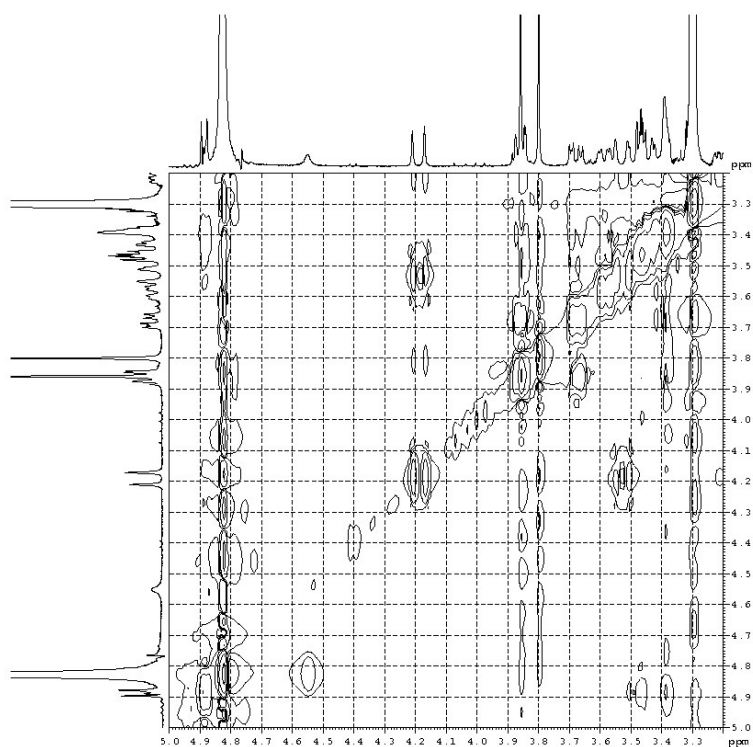


Figure S76. Expansion of NOESY spectrum of stephapierrine D (**4**) in CD₃OD (2)

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date	12/7/2020 3:02:12 PM	
Analysis Name	D:\Data\Apichart\ESI\AS-HRMS 1244 (pos).d	Operator	RU	
Method	tune_wide-RU.m	Instrument	micrOTOF	8213750.10411
Sample Name	AS-RU 19500	Comment		

Acquisition Parameter					
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	100 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste

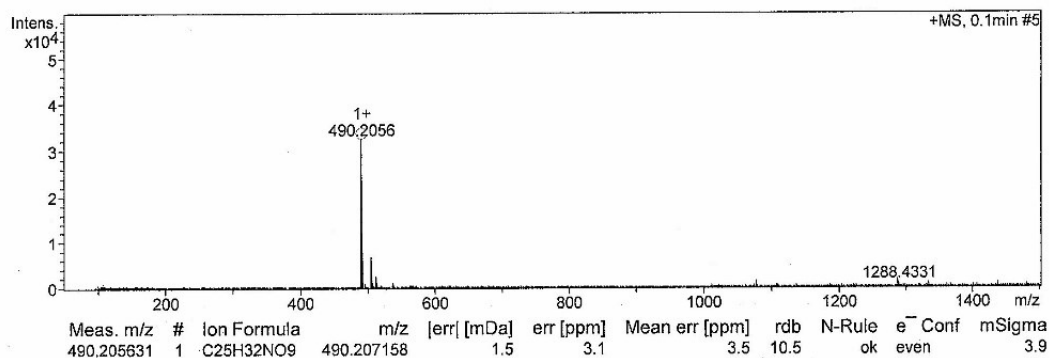


Figure S77. ESI-TOF-MS of stephapierrine D (4)

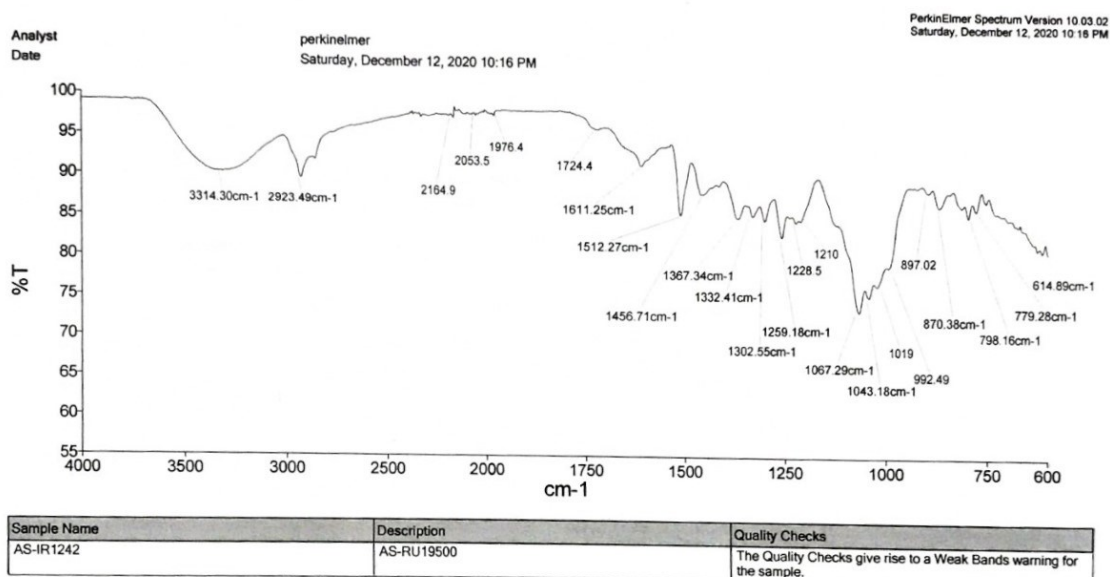


Figure S78. IR spectrum of stephapierrine D (4)

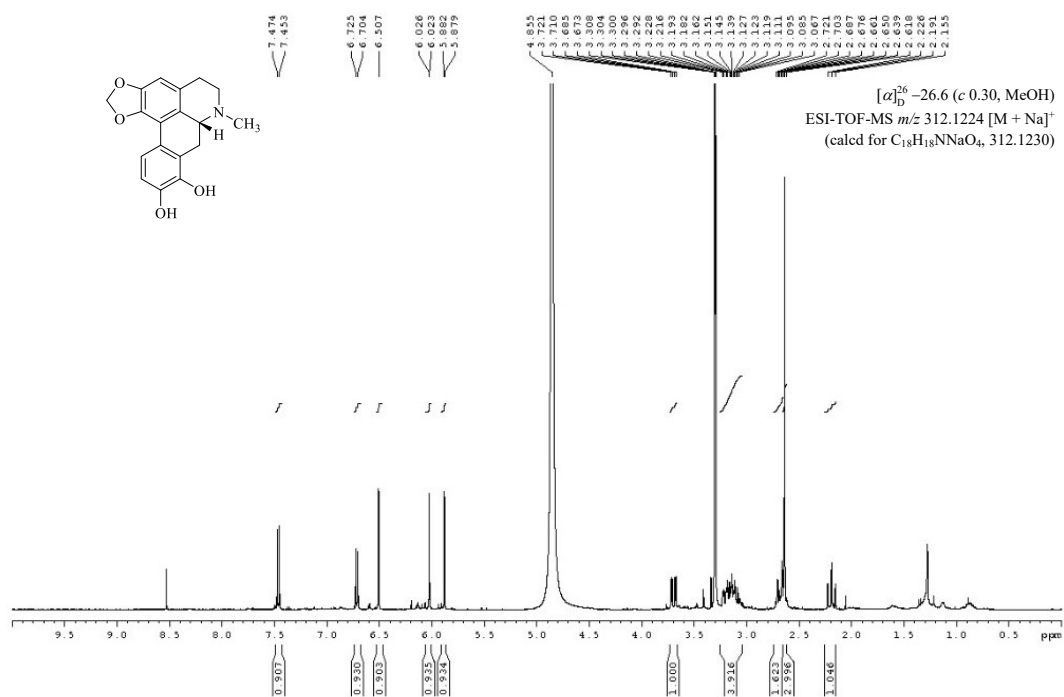


Figure S79. ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine E (5)

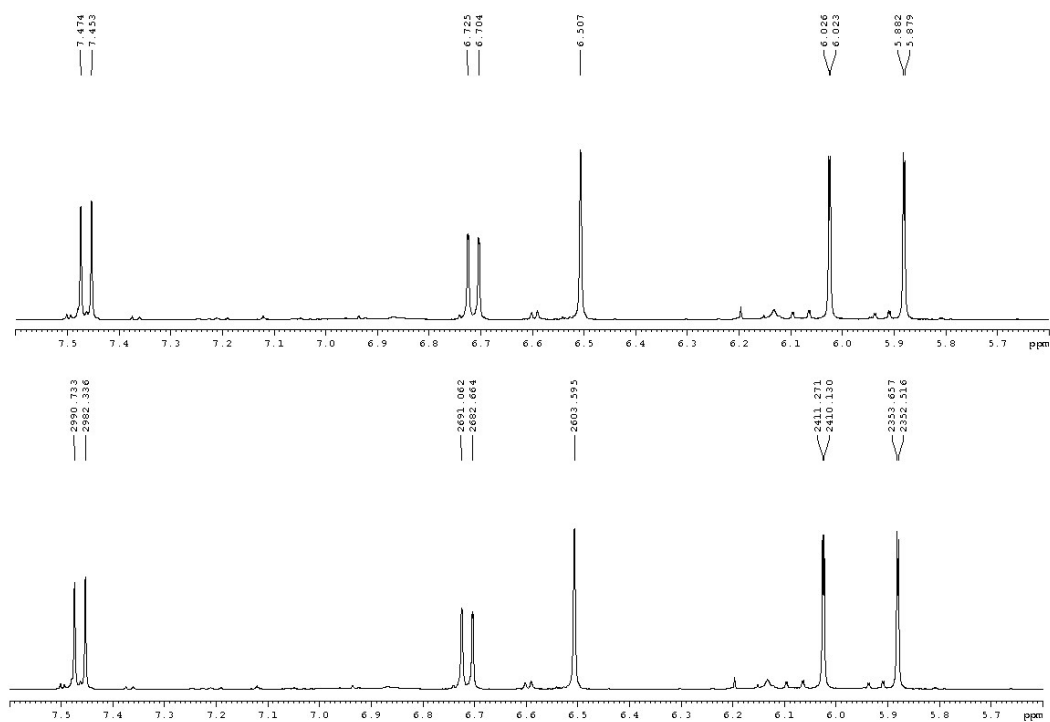


Figure S80. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine E (5) (1)

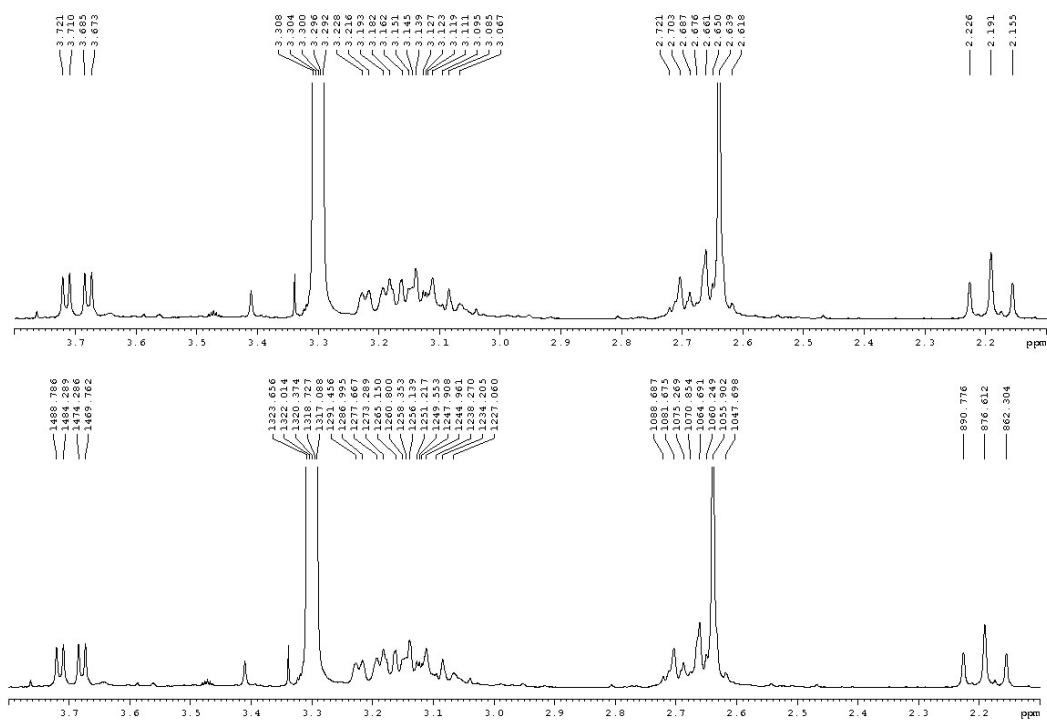


Figure S81. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine E (**5**) (2)

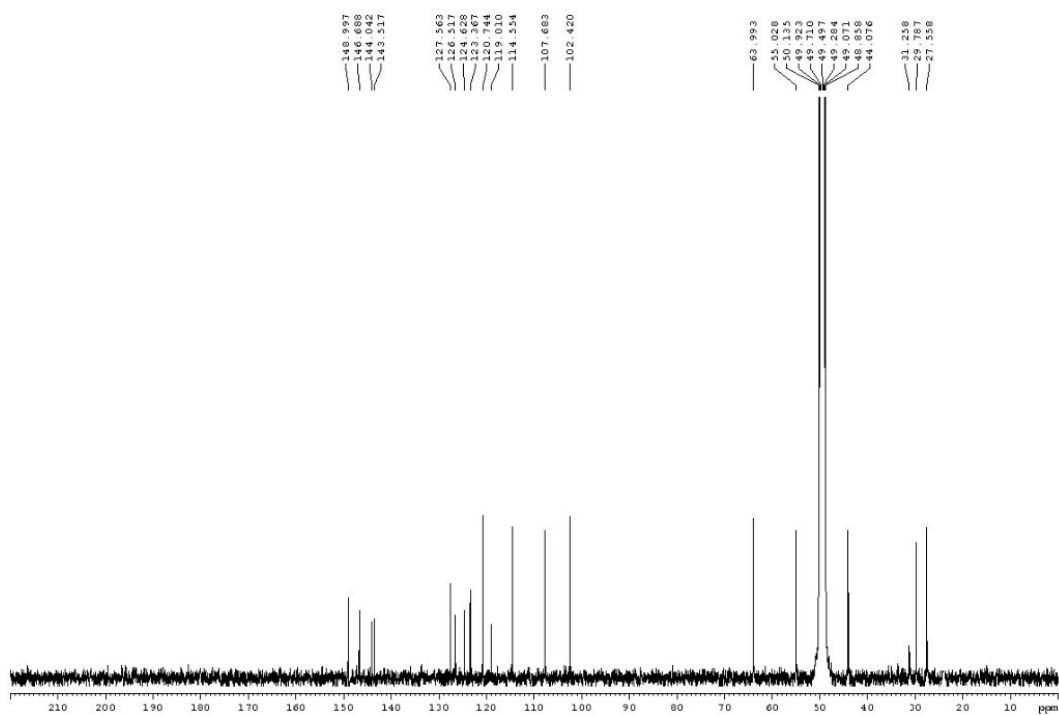


Figure S82. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of stephapierrine E (**5**)

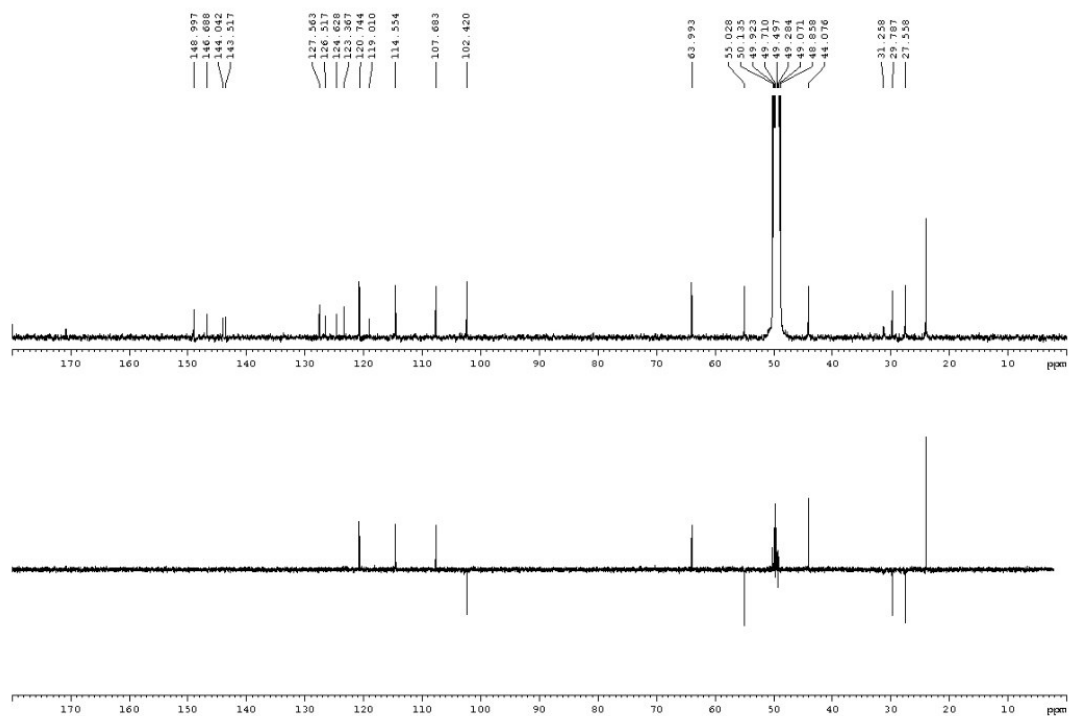


Figure S83. DEPT135 spectrum (CD_3OD , 100 MHz) of stephapierrine E (**5**)

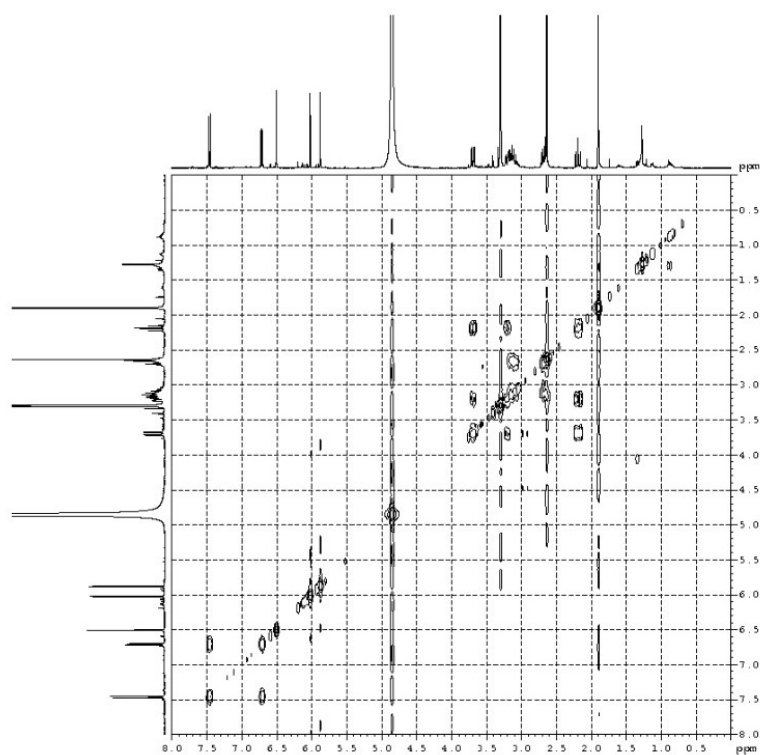


Figure S84. COSY spectrum of stephapierrine E (**5**) in CD_3OD

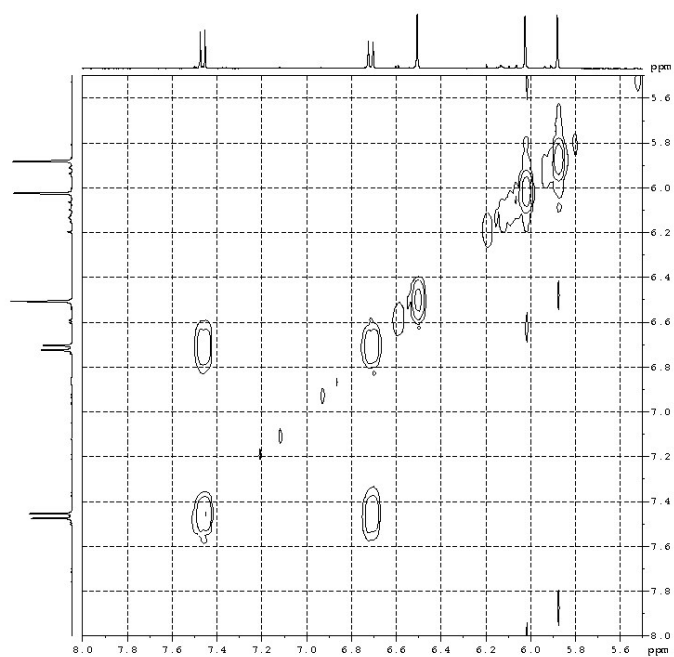


Figure S85. Expansion of COSY spectrum of stephapierrine E (**5**) in CD₃OD (1)

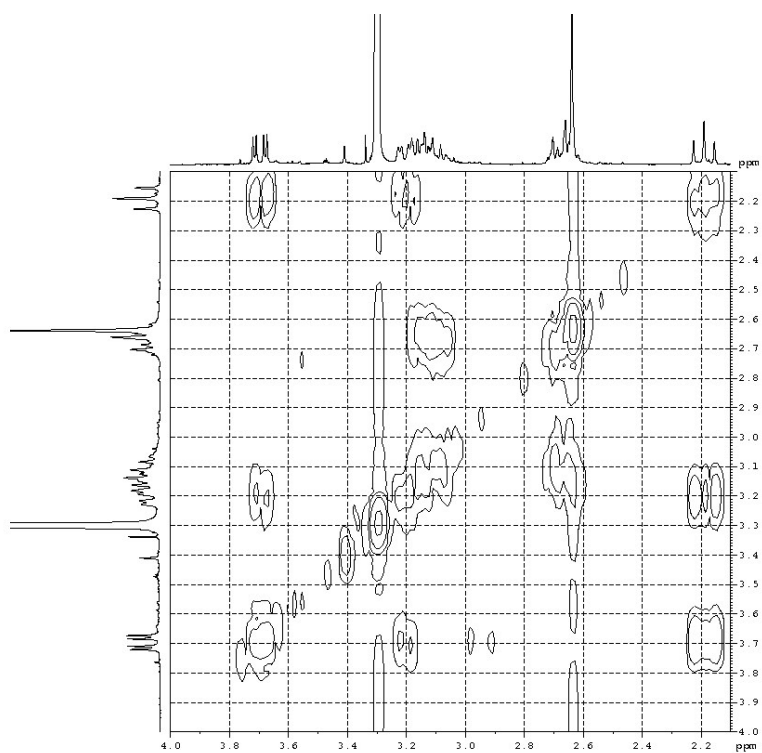


Figure S86. Expansion of COSY spectrum of stephapierrine E (**5**) in CD₃OD (2)

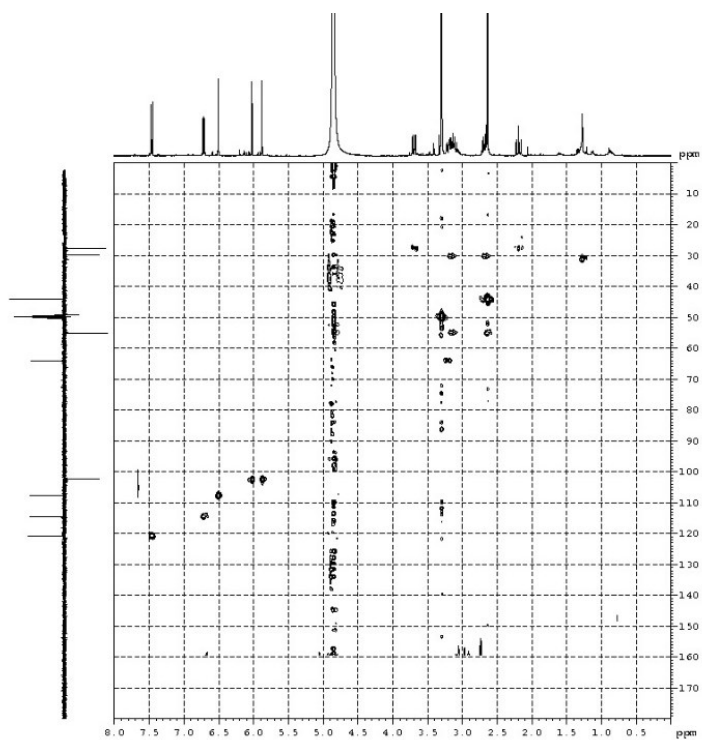


Figure S87. HMQC spectrum of stephapierrine E (**5**) in CD₃OD

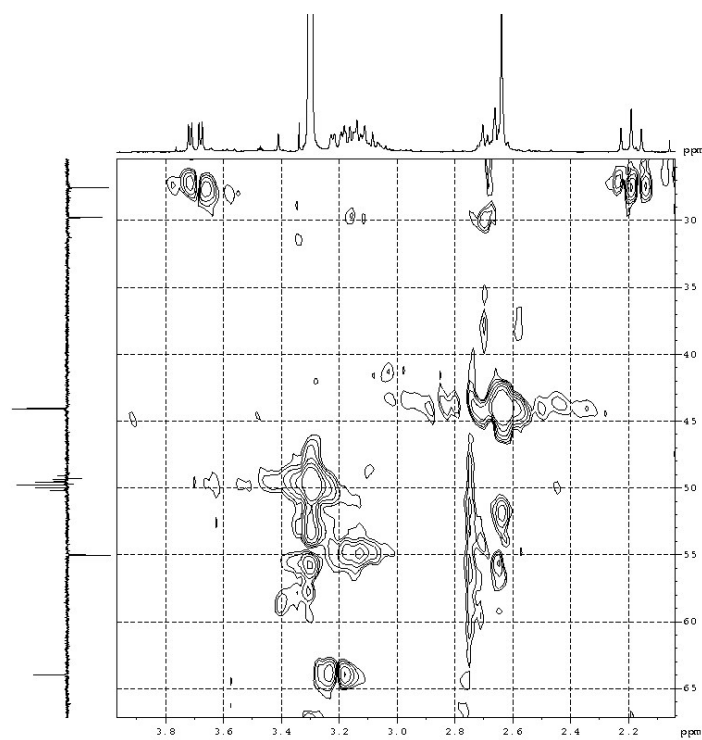


Figure S88. Expansion of HMQC spectrum of stephapierrine E (**5**) in CD₃OD (1)

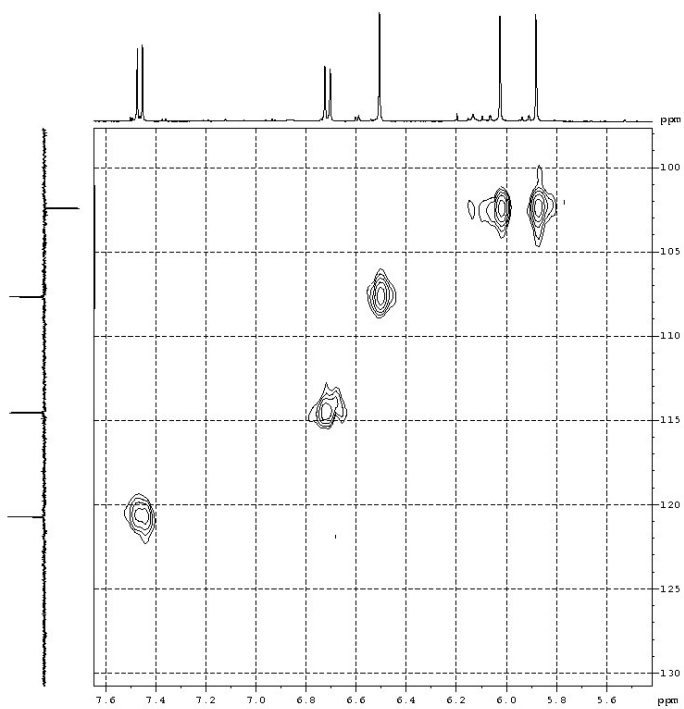


Figure S89. Expansion of HMQC spectrum of stephapierrine E (**5**) in CD₃OD (2)

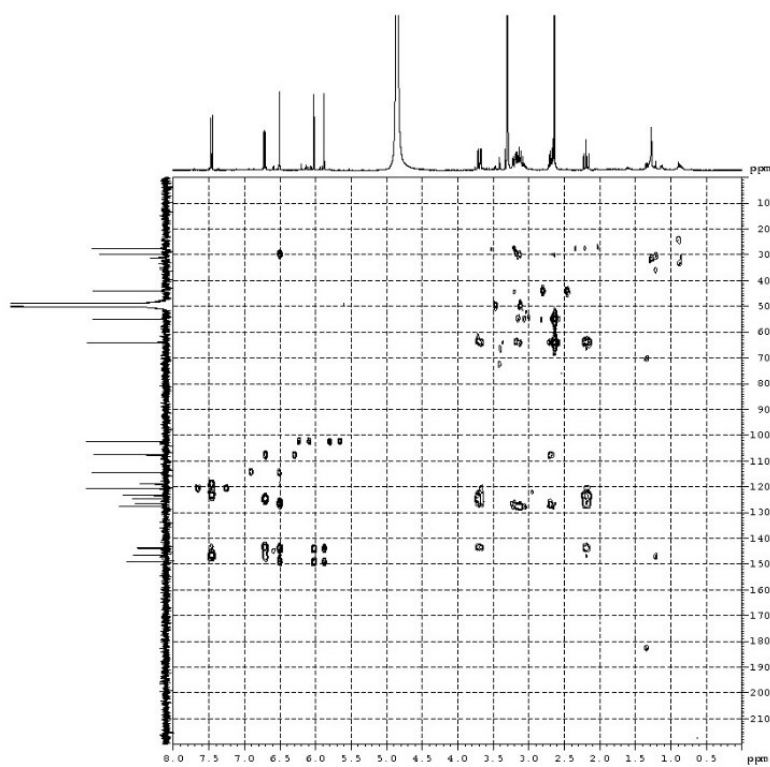


Figure S90. HMBC spectrum of stephapierrine E (**5**) in CD₃OD

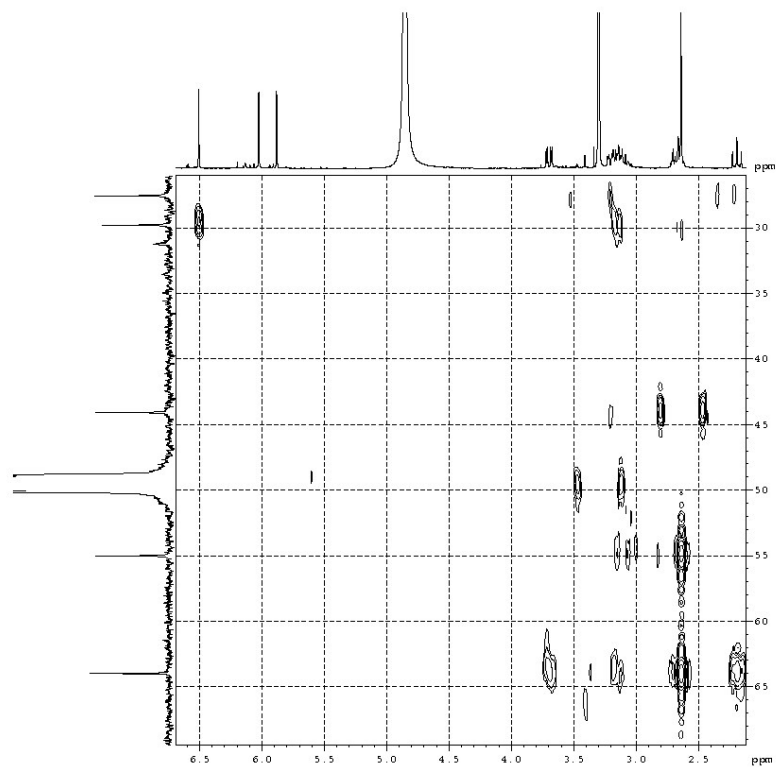


Figure S91. Expansion of HMBC spectrum of stephapierrine E (**5**) in CD₃OD (1)

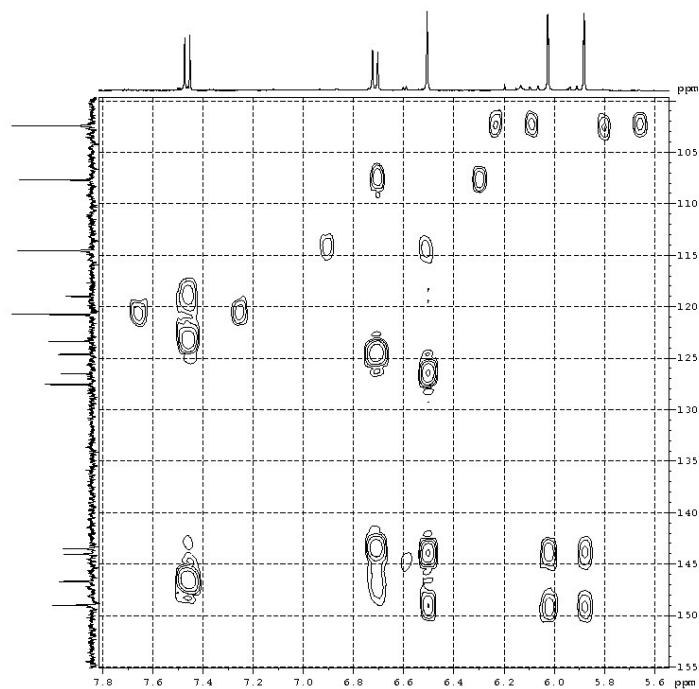


Figure S92. Expansion of HMBC spectrum of stephapierrine E (**5**) in CD₃OD (2)

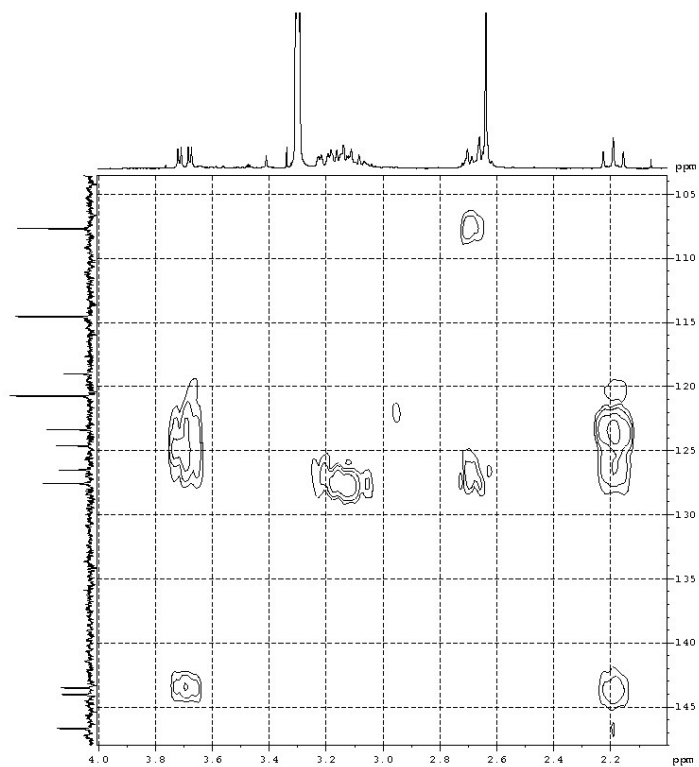


Figure S93. Expansion of HMBC spectrum of stephapierrine E (**5**) in CD₃OD (**3**)

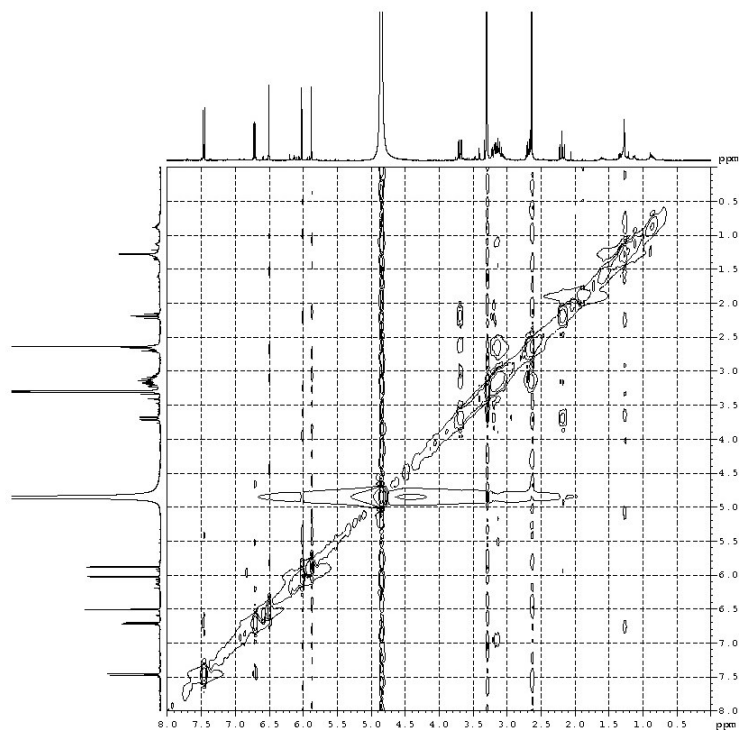


Figure S94. NOESY spectrum of stephapierrine E (**5**) in CD₃OD

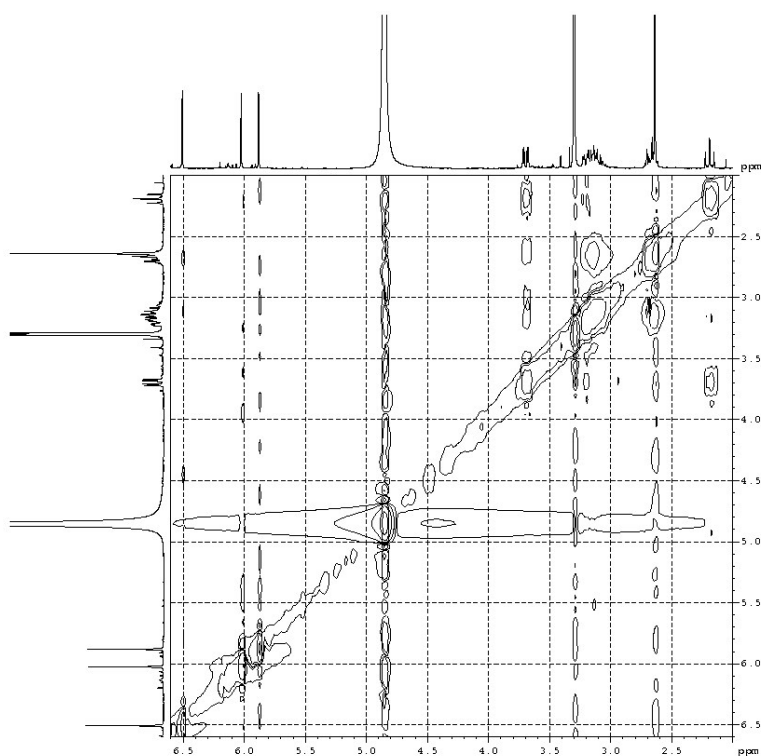


Figure S95. Expansion of NOESY spectrum of stephapierrine E (5) in CD₃OD

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date		12/7/2020 3:58:43 PM	
Analysis Name	D:\Data\Apichart\ESI\AS-HRMS 1278 (pos).d	Operator	RU	Instrument	micrOTOF 8213760.10411
Method	tune_wide-RU.m				
Sample Name	AS-RU 19308				
Comment					
Acquisition Parameter					
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	100 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste

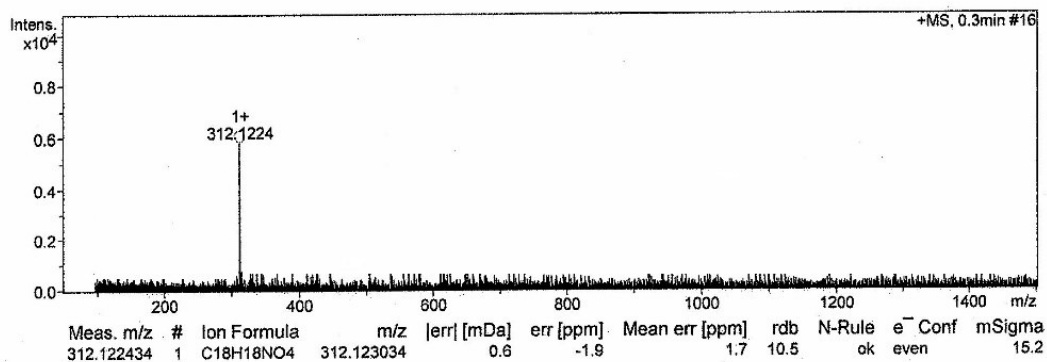


Figure S96. ESI-TOF-MS of stephapierrine E (5)

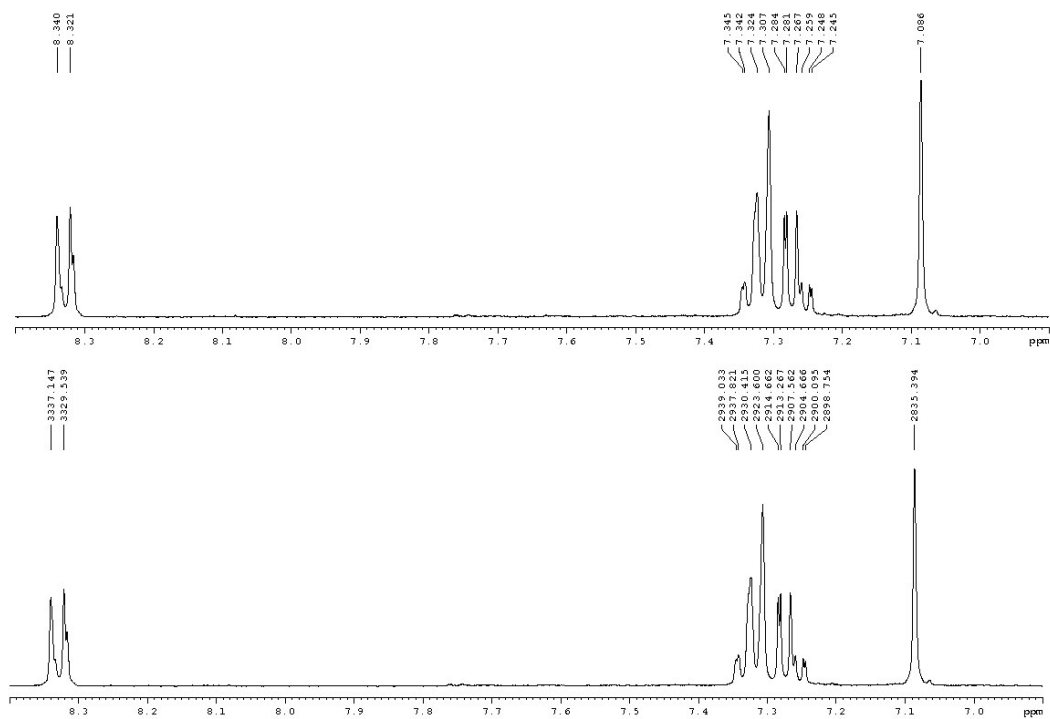


Figure S99. Expansion of ^1H NMR spectrum (CD₃OD, 400 MHz) of stephapierrine F (6) (1)

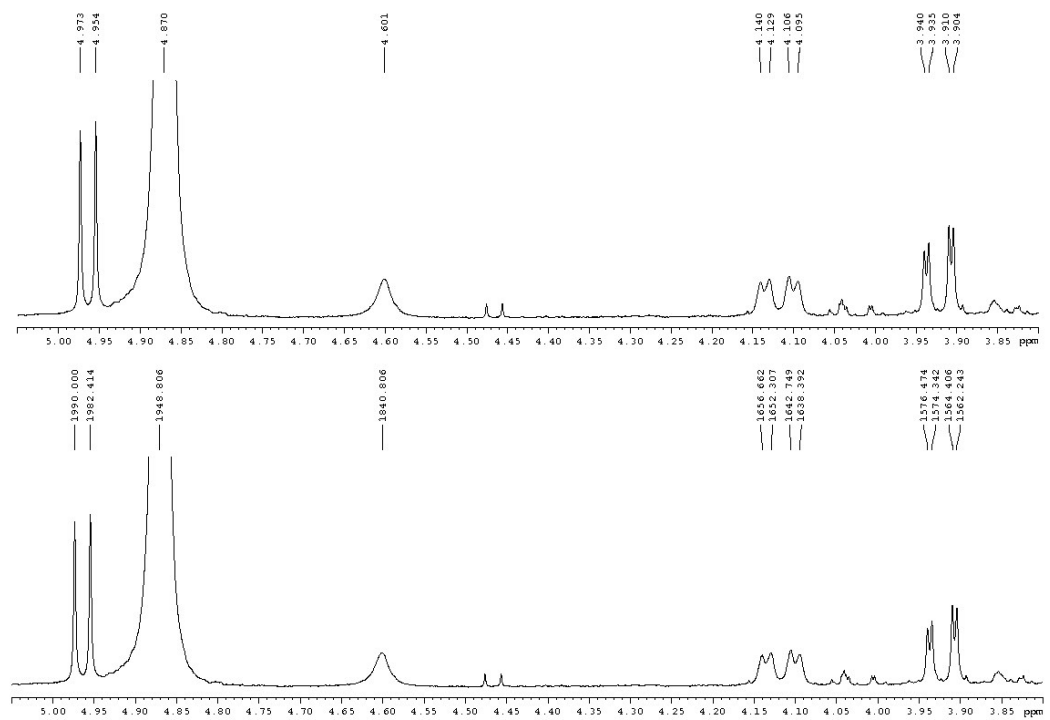


Figure S100. Expansion of ^1H NMR spectrum (CD₃OD, 400 MHz) of stephapierrine F (6) (2)

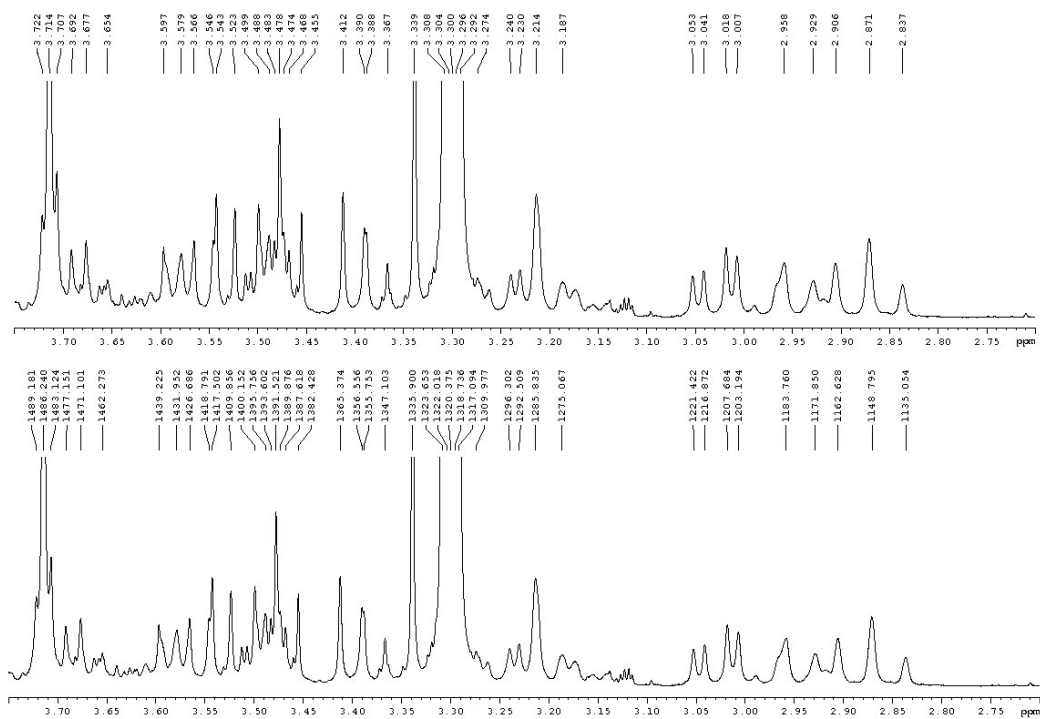


Figure S101. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine F (**6**) (3)

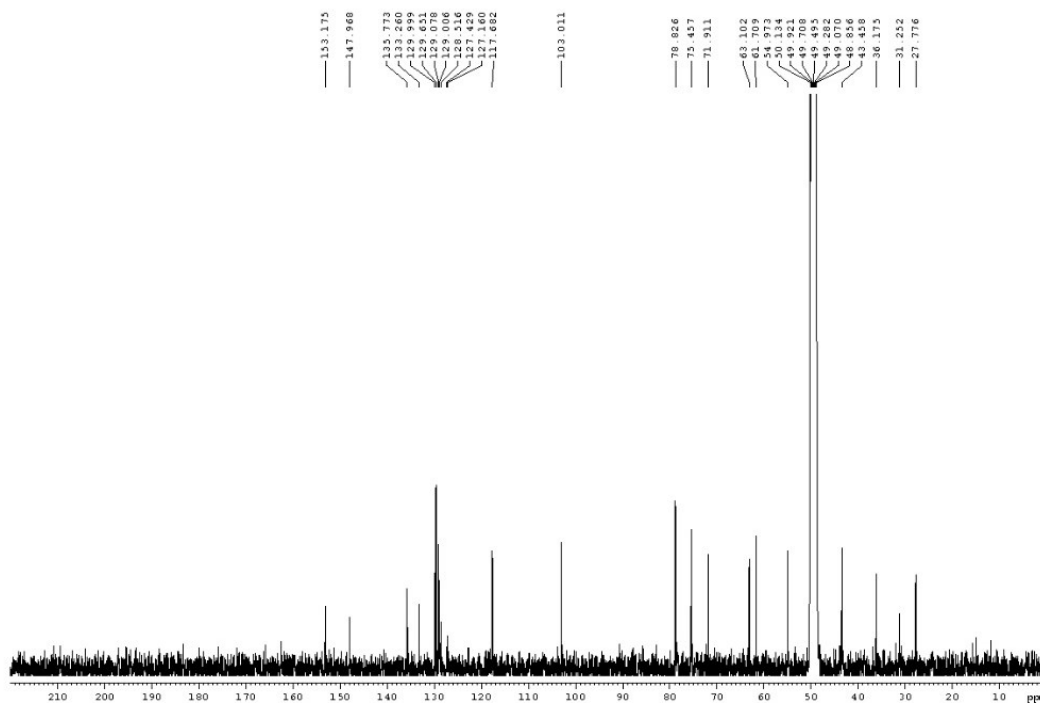


Figure S102. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of stephapierrine F (**6**)

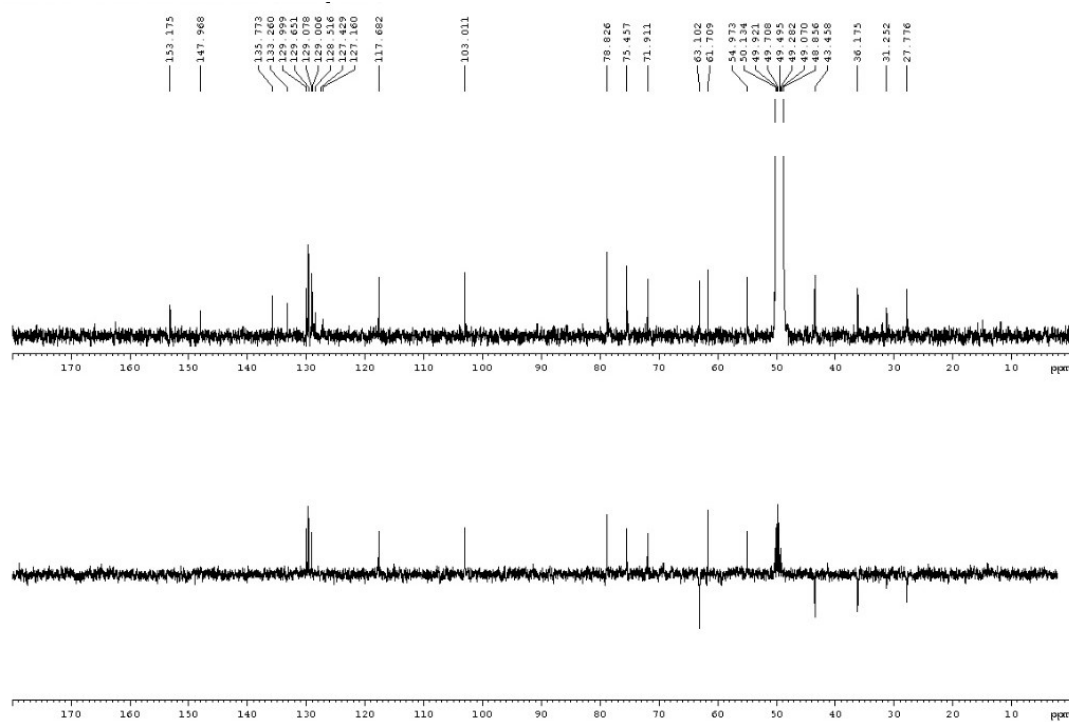


Figure S103. DEPT135 spectrum (CD₃OD, 100 MHz) of stephapierrine F (6)

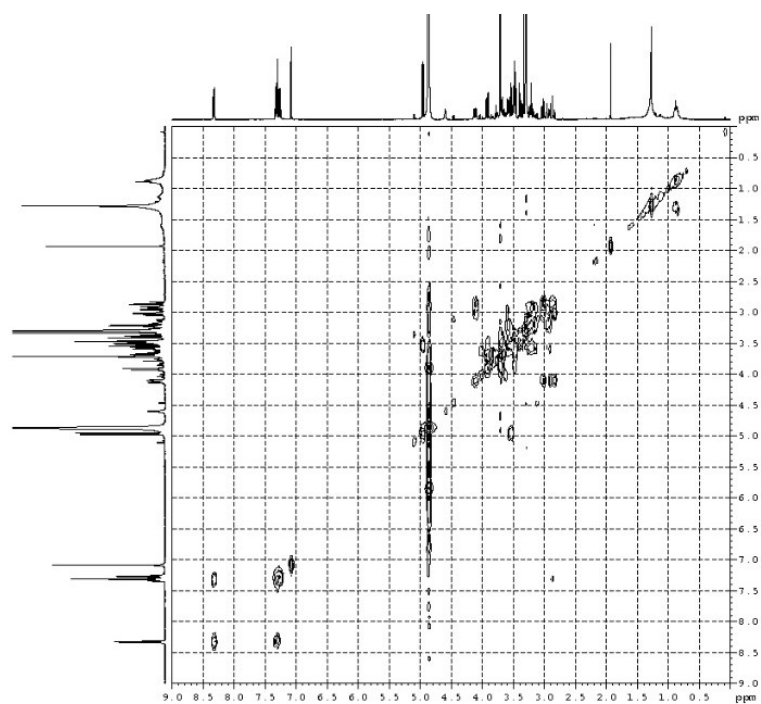


Figure S104. COSY spectrum of stephapierrine F (6) in CD₃OD

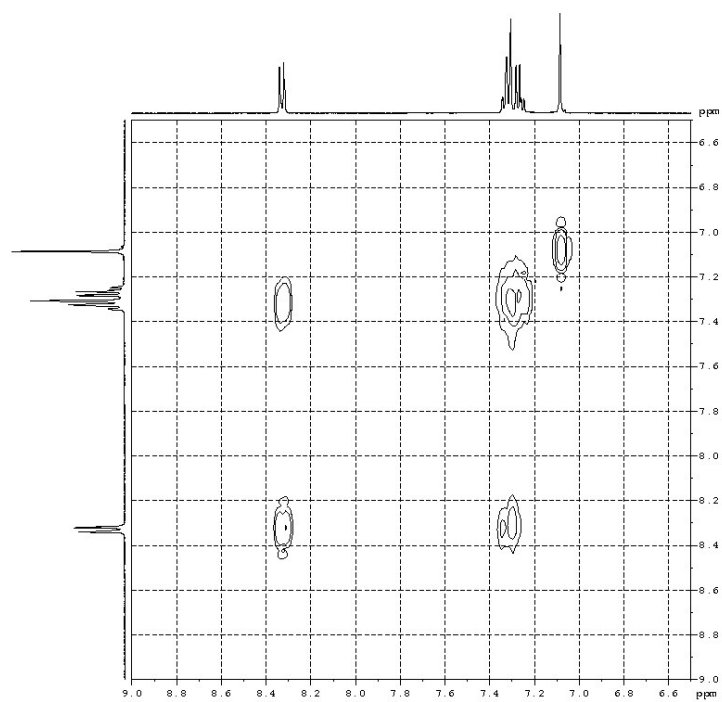


Figure S105. Expansion of COSY spectrum of stephapierrine F (**6**) in CD₃OD (1)

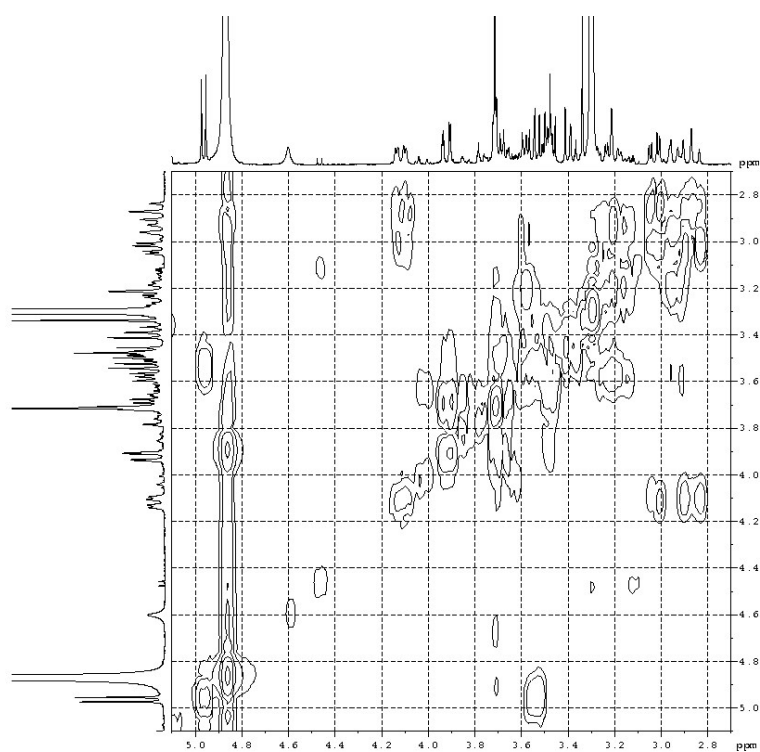


Figure S106. Expansion of COSY spectrum of stephapierrine F (**6**) in CD₃OD (2)

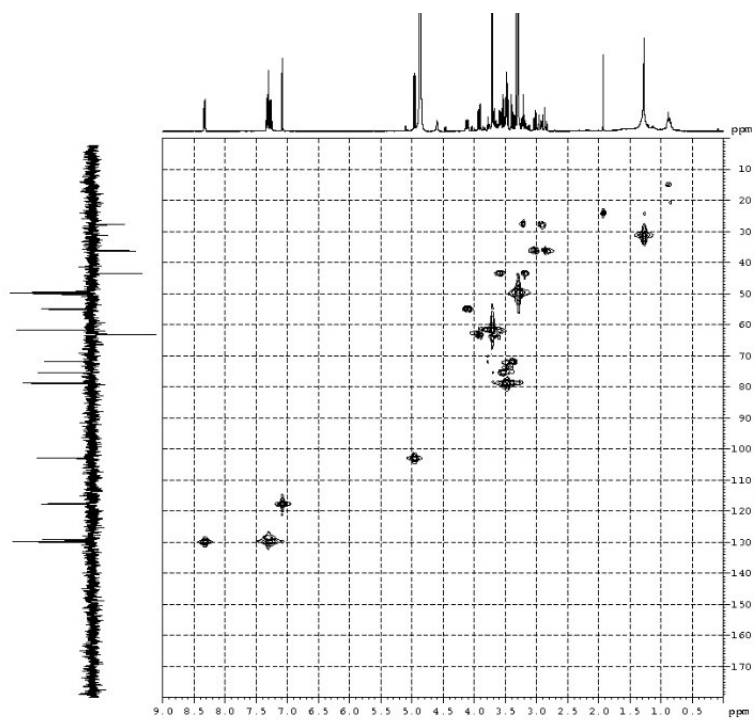


Figure S107. HMQC spectrum of stephapierrine F (6) in CD₃OD

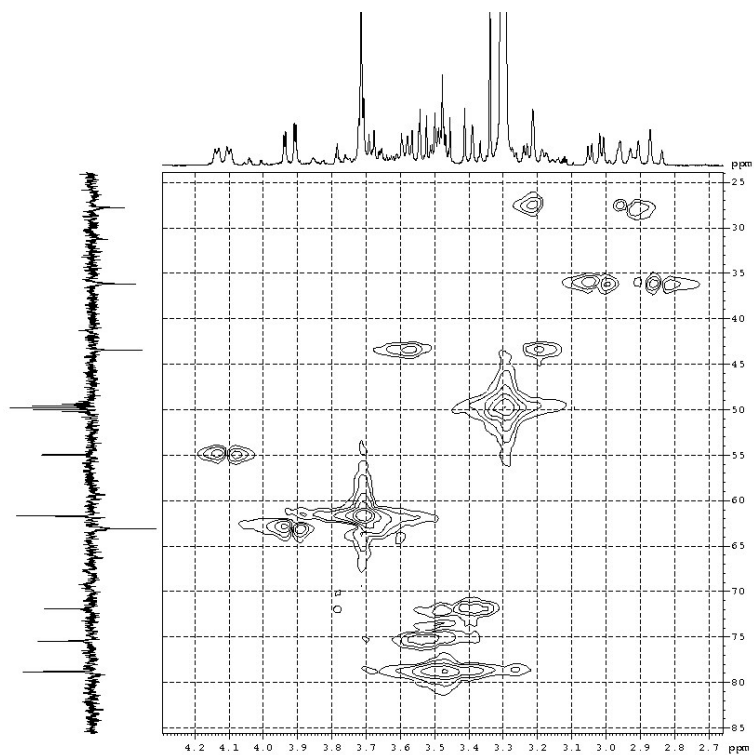


Figure S108. Expansion of HMQC spectrum of stephapierrine F (6) in CD₃OD (1)

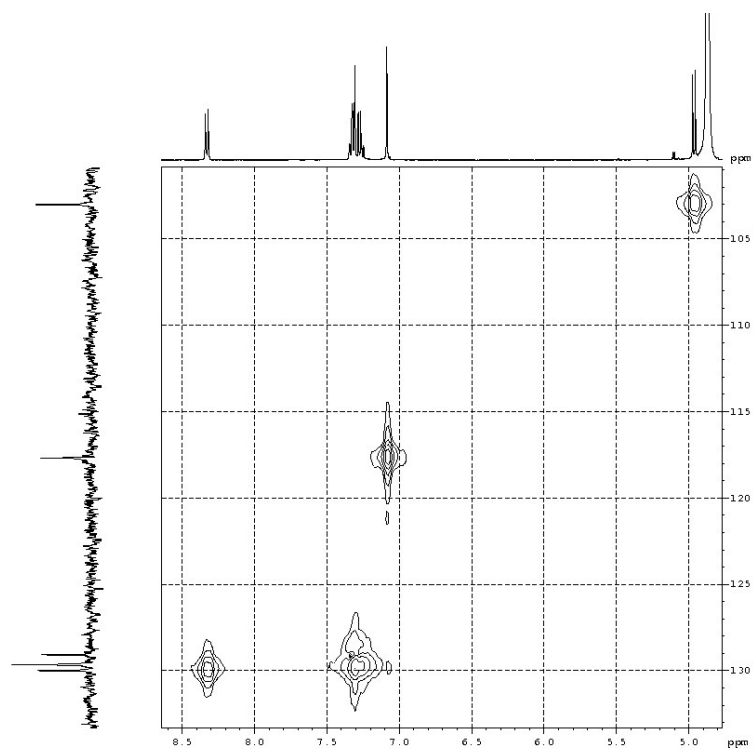


Figure S109. Expansion of HMQC spectrum of stephapierrine F (**6**) in CD₃OD (2)

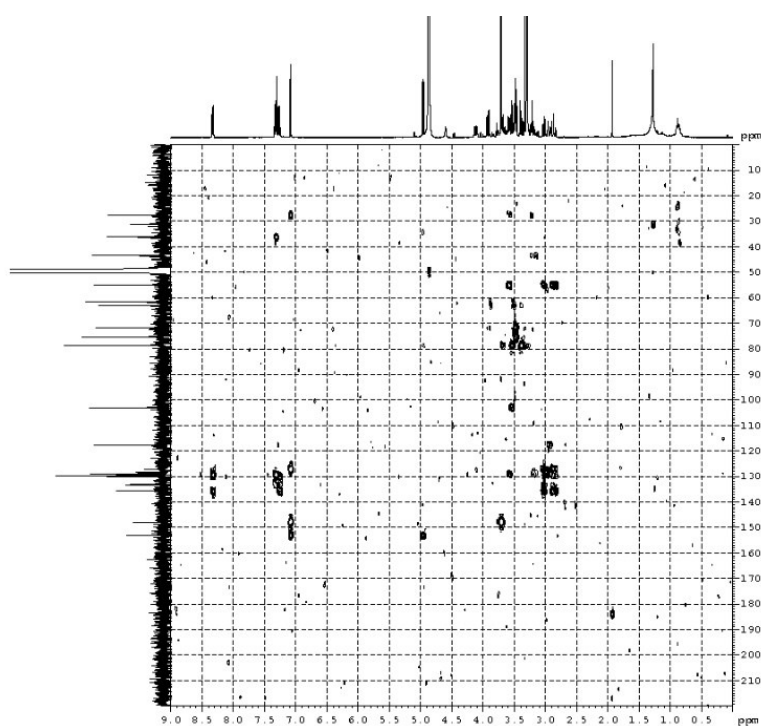


Figure S110. HMBC spectrum of stephapierrine F (**6**) in CD₃OD

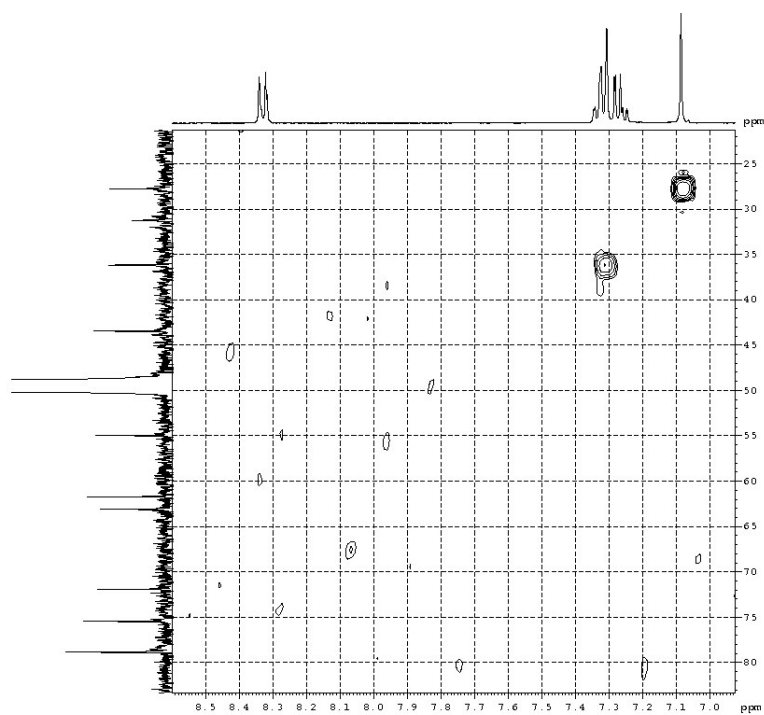


Figure S111. Expansion of HMBC spectrum of stephapierrine F (**6**) in CD₃OD (1)

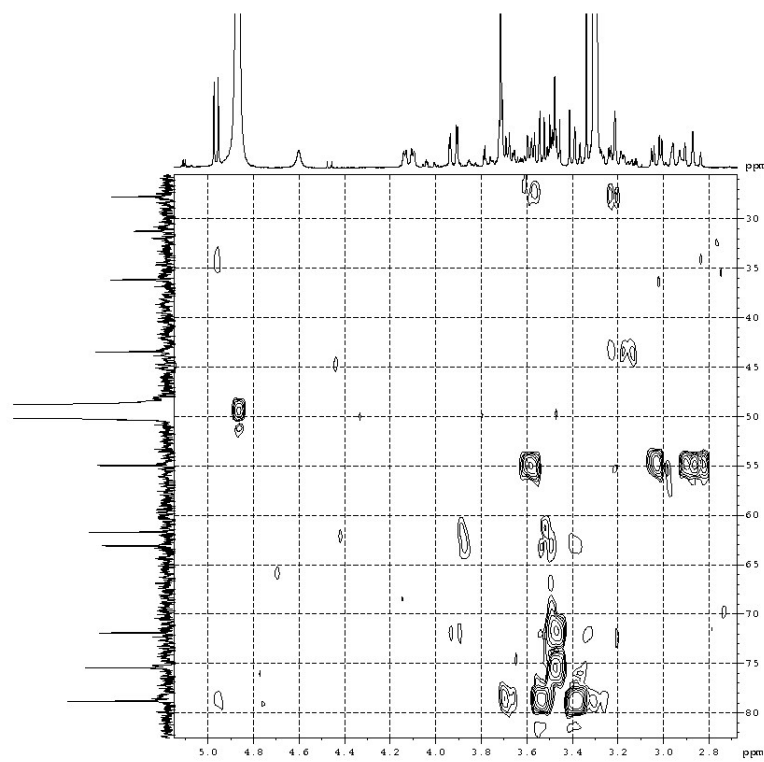


Figure S112. Expansion of HMBC spectrum of stephapierrine F (**6**) in CD₃OD (2)

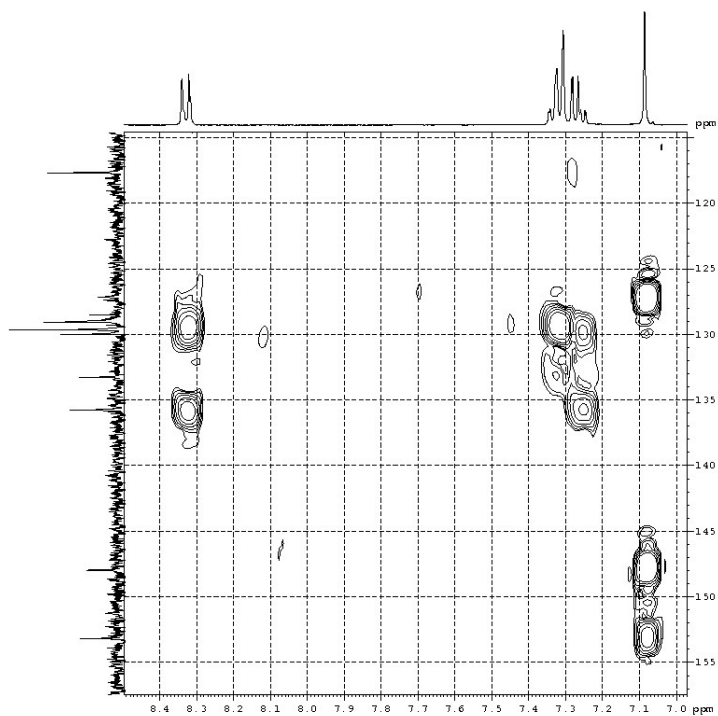


Figure S113. Expansion of HMBC spectrum of stephapierrine F (6) in CD₃OD (3)

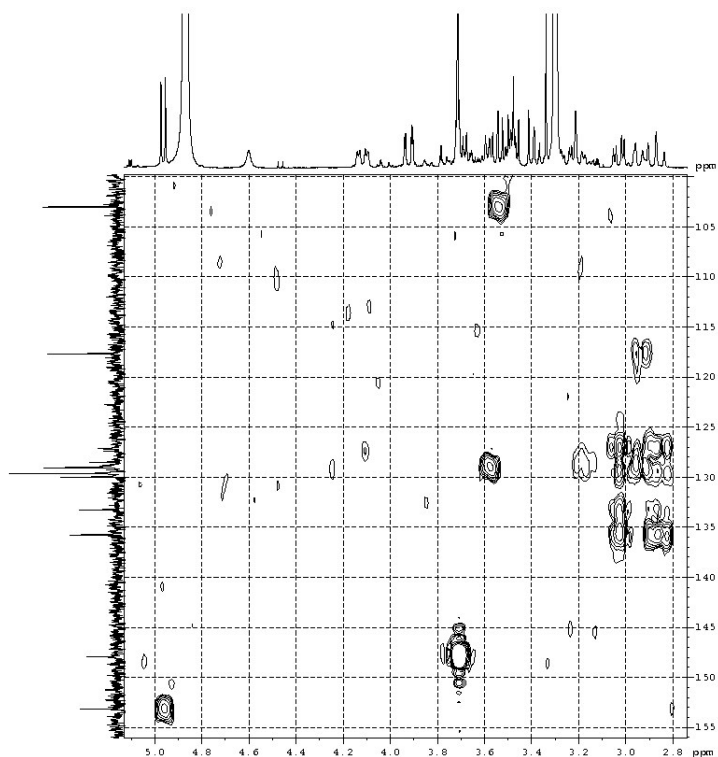


Figure S114. Expansion of HMBC spectrum of stephapierrine F (6) in CD₃OD (4)

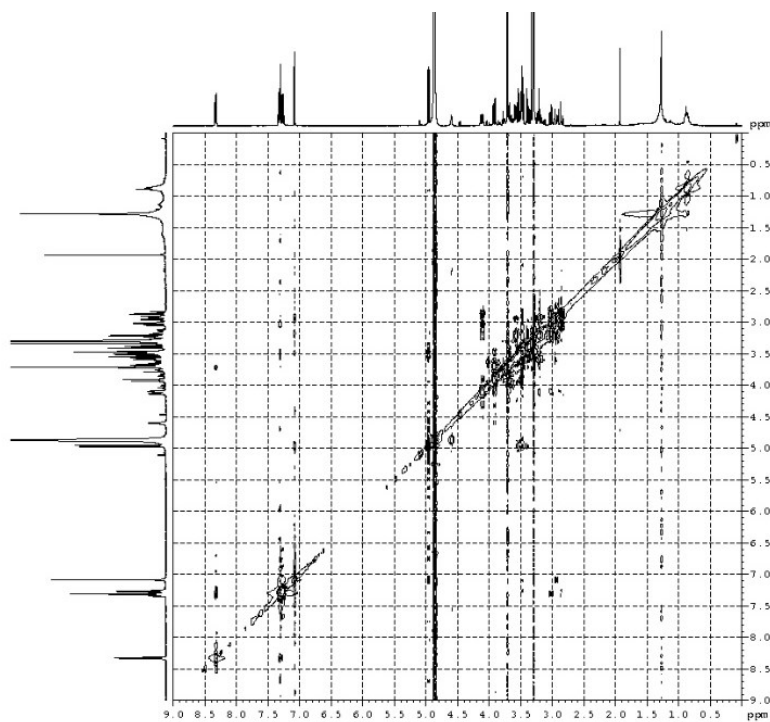


Figure S115. NOESY spectrum of stephapierrine F (6) in CD₃OD

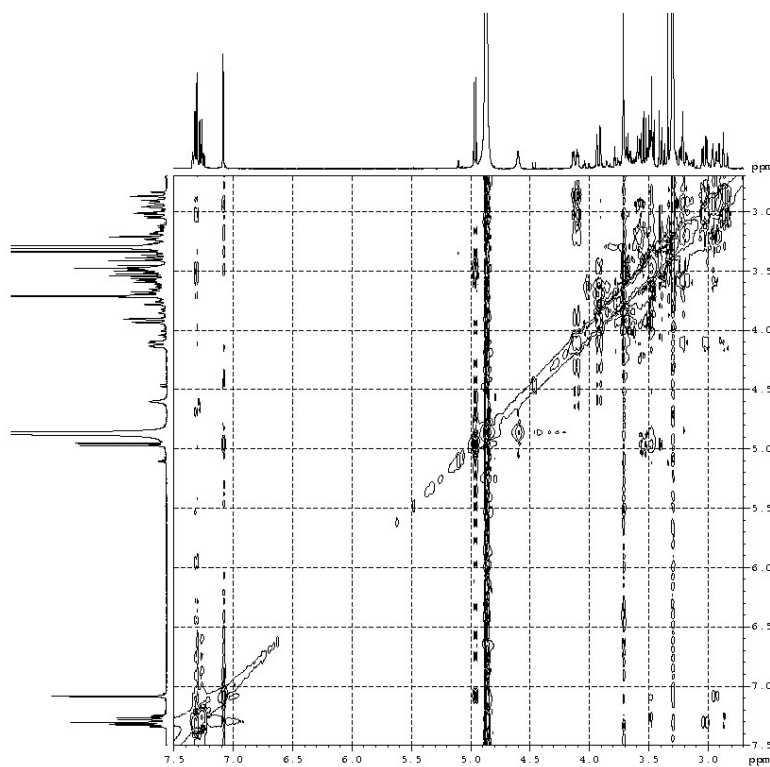


Figure S116. Expansion of NOESY spectrum of stephapierrine F (6) in CD₃OD (1)

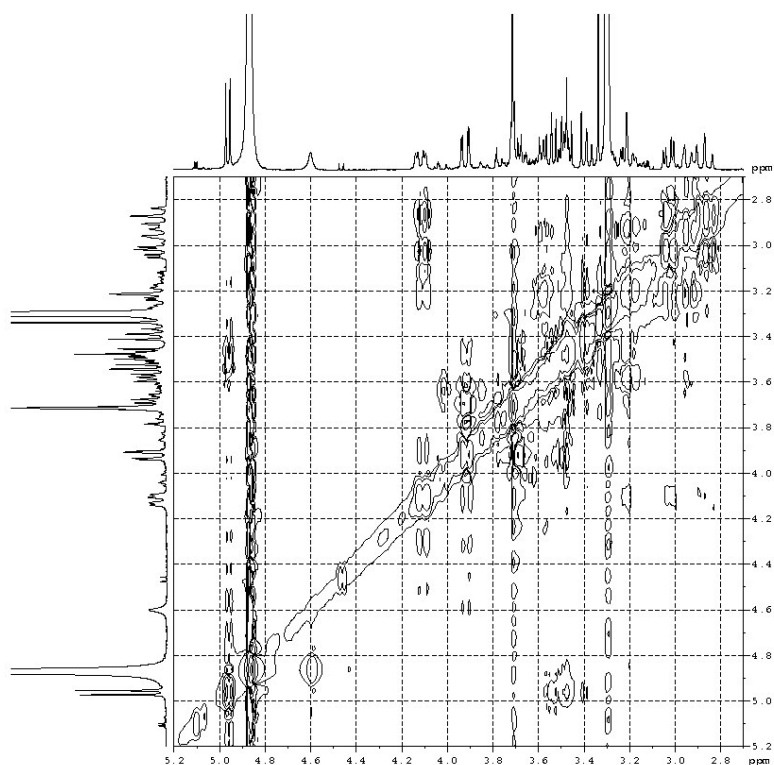


Figure S117. Expansion of NOESY spectrum of stephapierrine F (6) in CD₃OD (2)

Mass Spectrum SmartFormula Report

Analysis Info				Acquisition Date	
Analysis Name	D:\Data\Apichart\ESINAS-HRMS 1401 (pos).d			2/16/2021 11:46:14 AM	
Method	tune_wide 7-8-63(pos).m			Operator	RU
Sample Name	AS-RU-19602			Instrument	micrOTOF 8213750.10411
Comment					
Acquisition Parameter					
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste

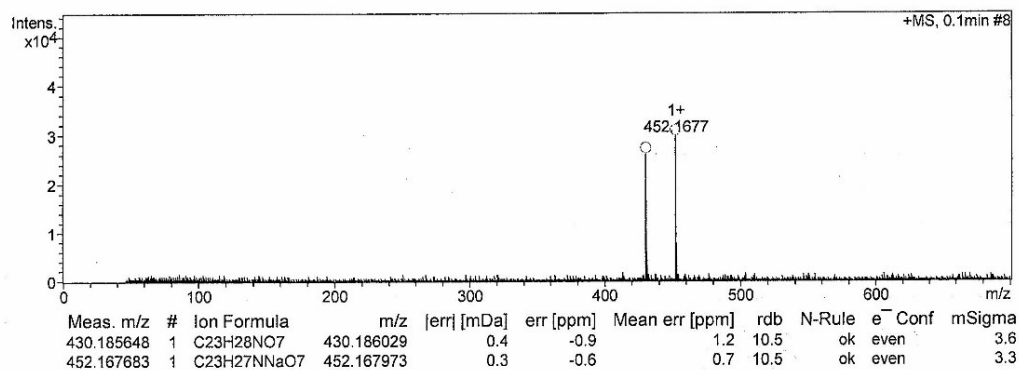


Figure S118. ESI-TOF-MS of stephapierrine F (6)

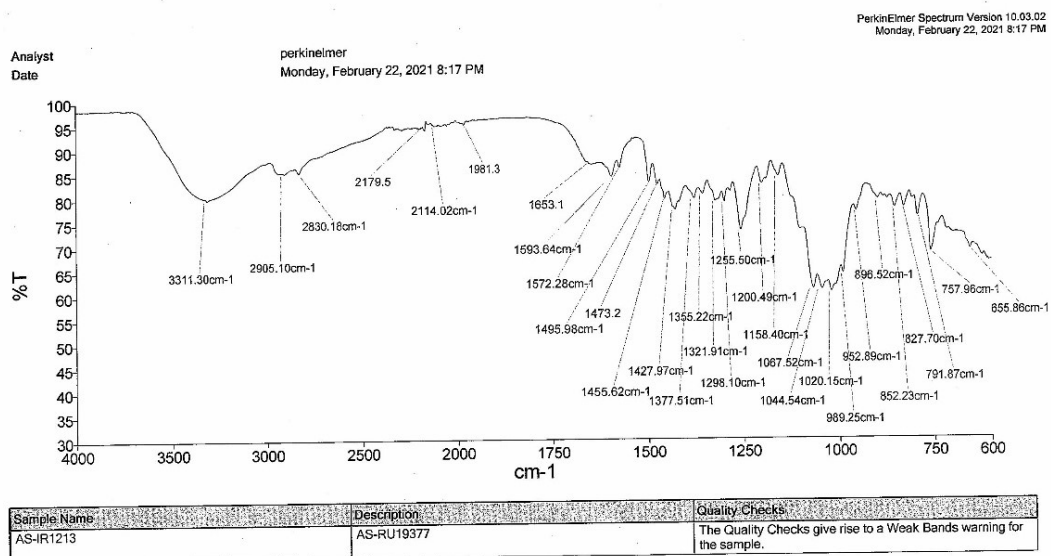


Figure S119. IR spectrum of stephapierrine F (6)

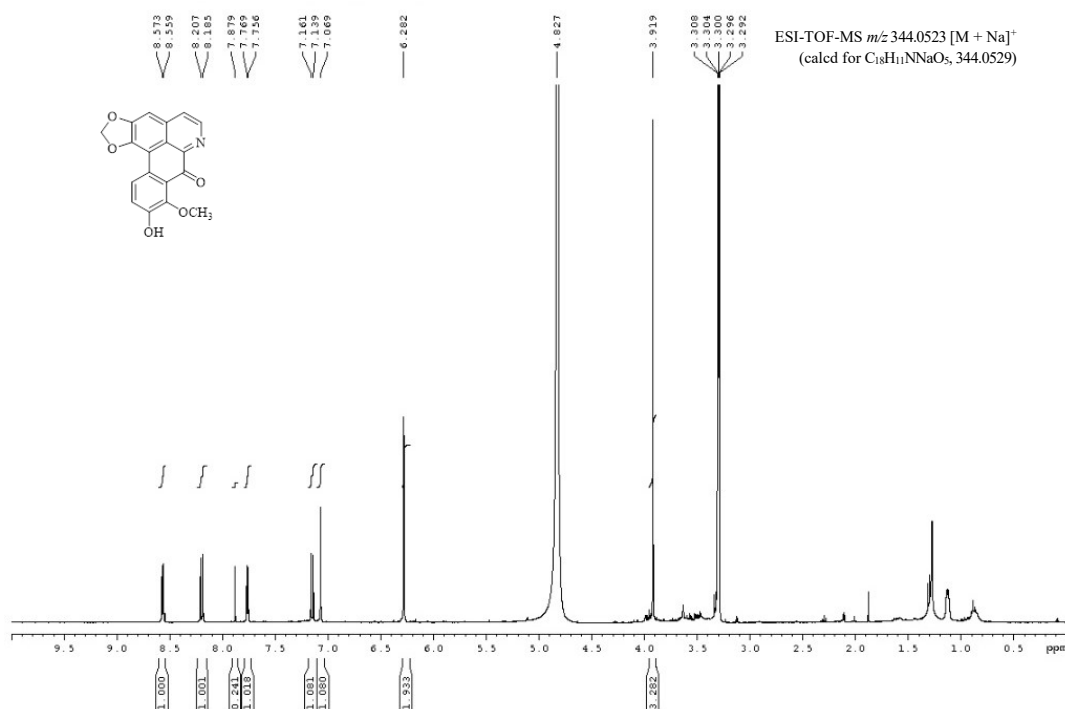


Figure S120. ¹H NMR spectrum (CD₃OD, 400 MHz) of stephapierrine G (7)

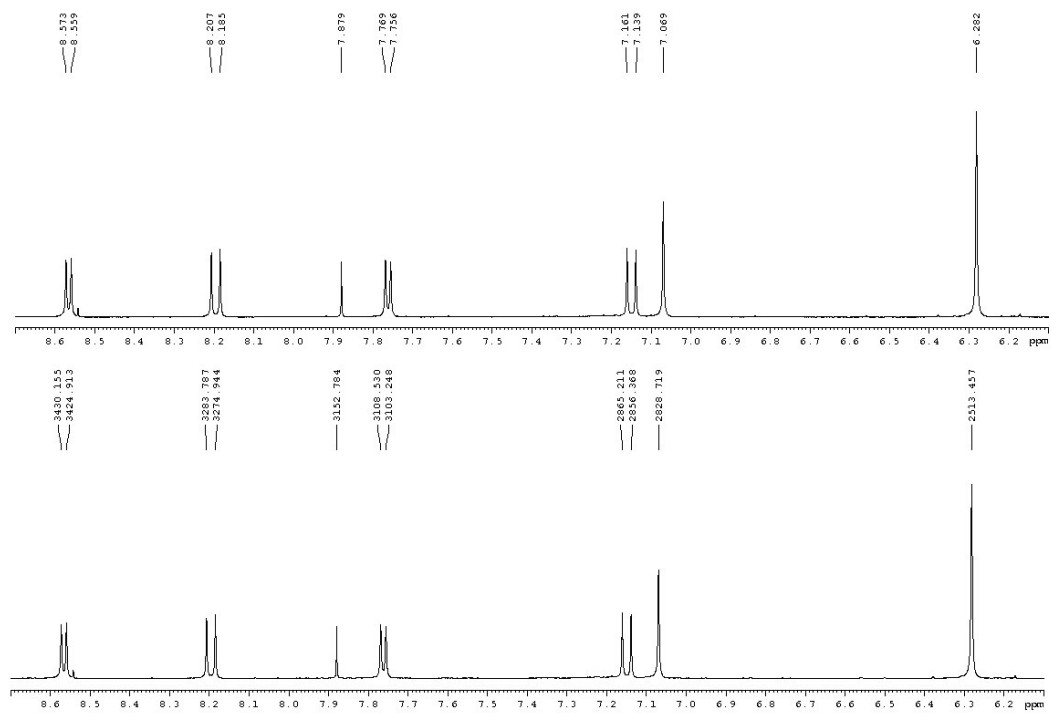


Figure S121. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine G (7) (1)

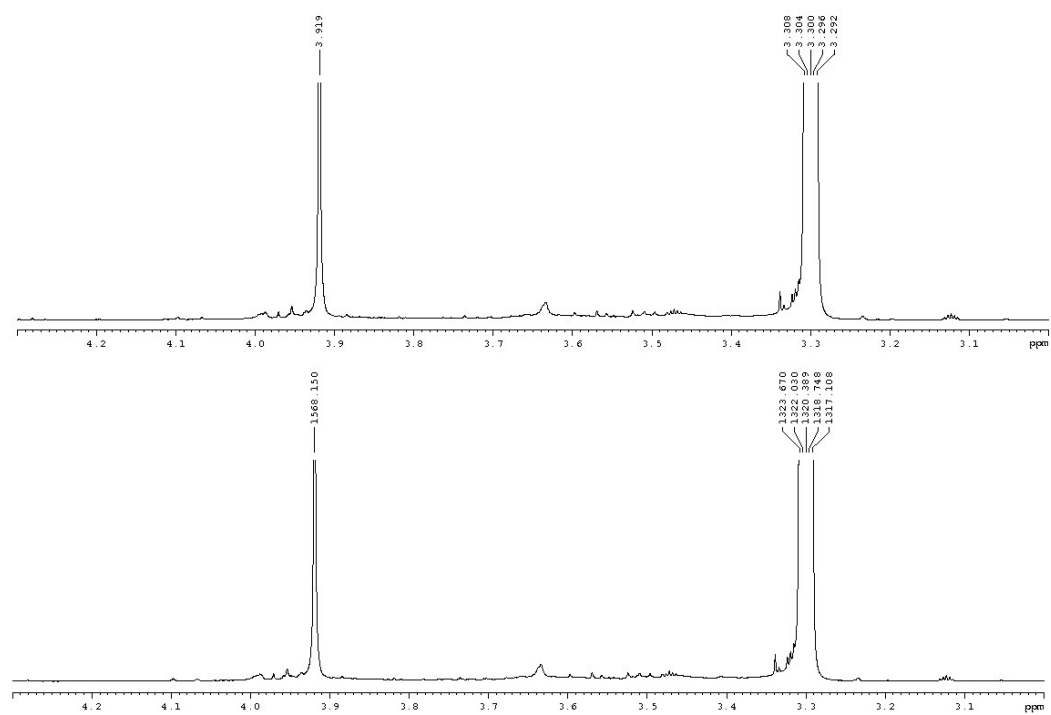


Figure S122. Expansion of ^1H NMR spectrum (CD_3OD , 400 MHz) of stephapierrine G (7) (2)

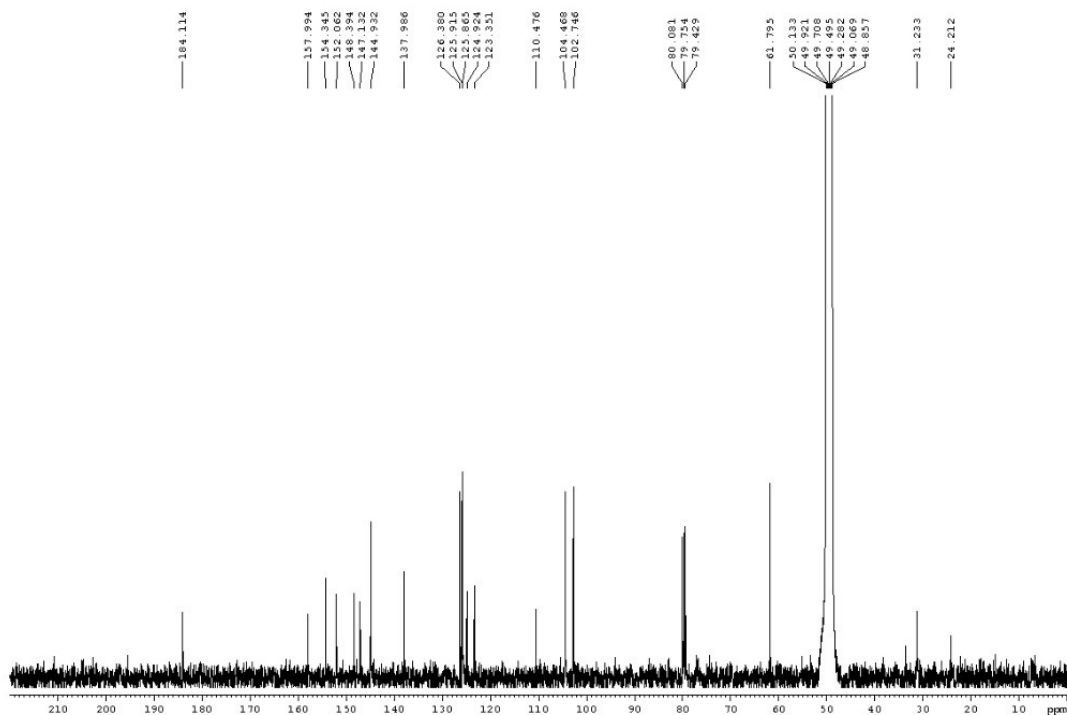


Figure S123. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of stephapierrine G (7)

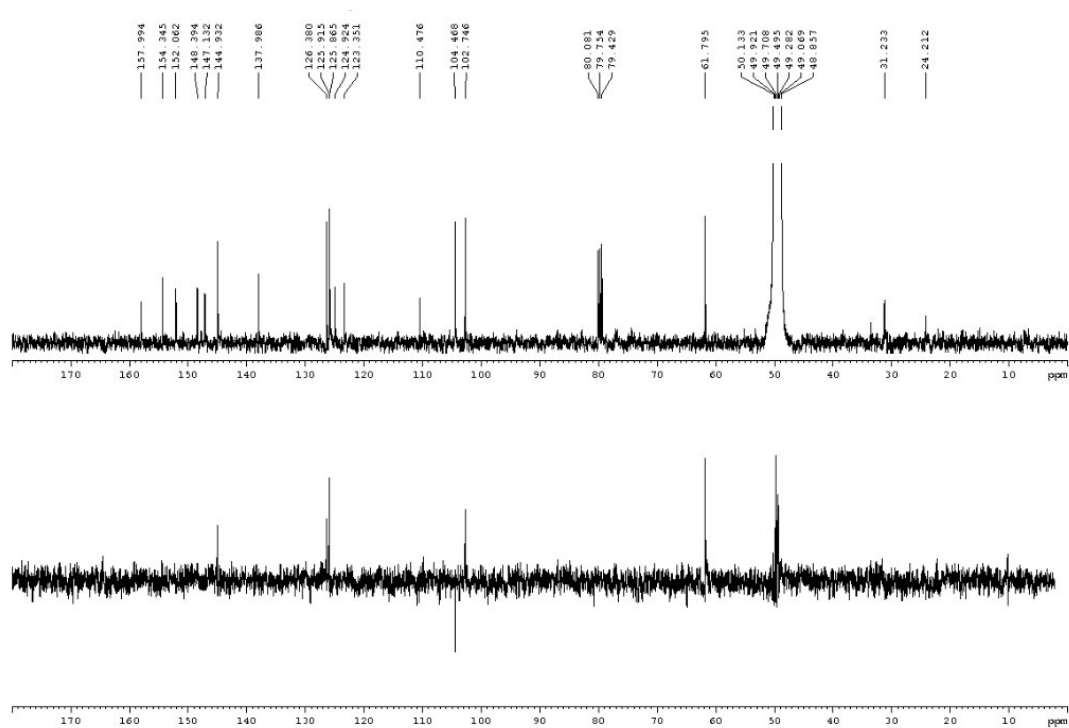


Figure S124. DEPT135 spectrum (CD_3OD , 100 MHz) of stephapierrine G (7)

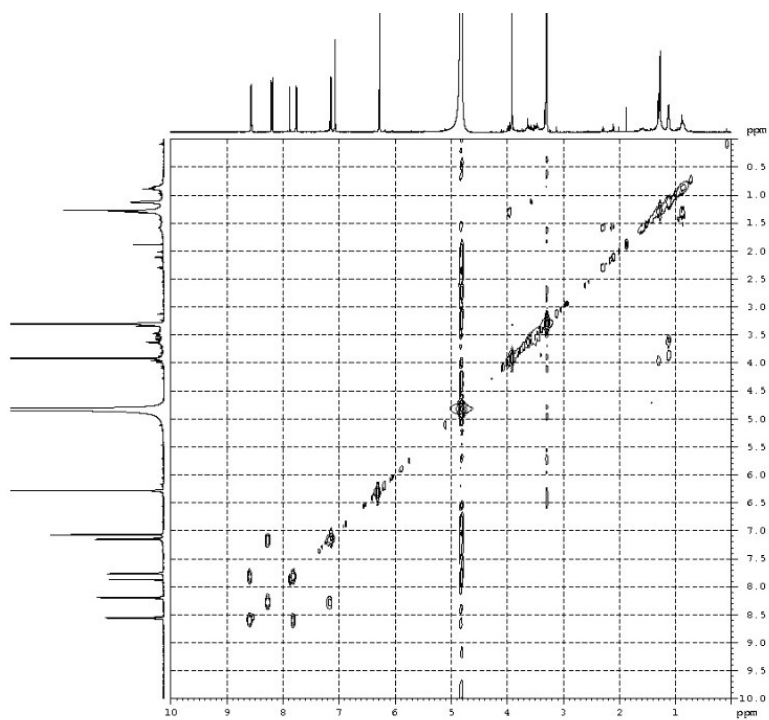


Figure S125. COSY spectrum of stephapierrine G (7) in CD₃OD

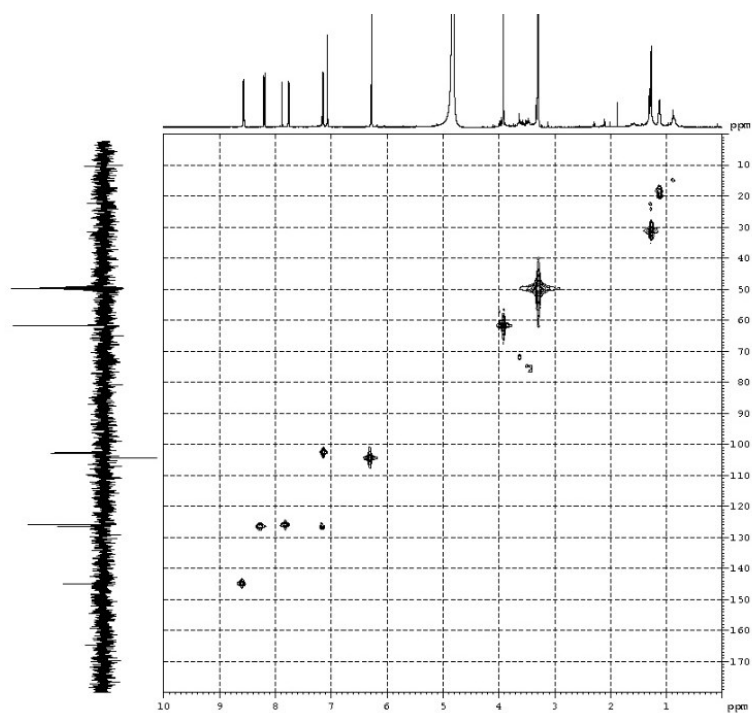


Figure S126. HMBC spectrum of stephapierrine G (7) in CD₃OD

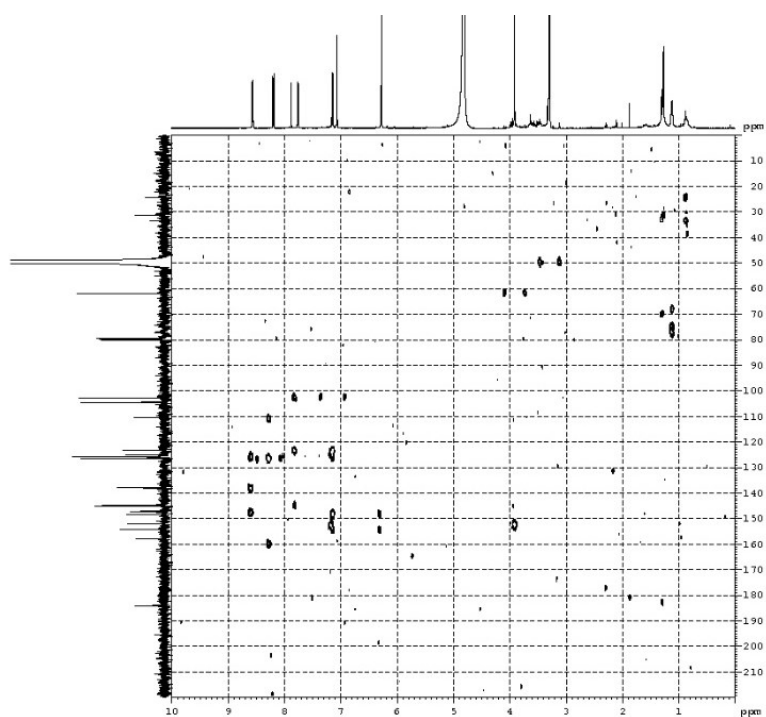


Figure S127. HMBC spectrum of stephapierrine G (7) in CD₃OD

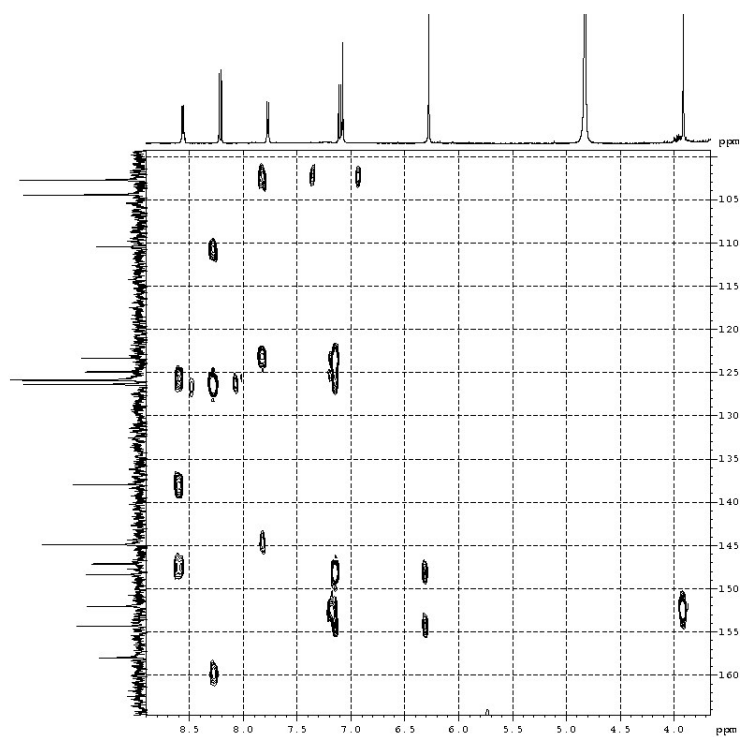


Figure S128. Expansion of HMBC spectrum of stephapierrine G (7) in CD₃OD

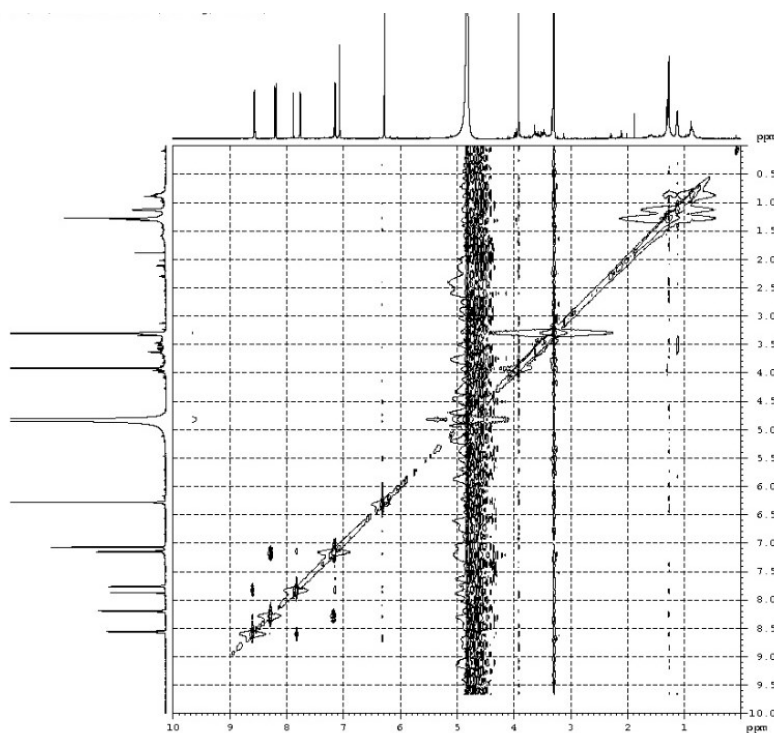


Figure S129. NOESY spectrum of stephapierrine G (7) in CD₃OD

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date	
Analysis Name	D:\Data\Apichart\ESI\AS-HRMS 1253 (pos).d	12/7/2020	3:14:42 PM
Method	tune_wide-RU.m	Operator	RU
Sample Name	AS-RU 19345	Instrument	micrOTOF 8213750.10411
Comment			

Acquisition Parameter					
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	100 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste

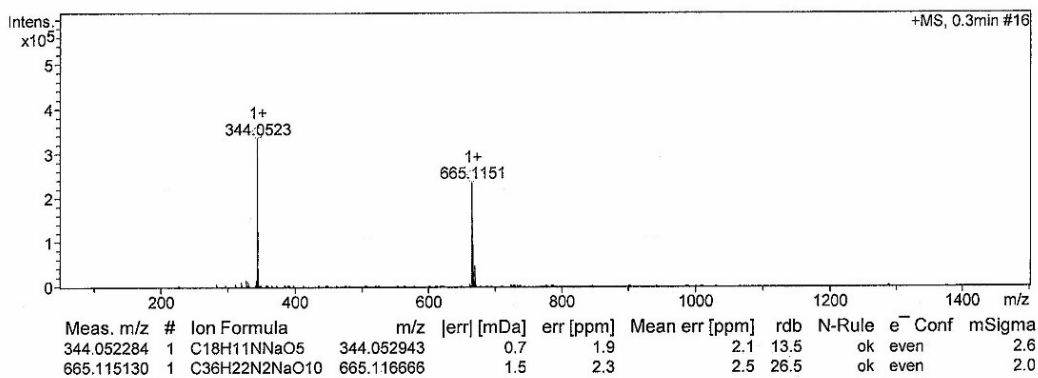


Figure S130. ESI-TOF-MS of stephapierrine G (7)

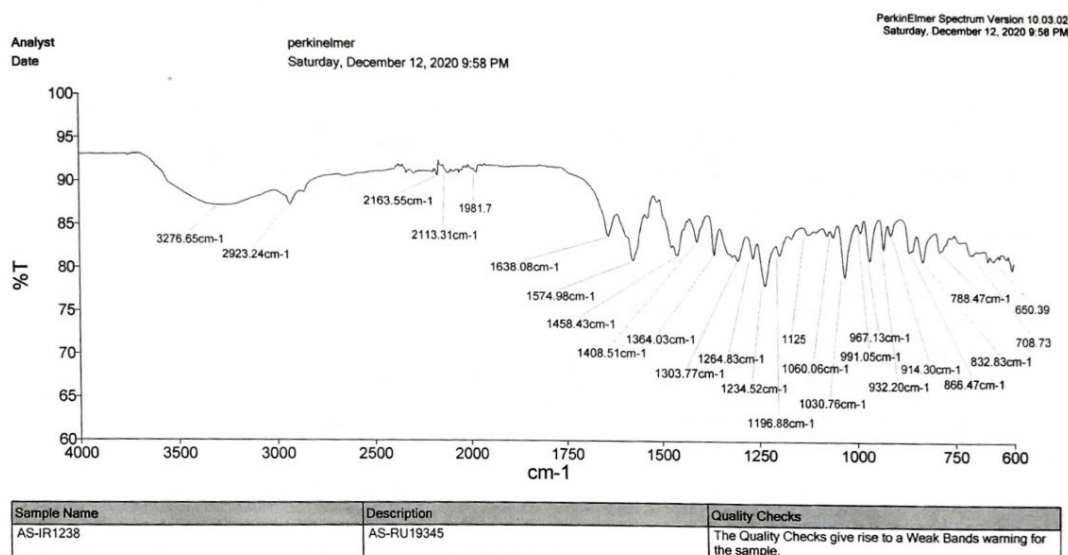


Figure S131. IR spectrum of stephapierrine G (7)

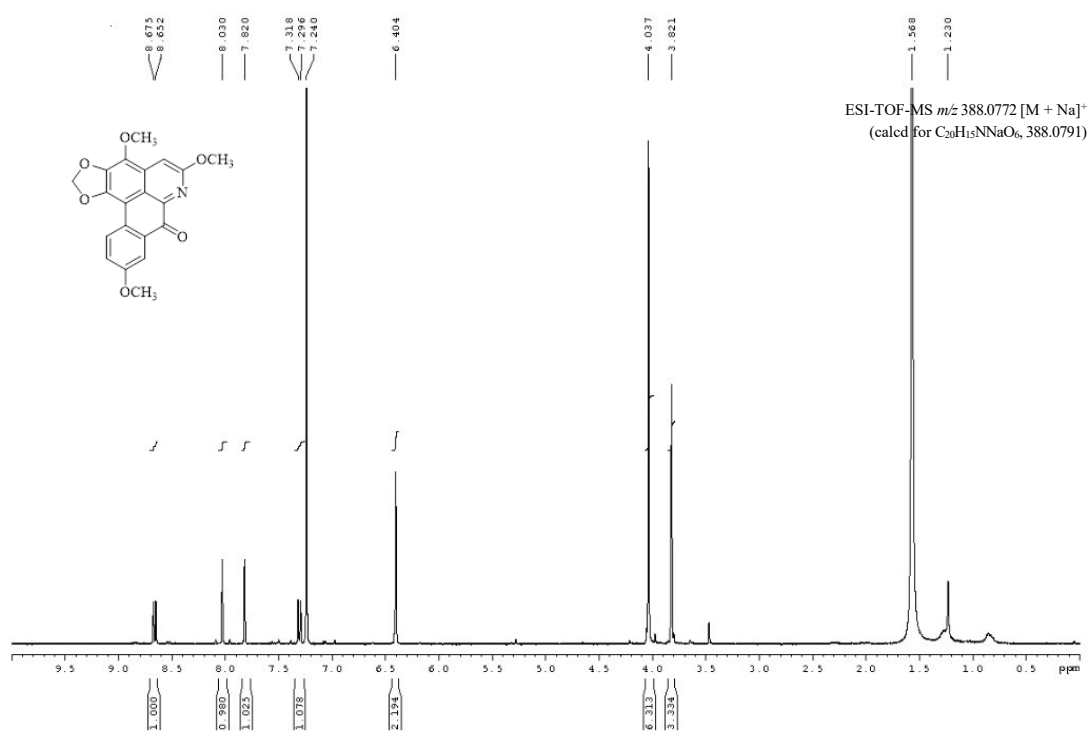


Figure S132. ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine H (8)

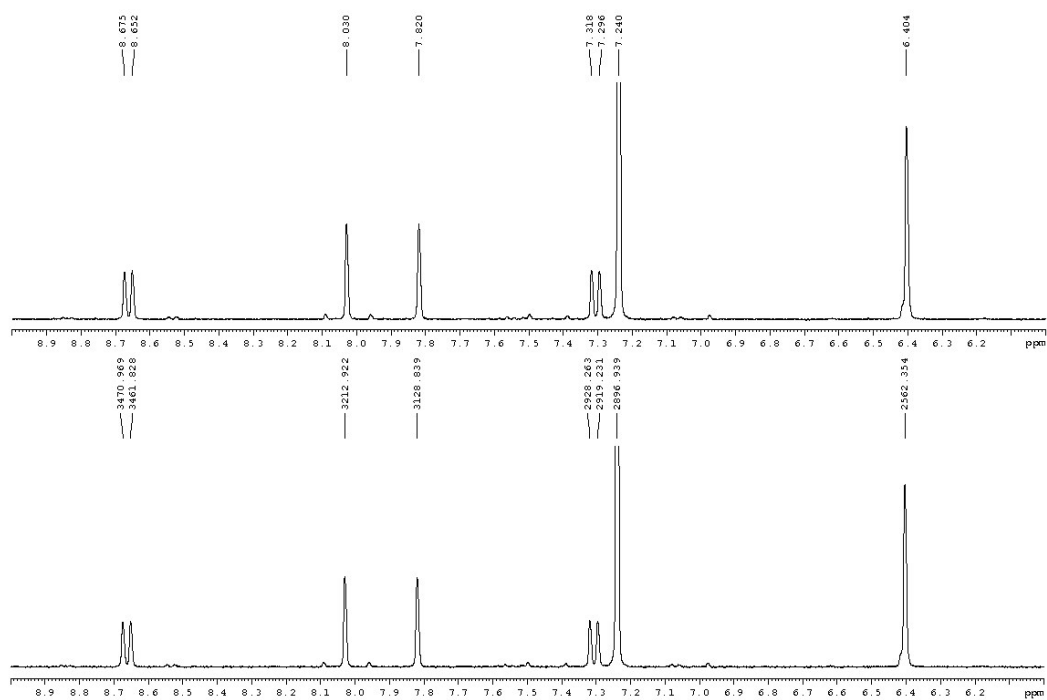


Figure S133. Expansion of ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine H (8) (1)

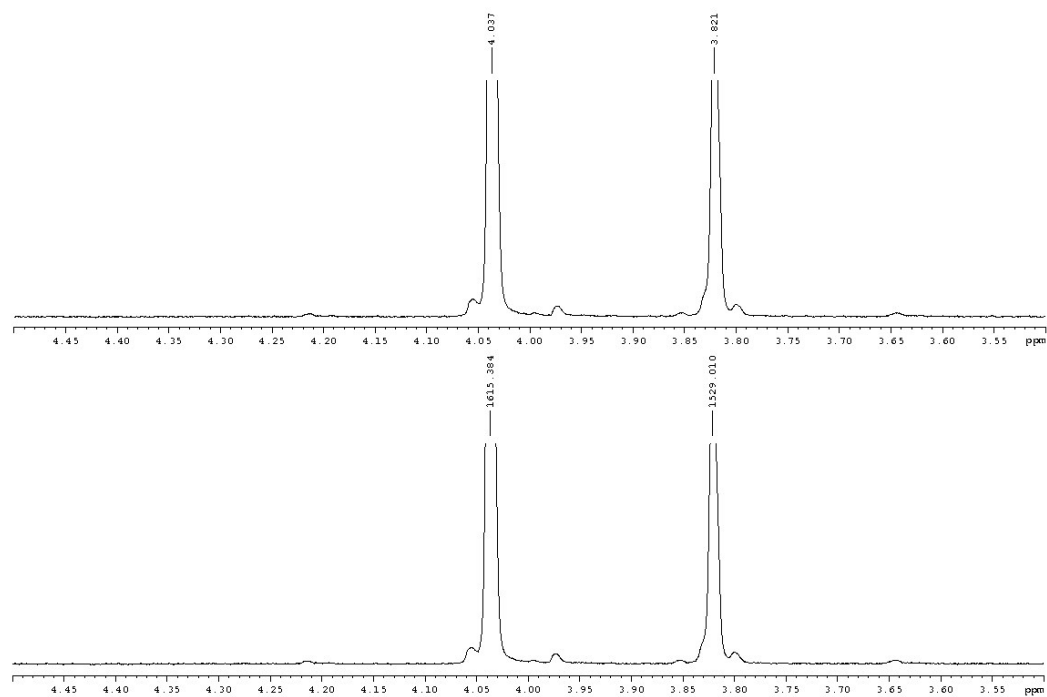


Figure S134. Expansion of ¹H NMR spectrum (CDCl₃, 400 MHz) of stephapierrine H (8) (2)

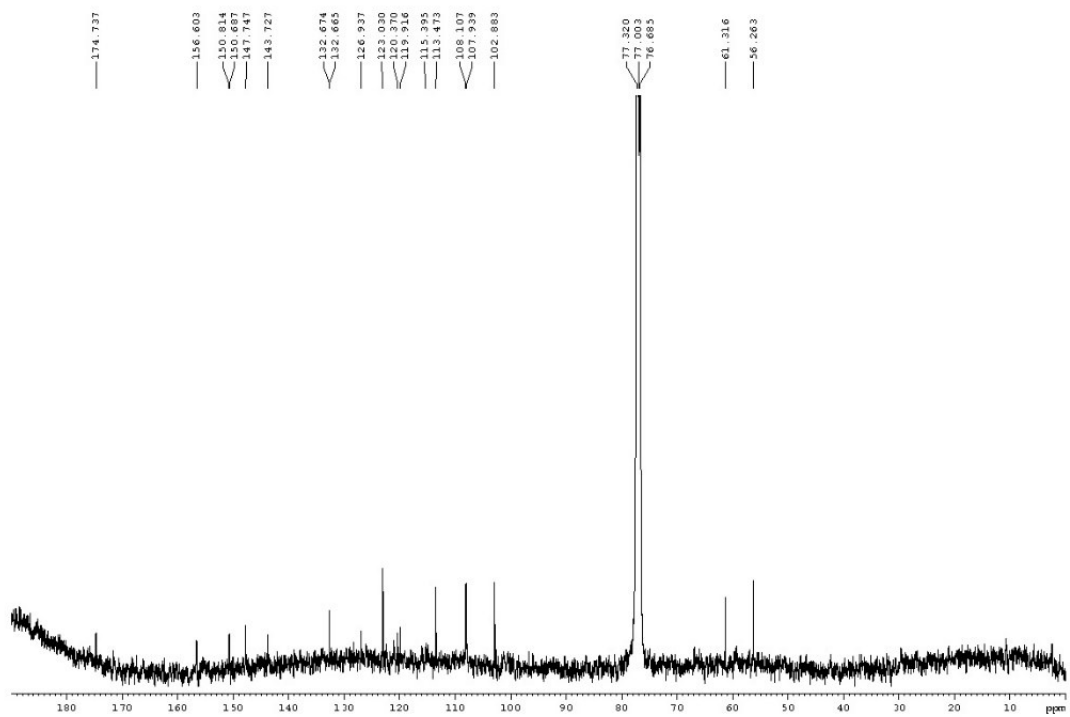


Figure S135. ¹³C NMR spectrum (CDCl₃, 100 MHz) of stephapierrine H (8)

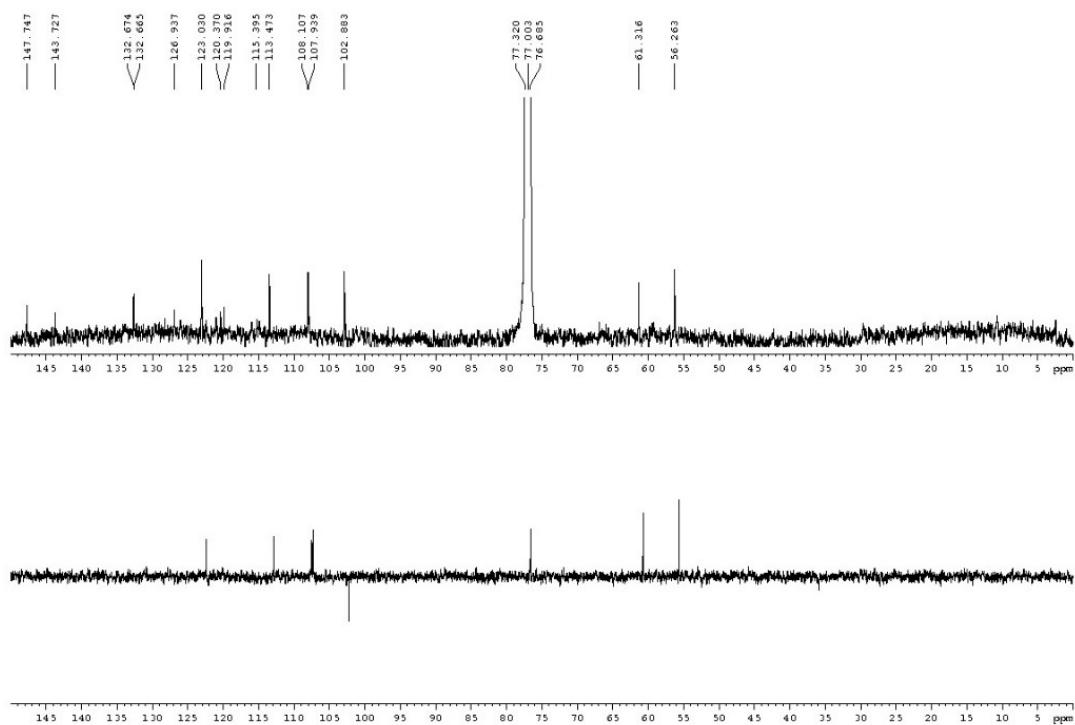


Figure S136. DEPT135 spectrum (CDCl₃, 100 MHz) of stephapierrine H (8)

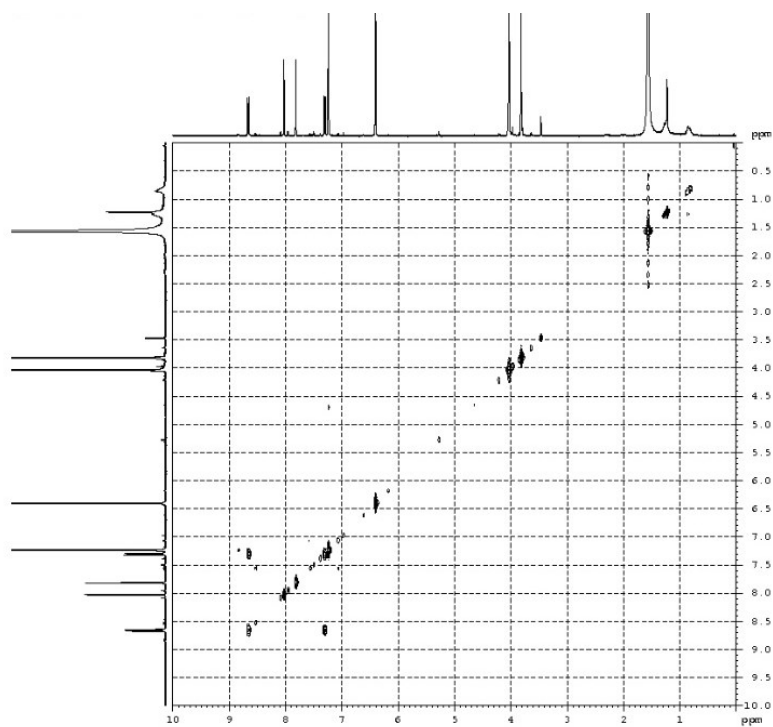


Figure S137. COSY spectrum of stephapierrine H (**8**) in CDCl_3

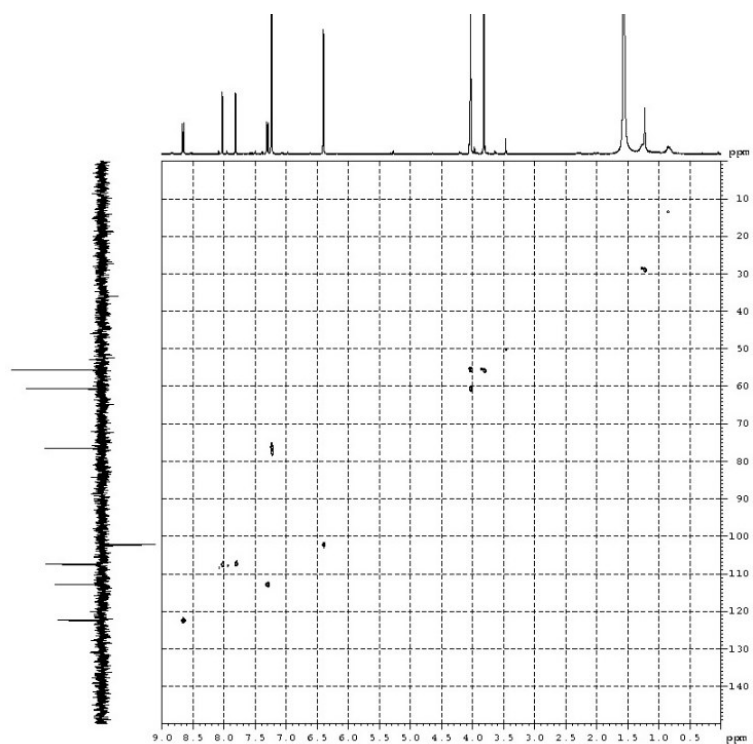


Figure S138. HMQC spectrum of stephapierrine H (**8**) in CDCl_3

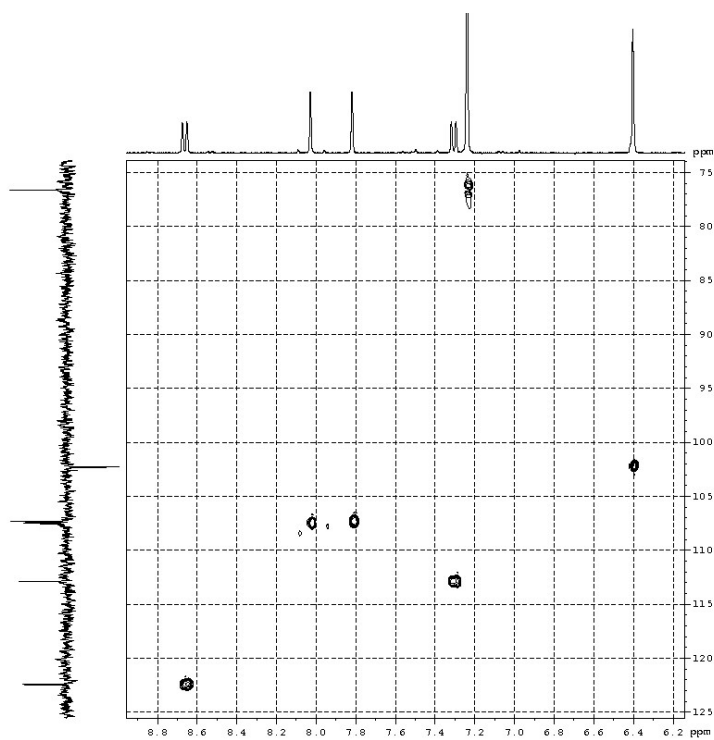


Figure S139. Expansion of HMQC spectrum of stephapierrine H (**8**) in CDCl_3

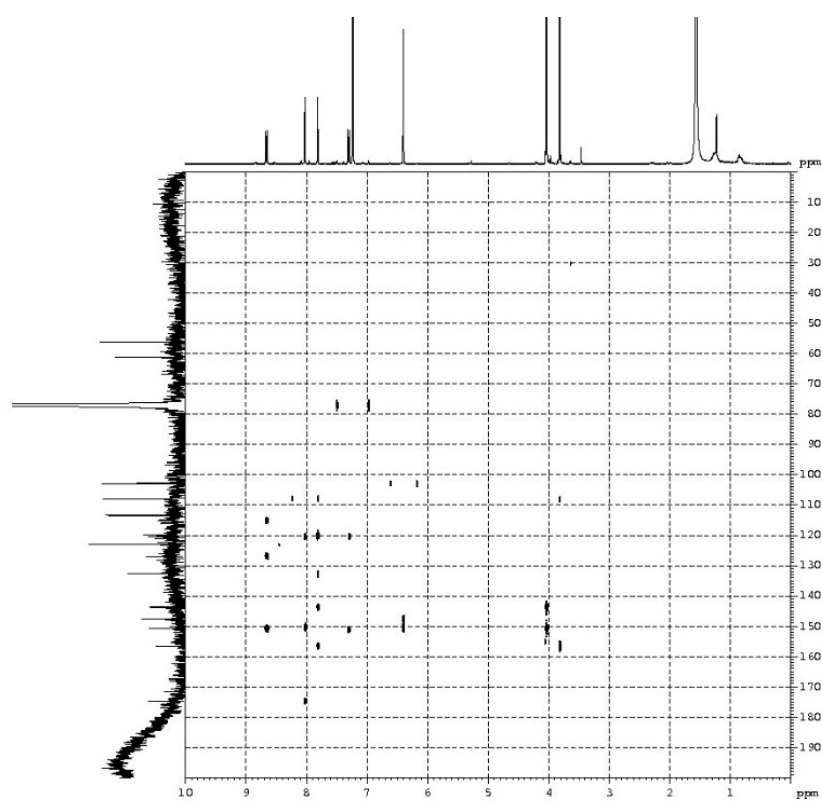


Figure S140. HMBC spectrum of stephapierrine H (**8**) in CDCl_3

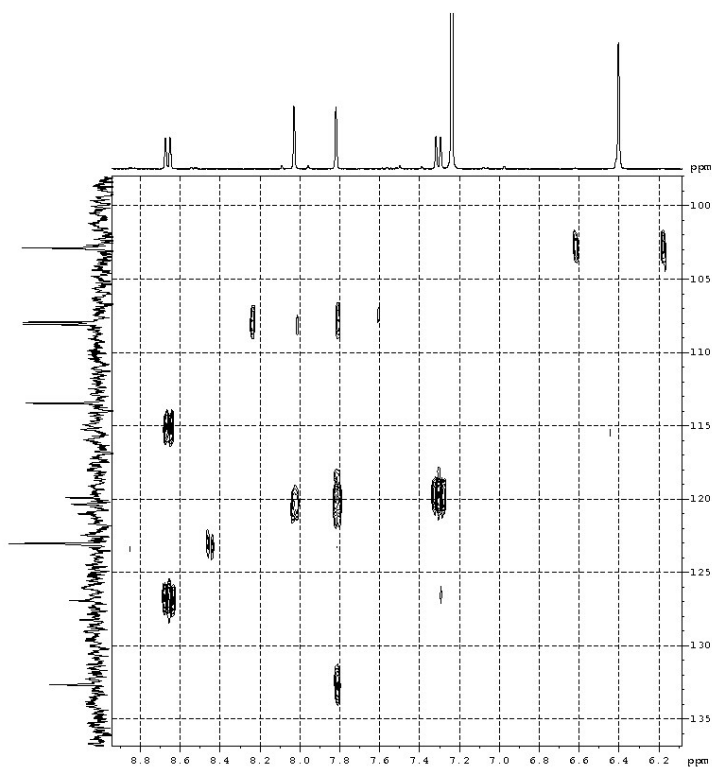


Figure S141. Expansion of HMBC spectrum of stephapierrine H (**8**) in CDCl₃

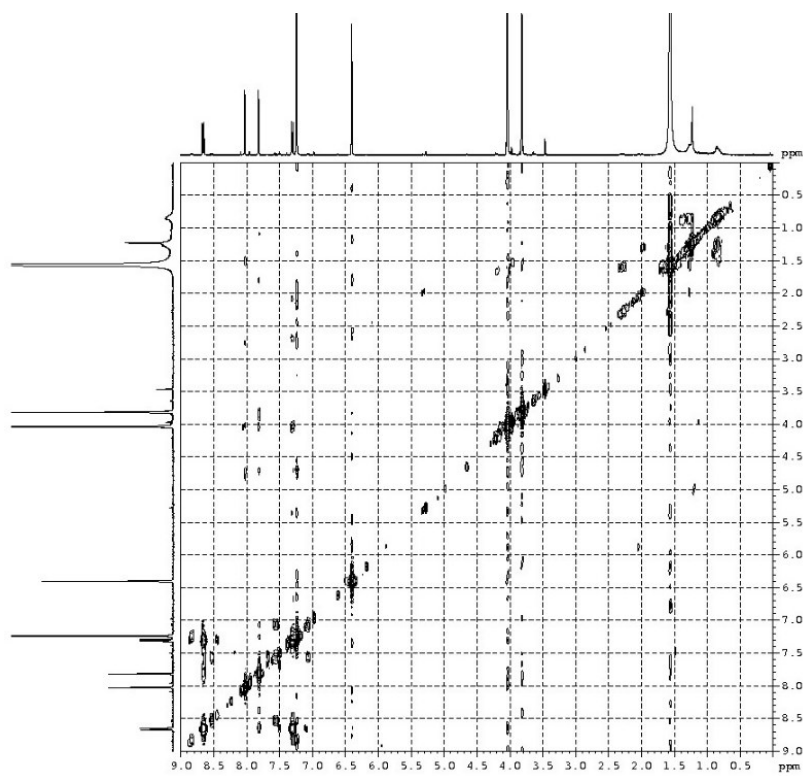


Figure S142. NOESY spectrum of stephapierrine H (**8**) in CDCl₃

Mass Spectrum SmartFormula Report

Analysis Info		Acquisition Date	12/7/2020 3:16:40 PM	
Analysis Name	D:\Data\Apichart\ESIVAS-HRMS 1255 (pos).d	Operator	RU	
Method	tune_wide-RU.m	Instrument	micrOTOF	8213750.10411
Sample Name	AS-RU 15925	Comment		

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.3 Bar
Focus	Not active	Set Capillary	4500 V	Set Dry Heater	180 °C
Scan Begin	100 m/z	Set End Plate Offset	-500 V	Set Dry Gas	4.0 l/min
Scan End	4000 m/z			Set Divert Valve	Waste

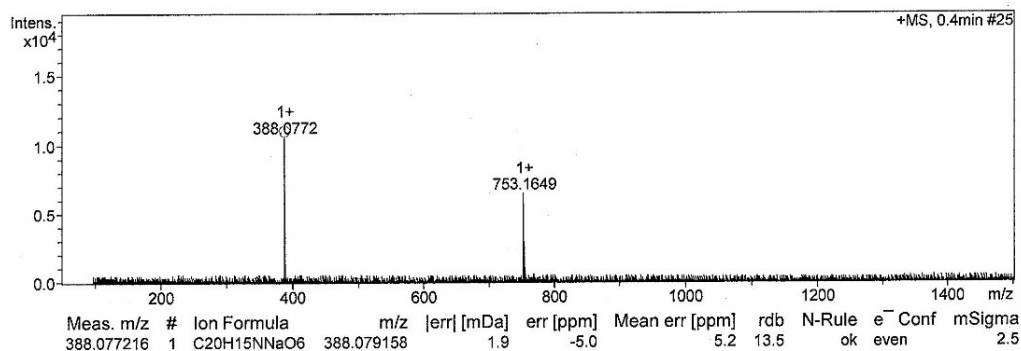
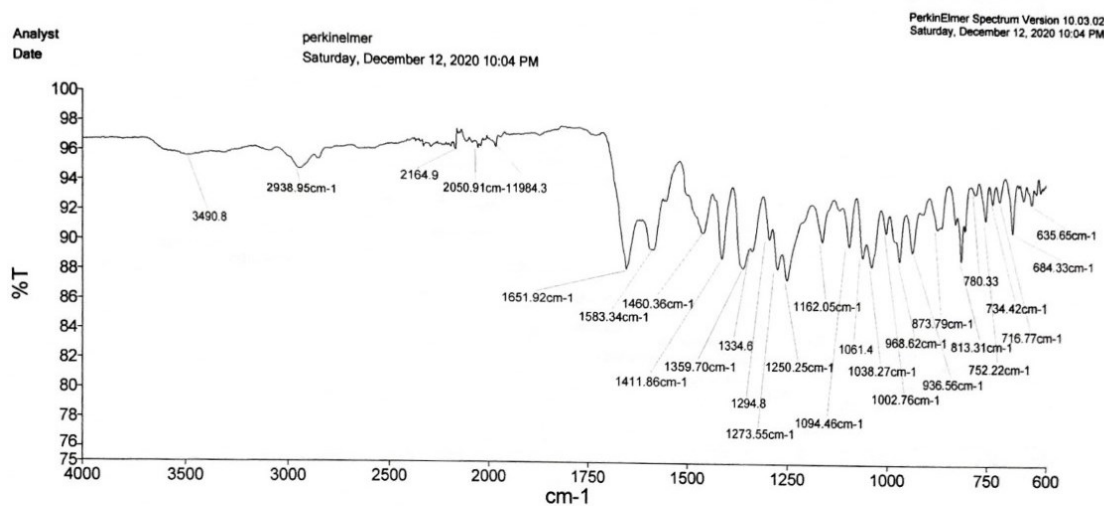


Figure S143. ESI-TOF-MS of stephapierrine H (8)



Sample Name	Description	Quality Checks
AS-IR1239	AS-RU15925	The Quality Checks give rise to a Weak Bands warning for the sample.

Figure S144. IR spectrum of stephapierrine H (8)

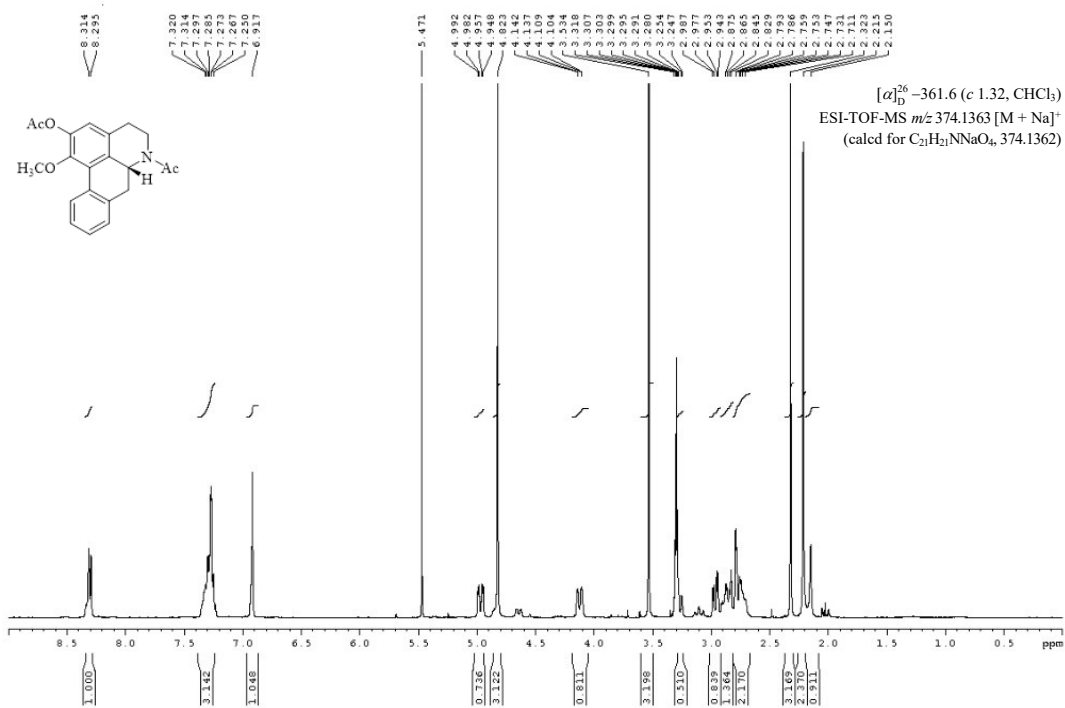


Figure S145. ^1H NMR spectrum (CD_3OD , 400 MHz) of *O,N*-diacetylasimilobine (9)

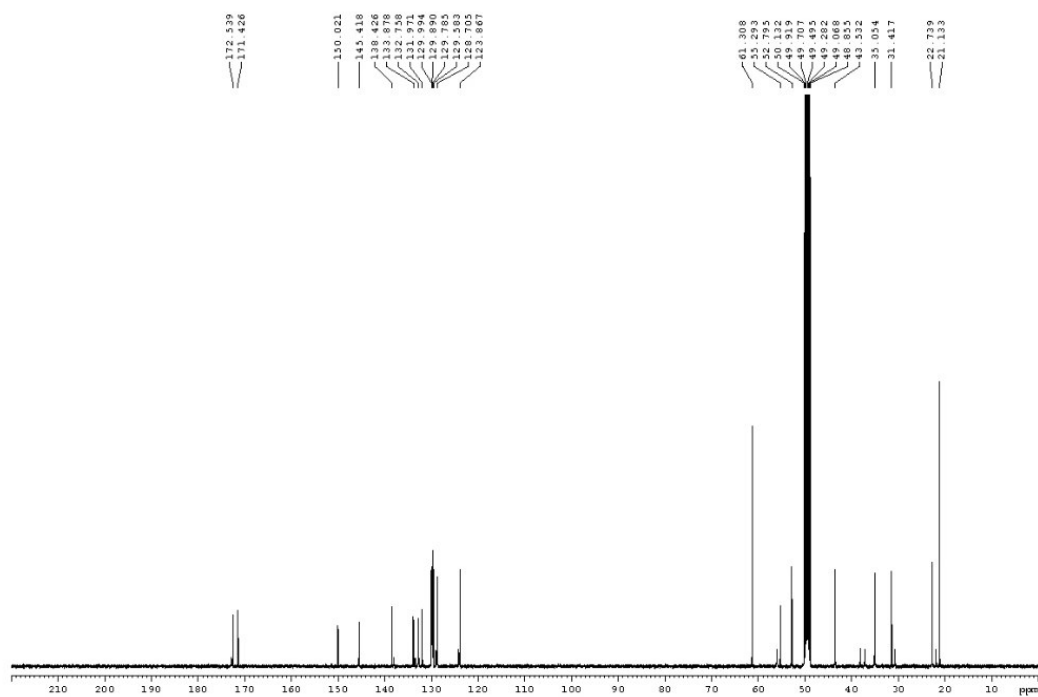


Figure S146. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of *O,N*-diacetylasimilobine (9)

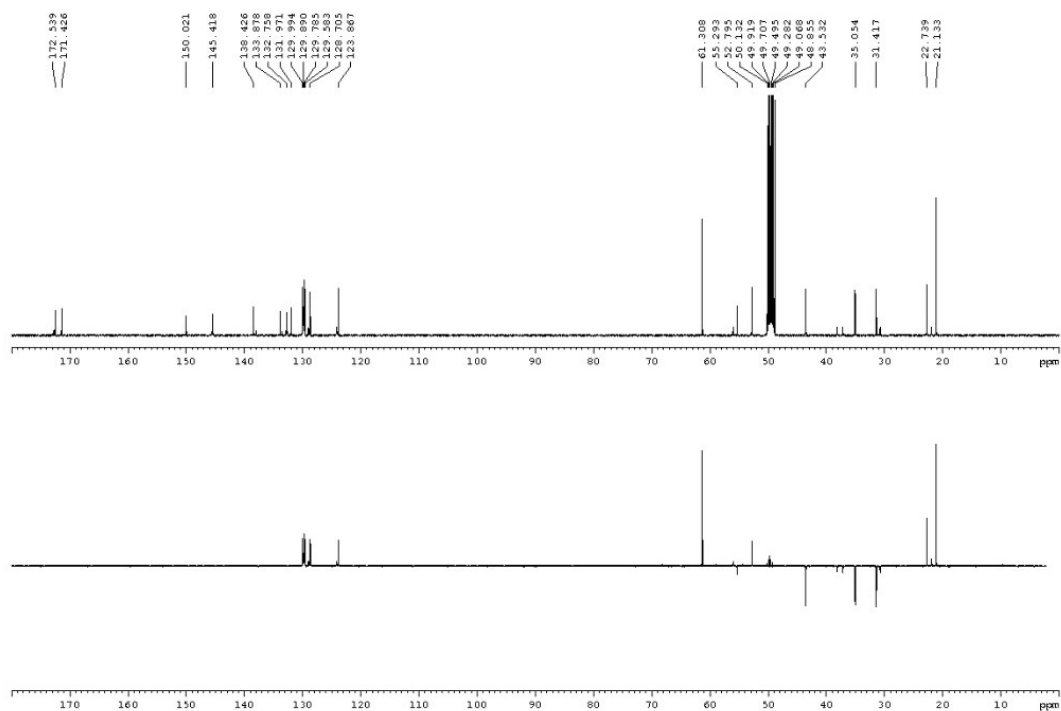


Figure S147. DEPT135 spectrum (CD₃OD, 100 MHz) of *O,N*-diacetylasimilobine (**9**)

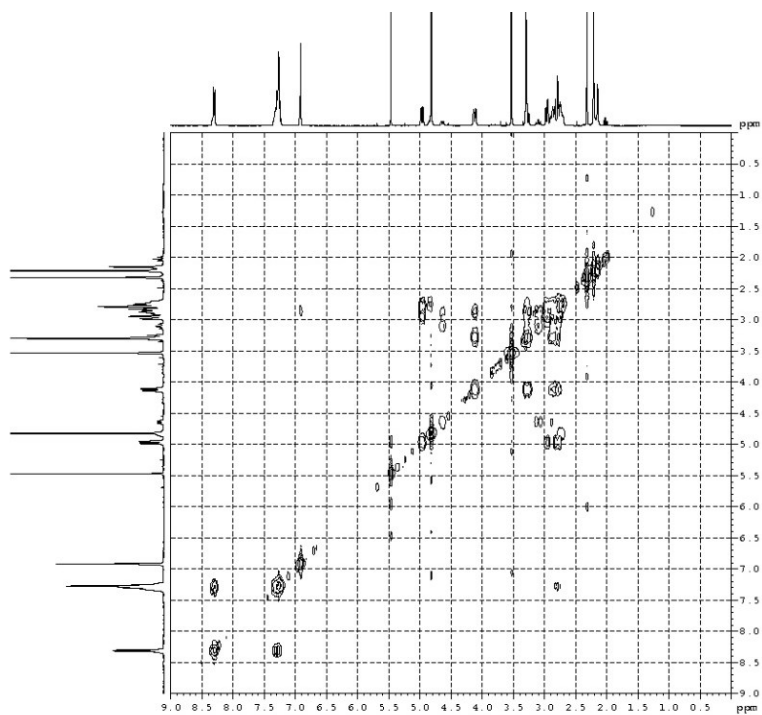


Figure S148. COSY spectrum of *O,N*-diacetylasimilobine (**9**) in CD₃OD

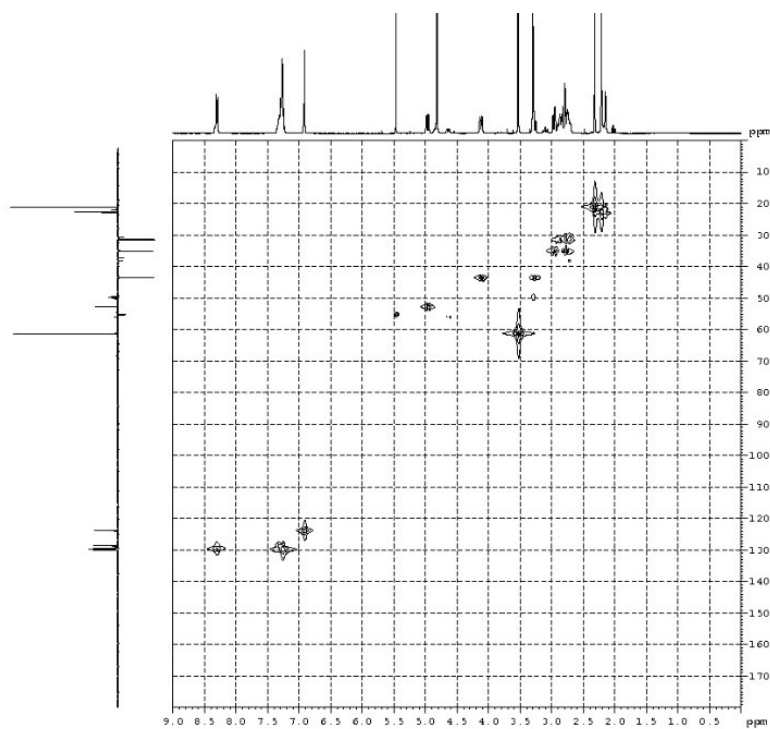


Figure S149. HMQC spectrum of *O,N*-diacetylasimilobine (**9**) in CD₃OD

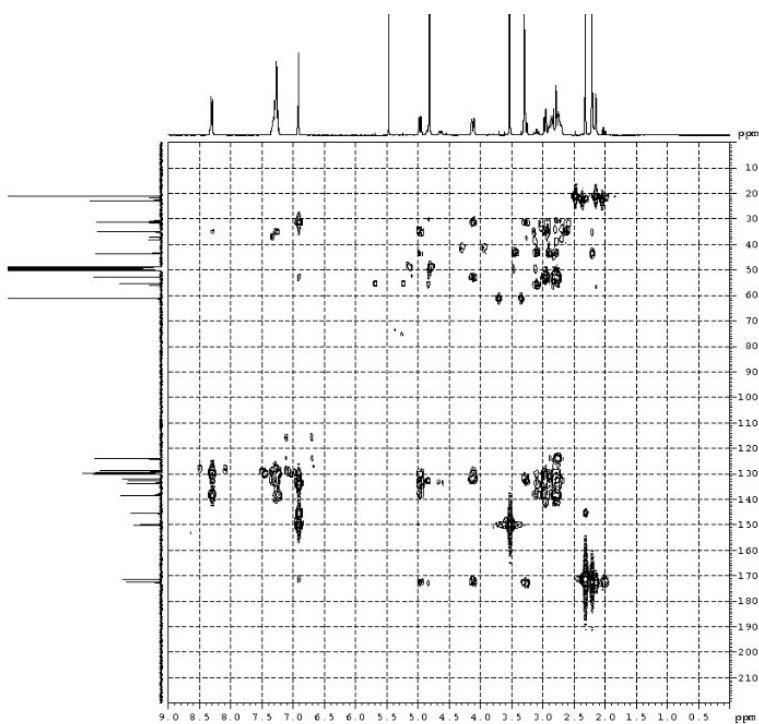


Figure S150. HMBC spectrum of *O,N*-diacetylasimilobine (**9**) in CD₃OD

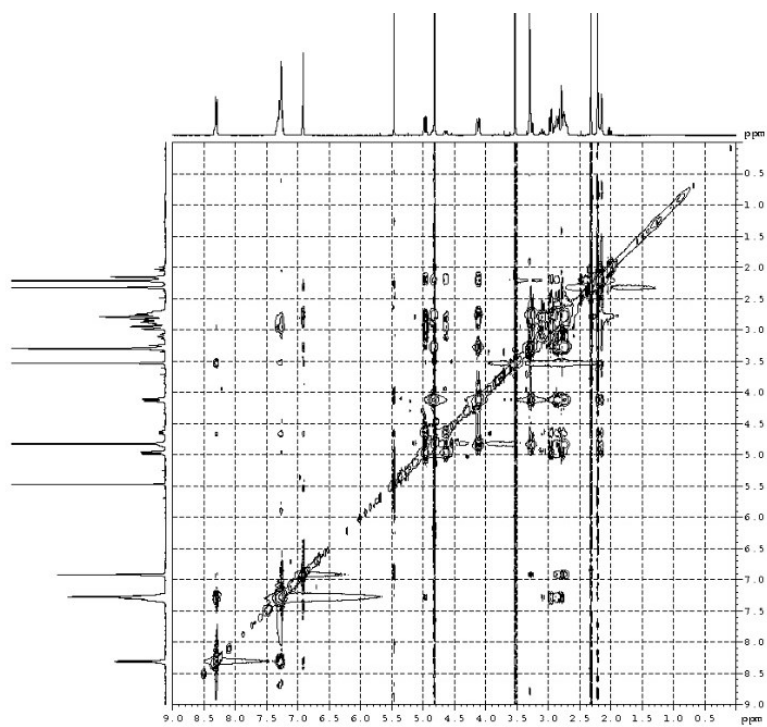


Figure S151. NOESY spectrum of *O,N*-diacetylasimilobine (**9**) in CD_3OD

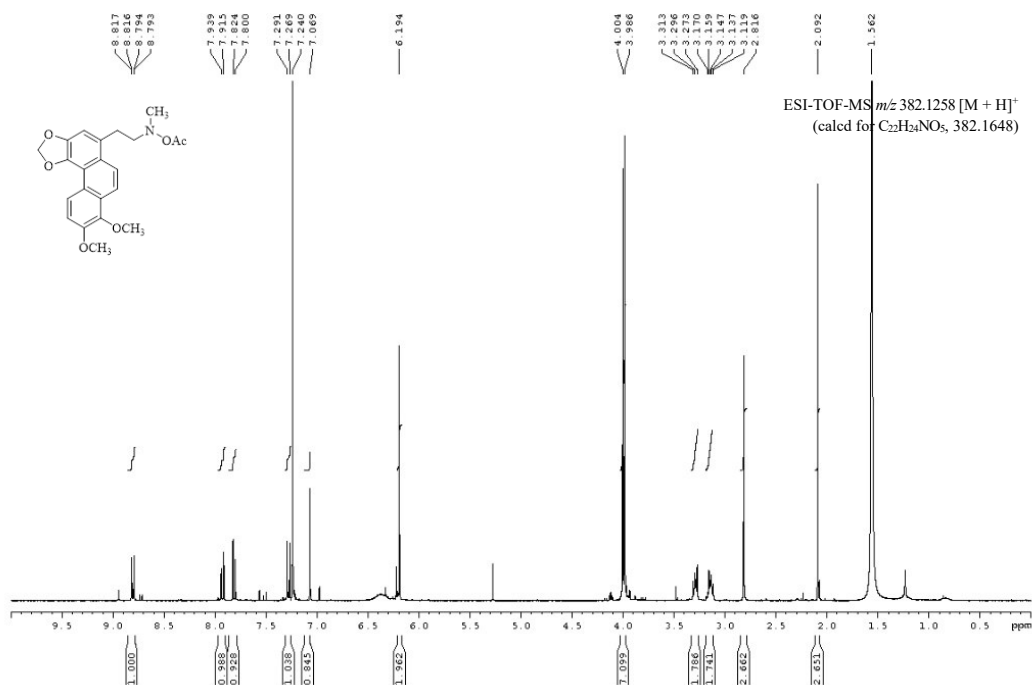


Figure S152. ^1H NMR spectrum (CDCl_3 , 400 MHz) of *N*-acetamideseocrebanine (**10**)

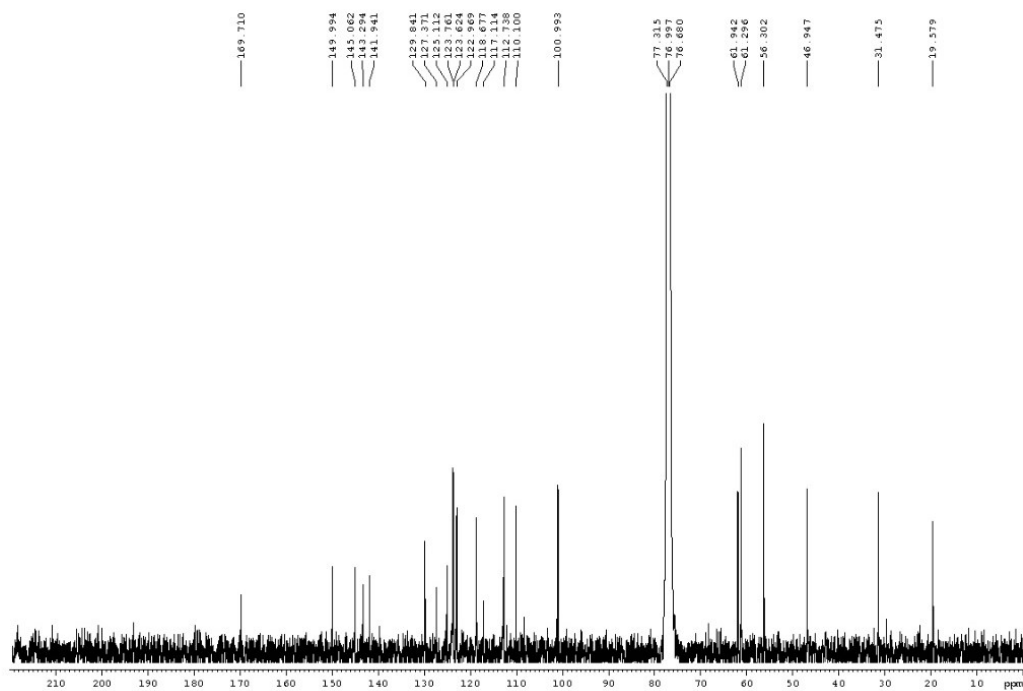


Figure S153. ¹³C NMR spectrum (CDCl₃, 100 MHz) of *N*-acetamideseccrebanine (10)

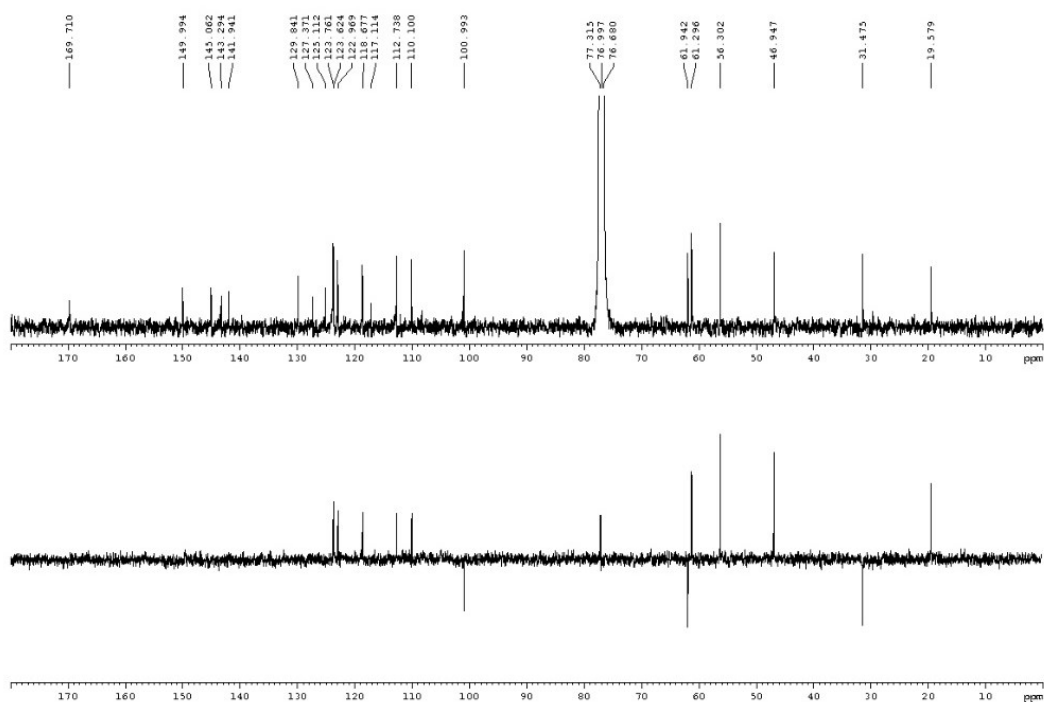


Figure S154. DEPT135 spectrum (CDCl₃, 100 MHz) of *N*-acetamideseccrebanine (10)

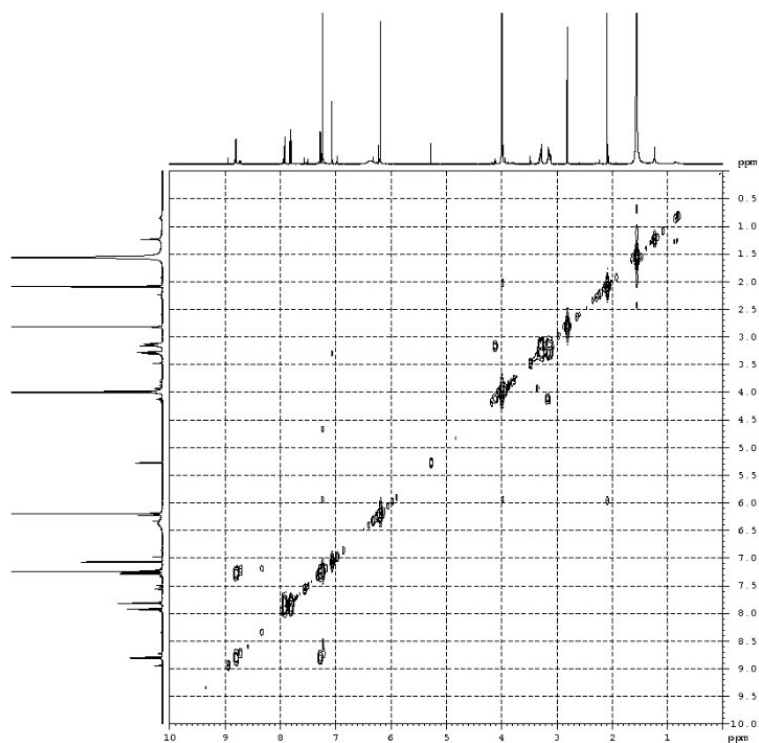


Figure S155. COSY spectrum of *N*-acetamideseccrebanine (**10**) in CDCl₃

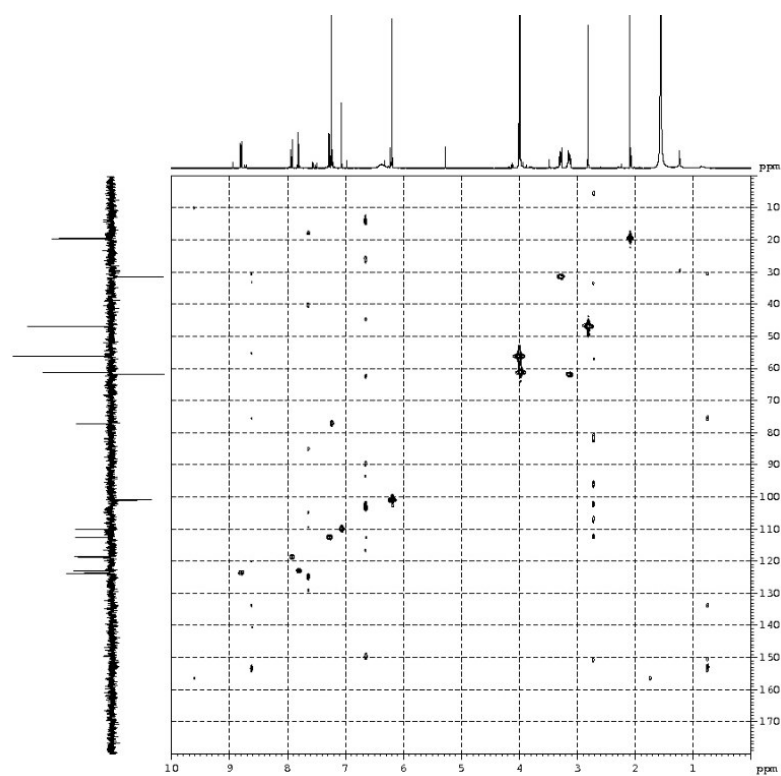


Figure S156. HMBC spectrum of *N*-acetamideseccrebanine (**10**) in CDCl₃

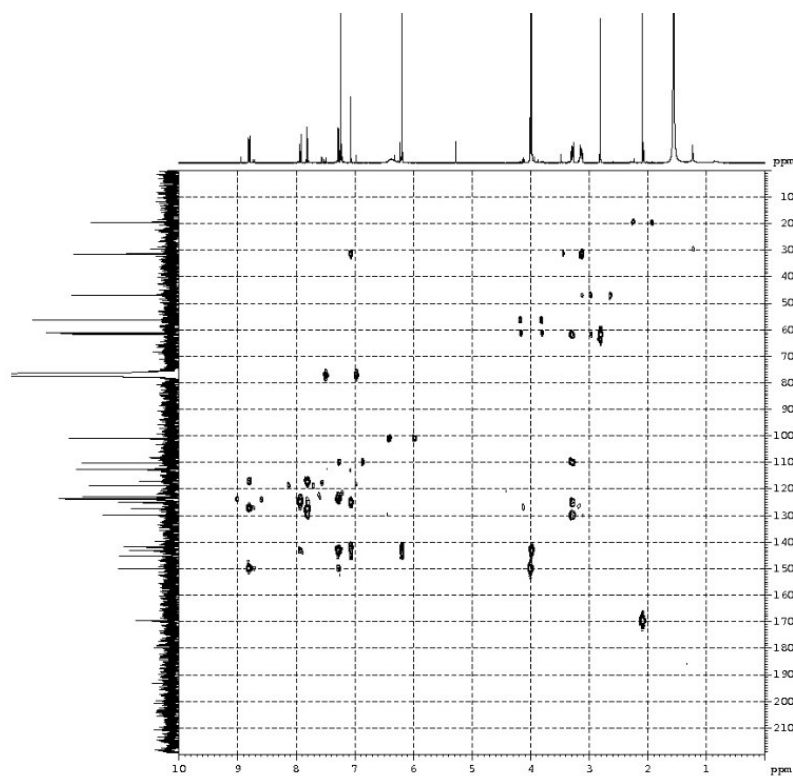


Figure S157. HMBC spectrum of *N*-acetamideseccrebanine (**10**) in CDCl_3

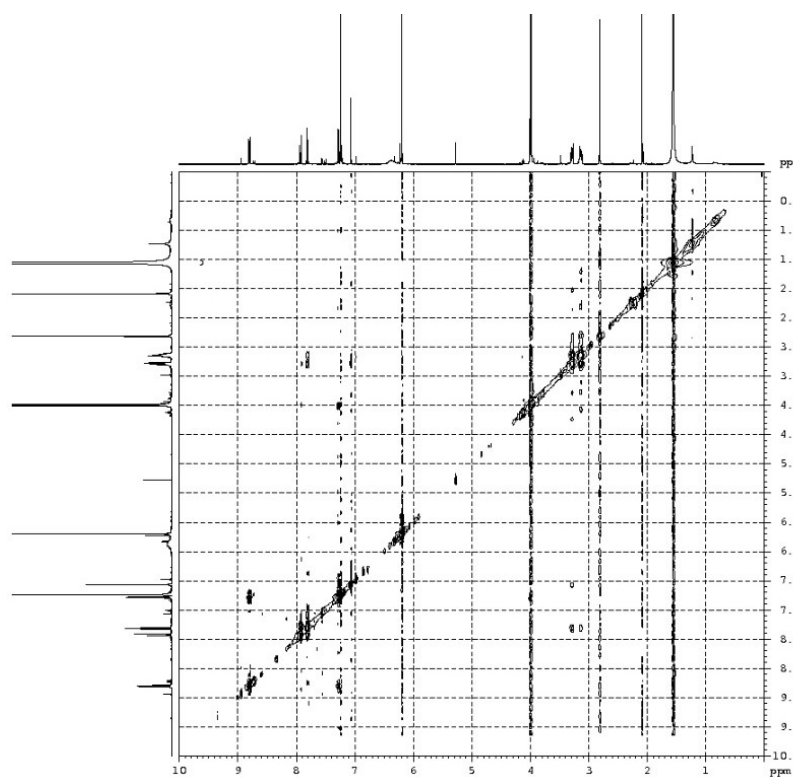


Figure S158. NOESY spectrum of *N*-acetamideseccrebanine (**10**) in CDCl_3

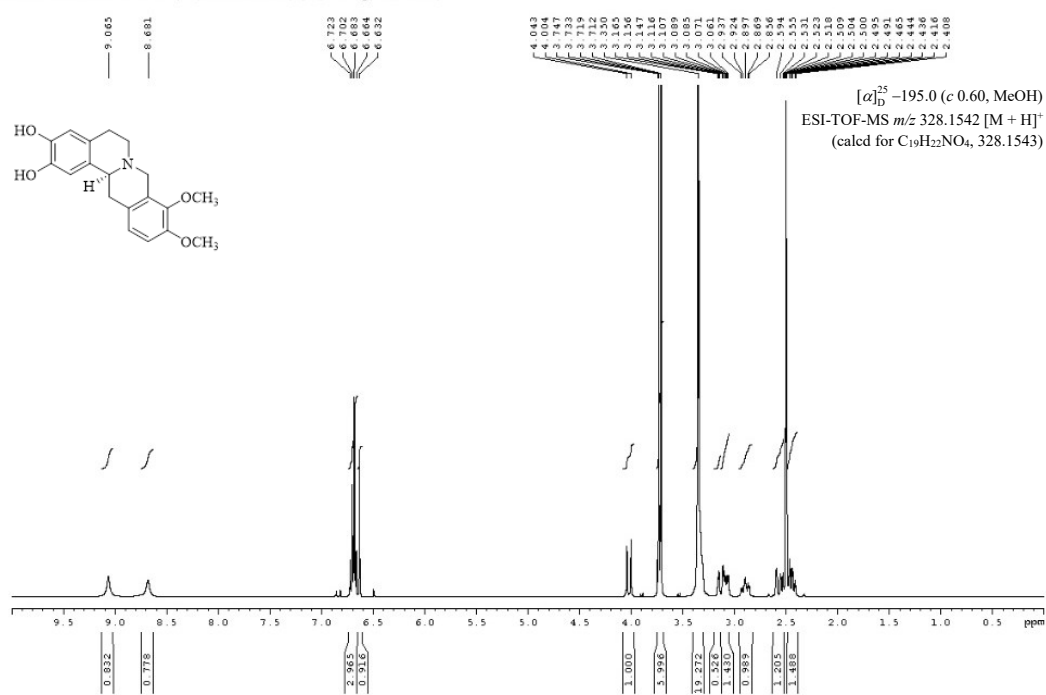


Figure S159. 1H NMR spectrum (DMSO- d_6 , 400 MHz) of 2,3-didemethyltetrahydropalmatine (**11**)

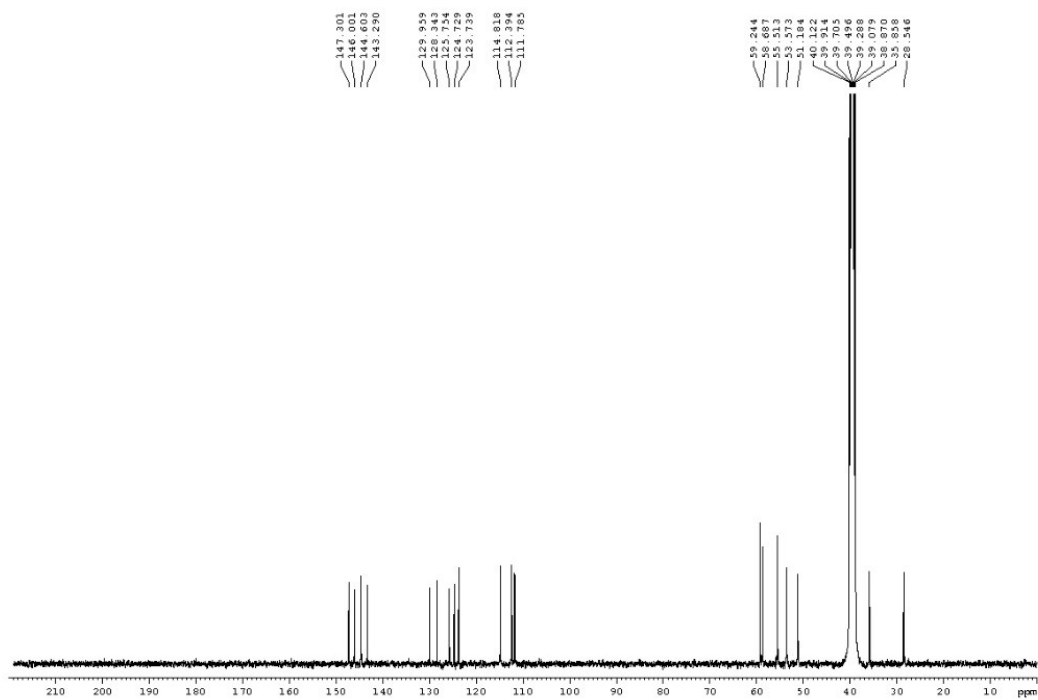


Figure S160. ^{13}C NMR spectrum (DMSO- d_6 , 100 MHz) of 2,3-didemethyltetrahydropalmatine (**11**)

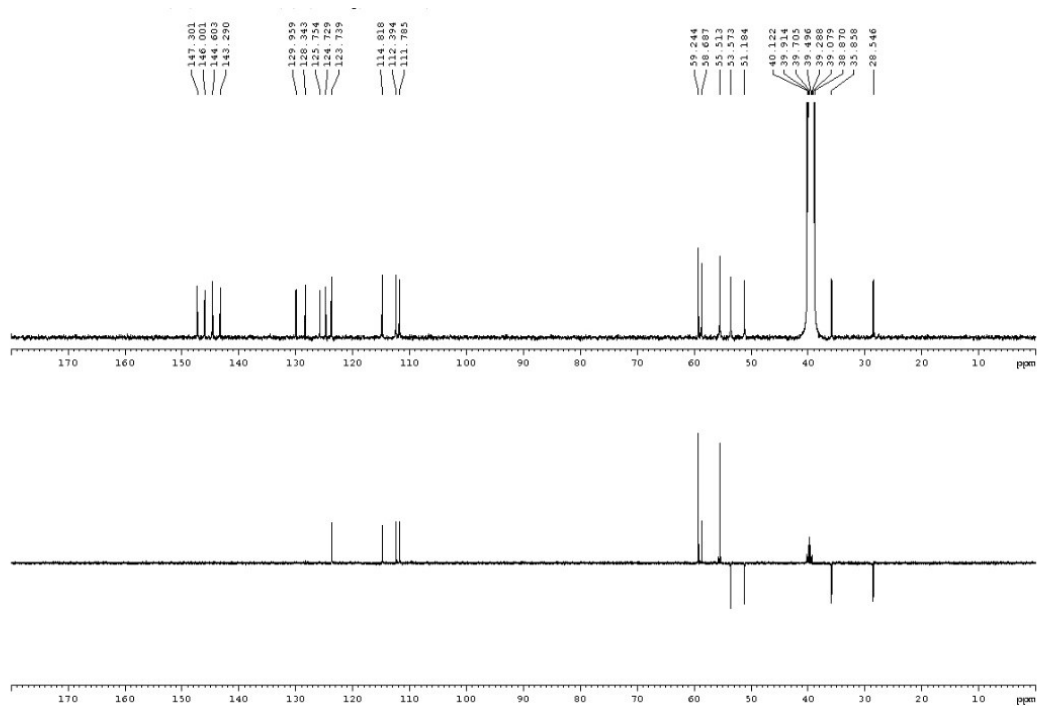


Figure S161. DEPT135 spectrum (DMSO- d_6 , 100 MHz) of 2,3-didemethyltetrahydropalmatine (**11**)

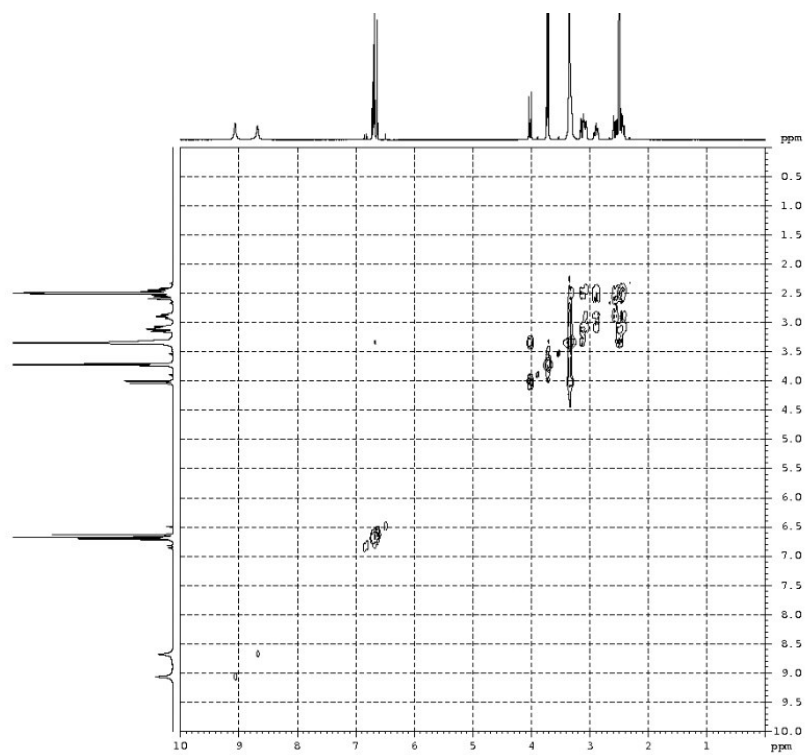


Figure S162. COSY spectrum of 2,3-didemethyltetrahydropalmatine (**11**) in DMSO- d_6

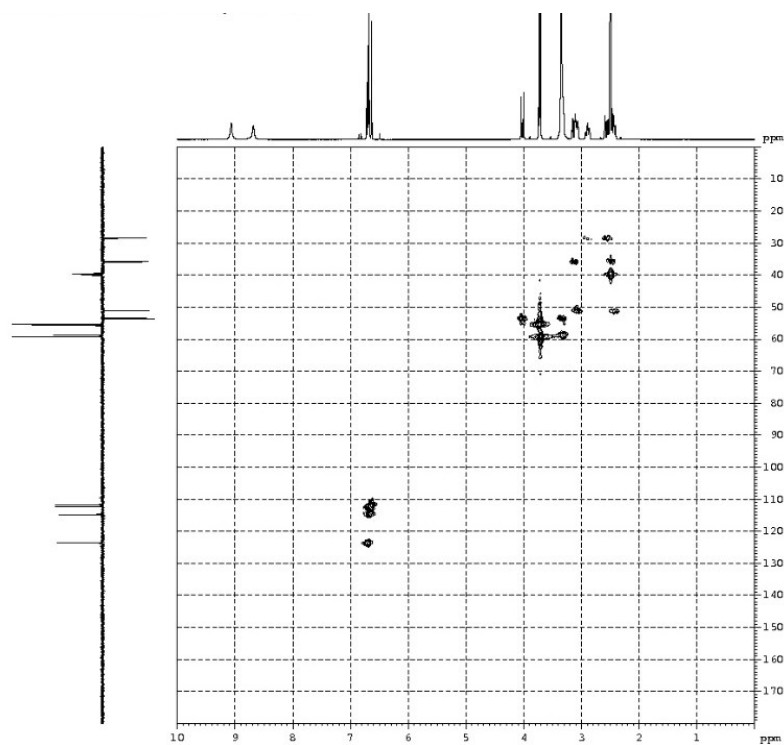


Figure S163. HMQC spectrum of 2,3-didemethyltetrahydropalmatine (**11**) in DMSO-*d*₆

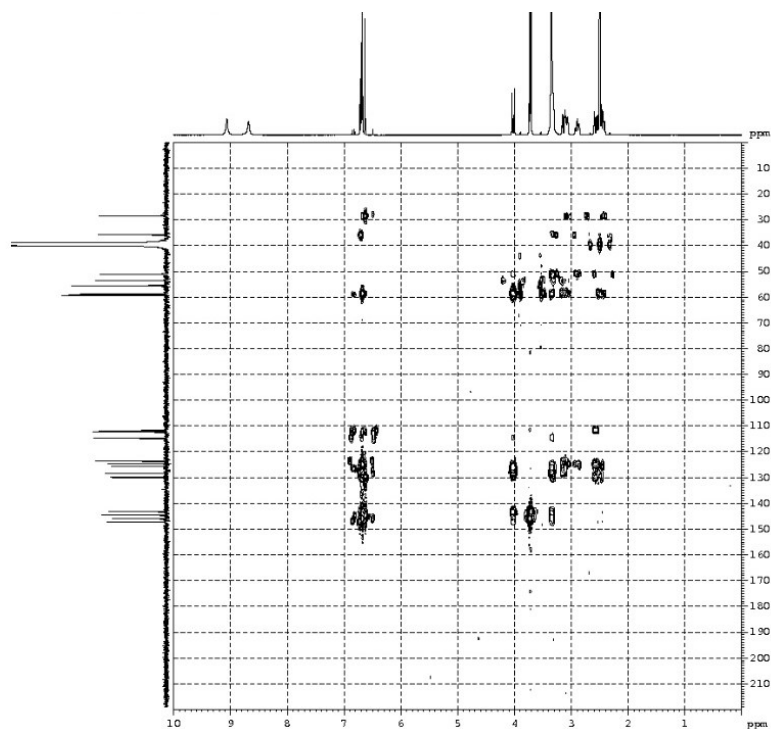


Figure S164. HMBC spectrum of 2,3-didemethyltetrahydropalmatine (**11**) in DMSO-*d*₆

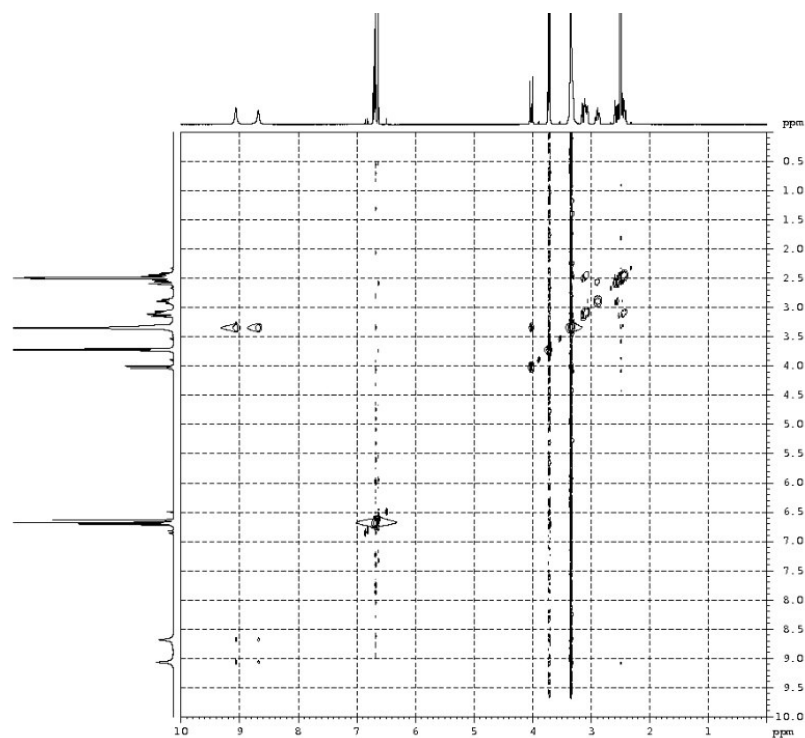


Figure S165. NOESY spectrum of 2,3-didemethyltetrahydropalmatine (11) in DMSO-*d*₆

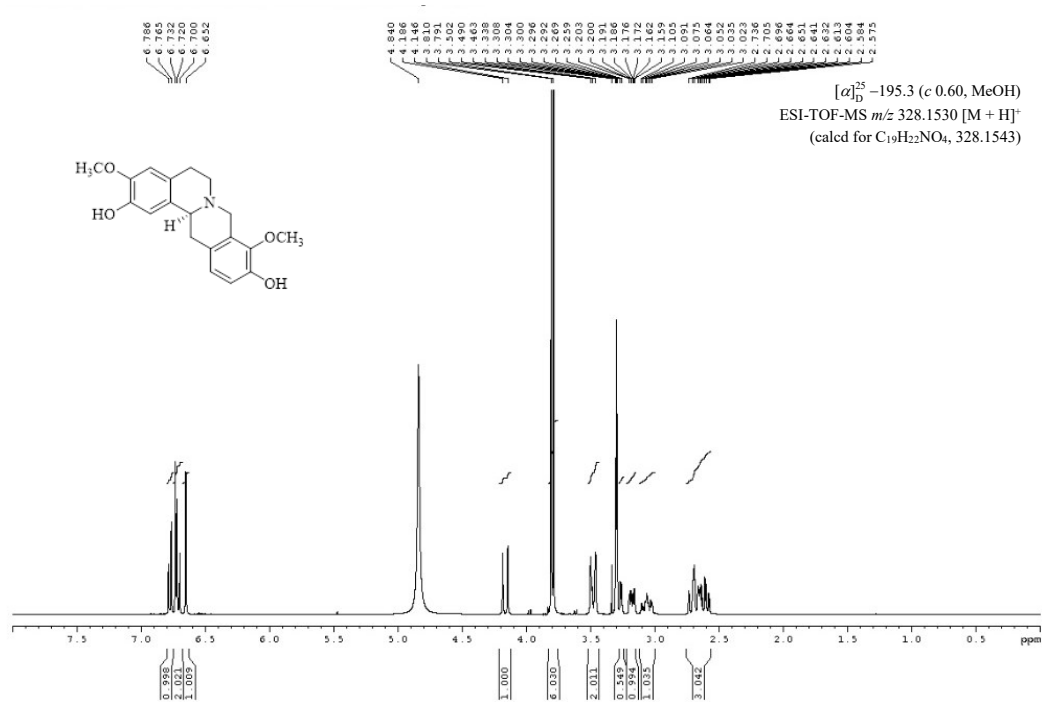


Figure S166. ¹H NMR spectrum (CD₃OD, 400 MHz) of stepholidine (12)

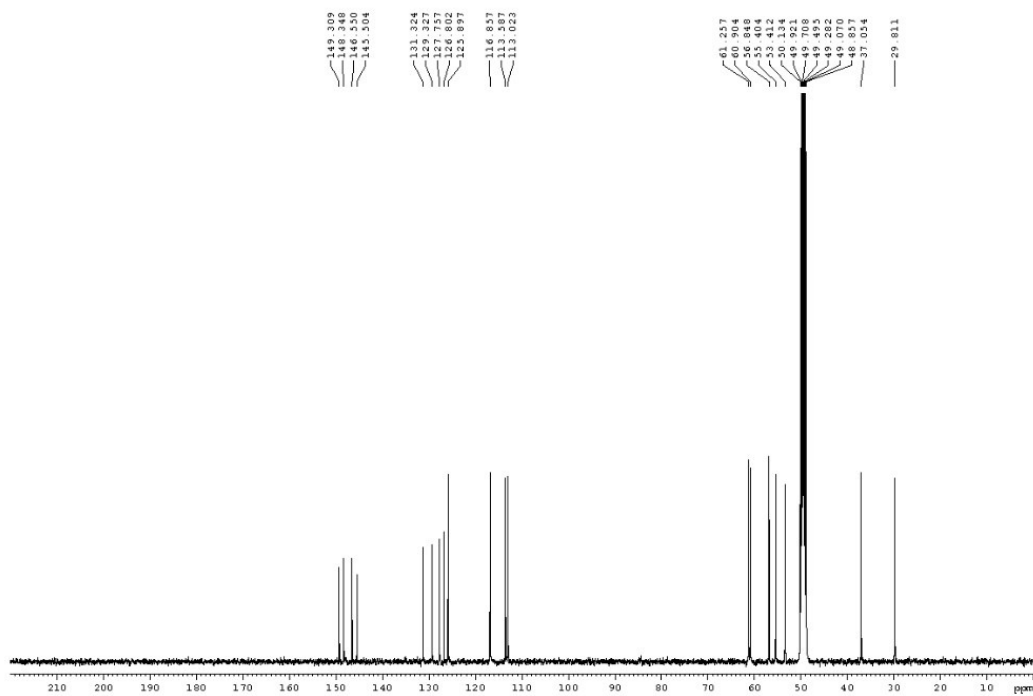


Figure S167. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of stepholidine (**12**)

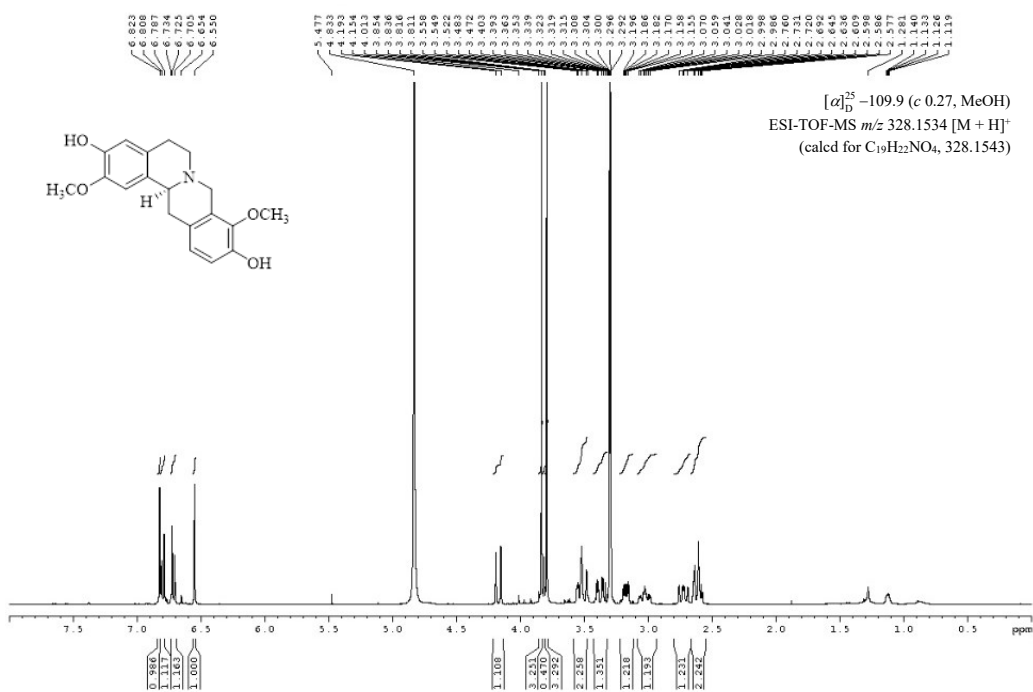


Figure S168. ^1H NMR spectrum (CD_3OD , 400 MHz) of discretamine (**13**)

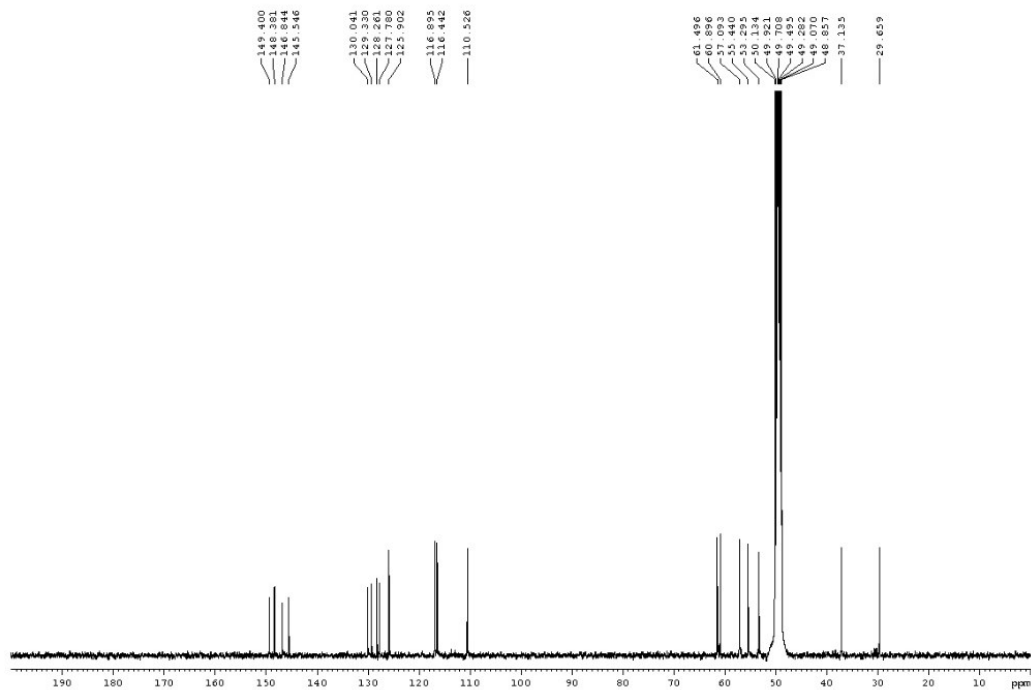


Figure S169. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of discretamine (13)

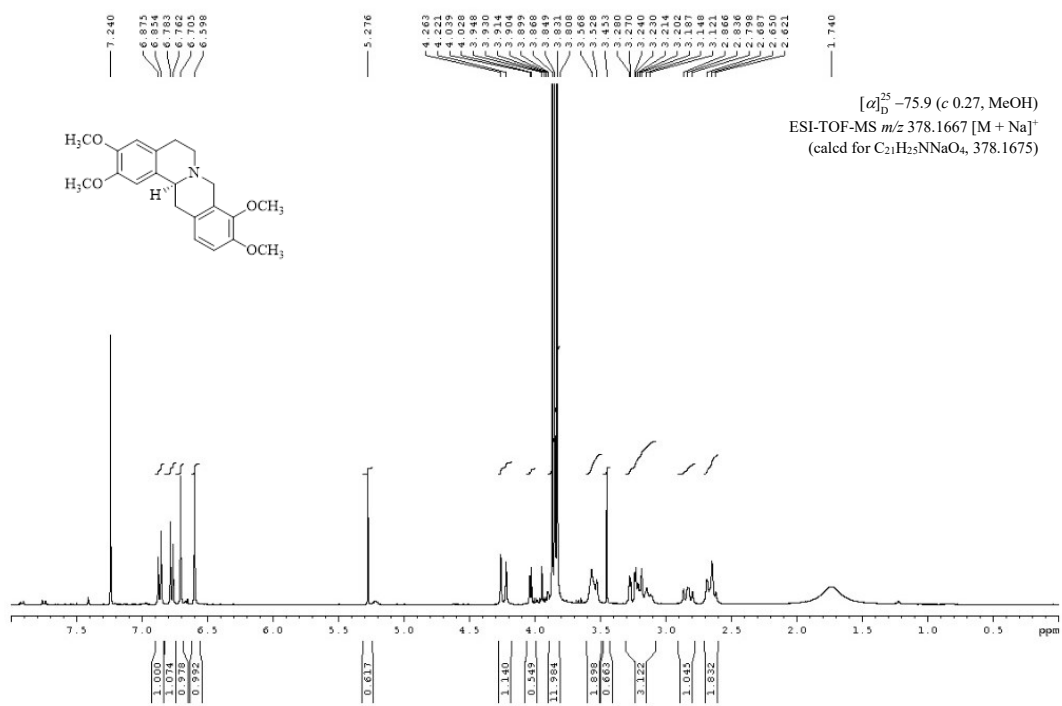


Figure S170. ^1H NMR spectrum (CDCl_3 , 400 MHz) of tetrahydropalmatine (14)

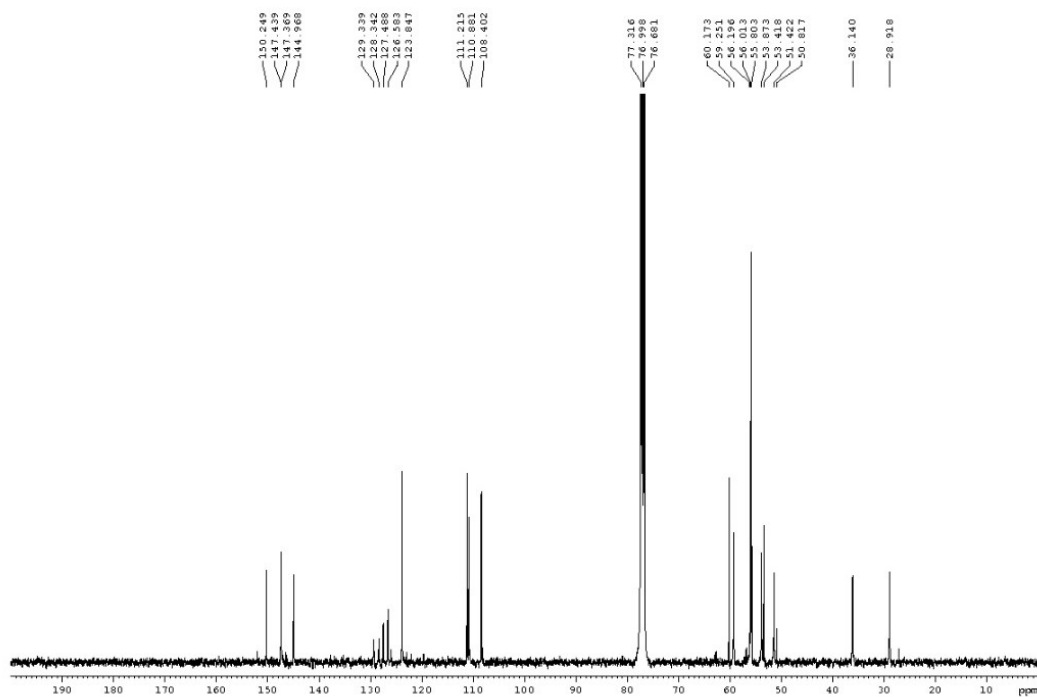


Figure S171. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of tetrahydropalmatine (14)

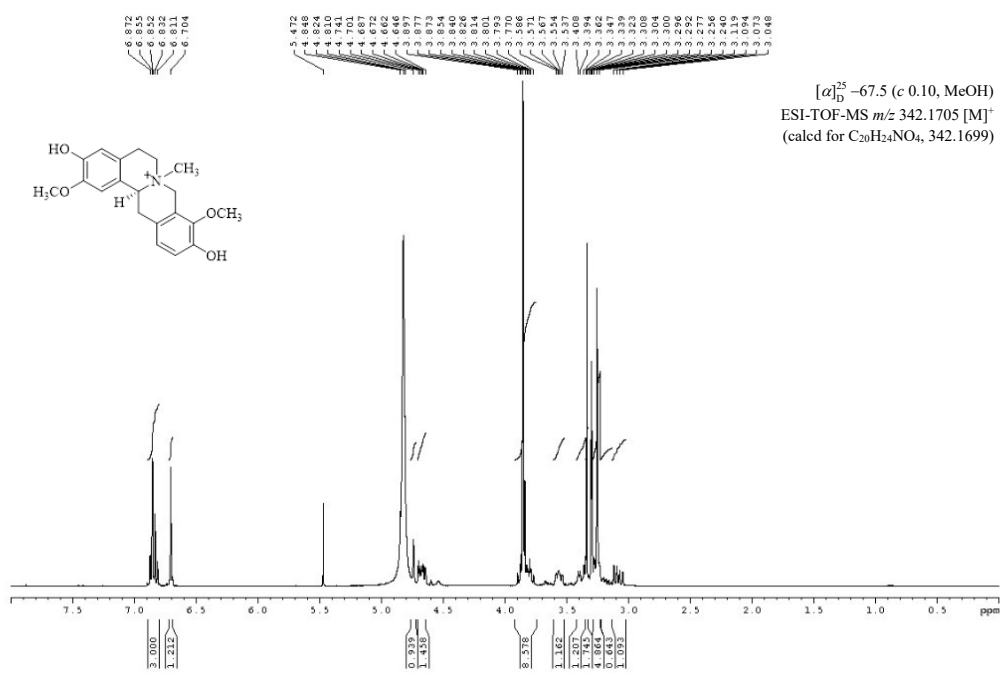


Figure S172. ^1H NMR spectrum (CD_3OD , 400 MHz) of *N*-methylstepholidine (15)

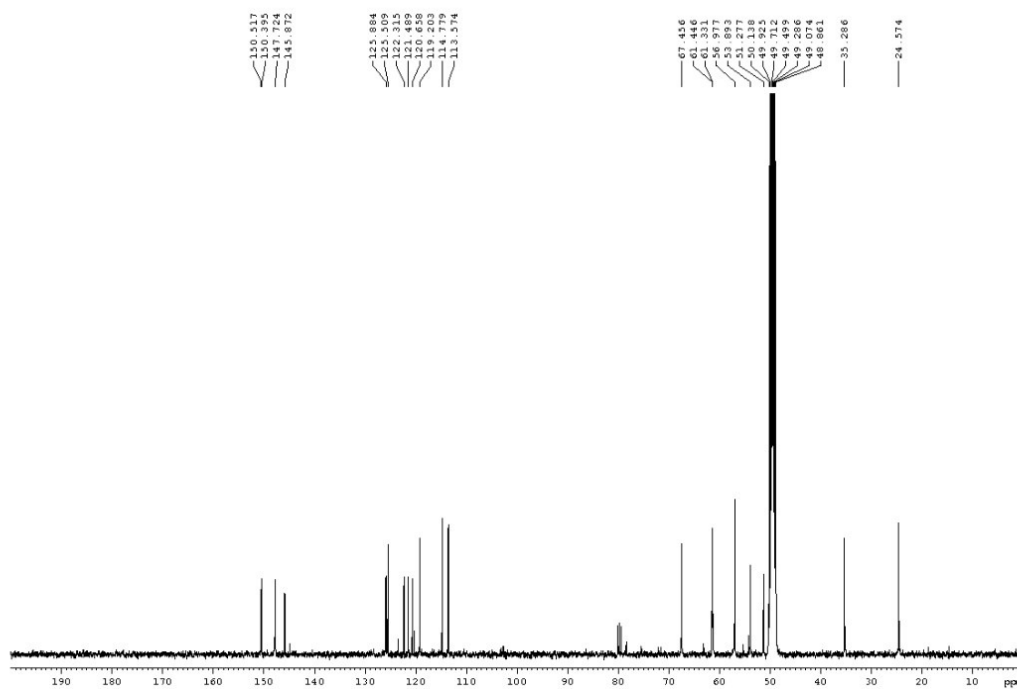


Figure S173. ^{13}C NMR spectrum (CD₃OD, 100 MHz) of *N*-methylstepholidine (15)

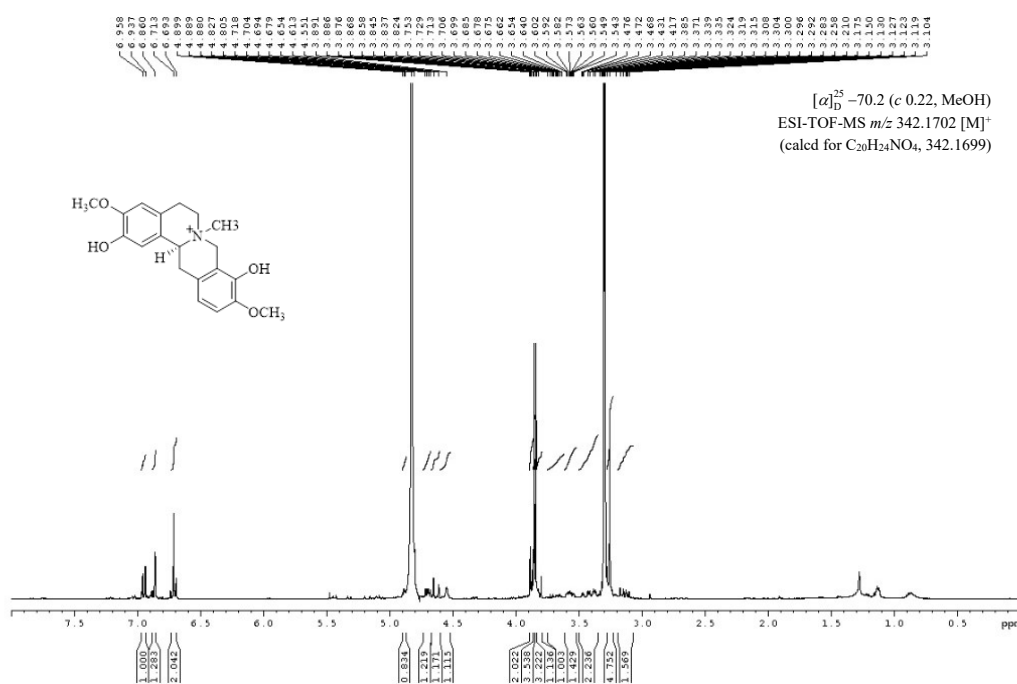


Figure S174. ^1H NMR spectrum (CD₃OD, 400 MHz) of cyclanoline (16)

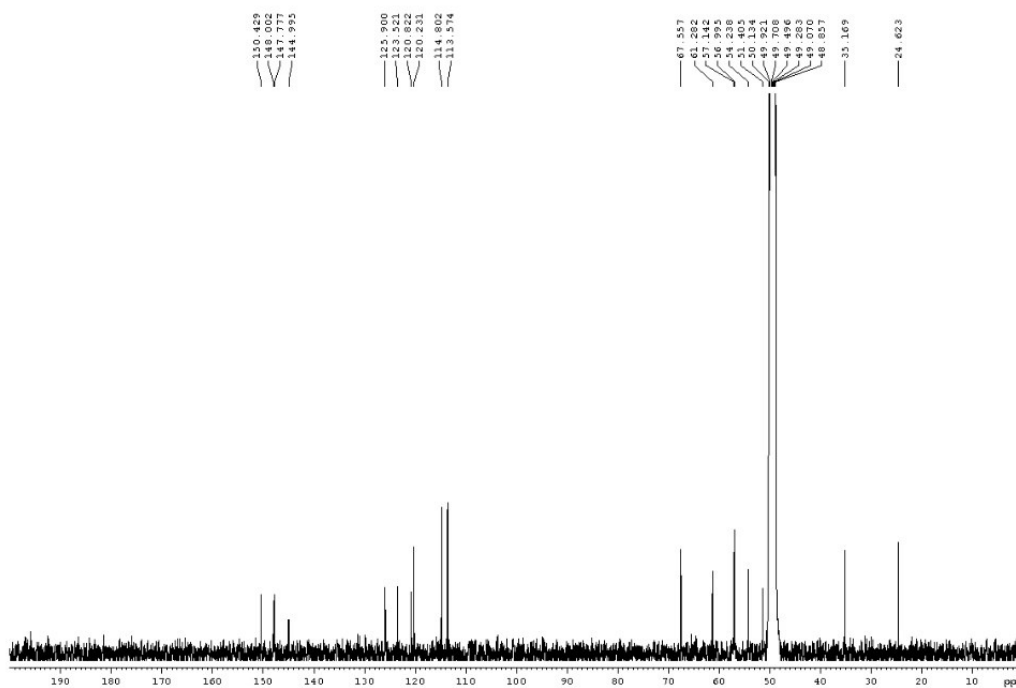


Figure S175. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of cyclanoline (**16**)

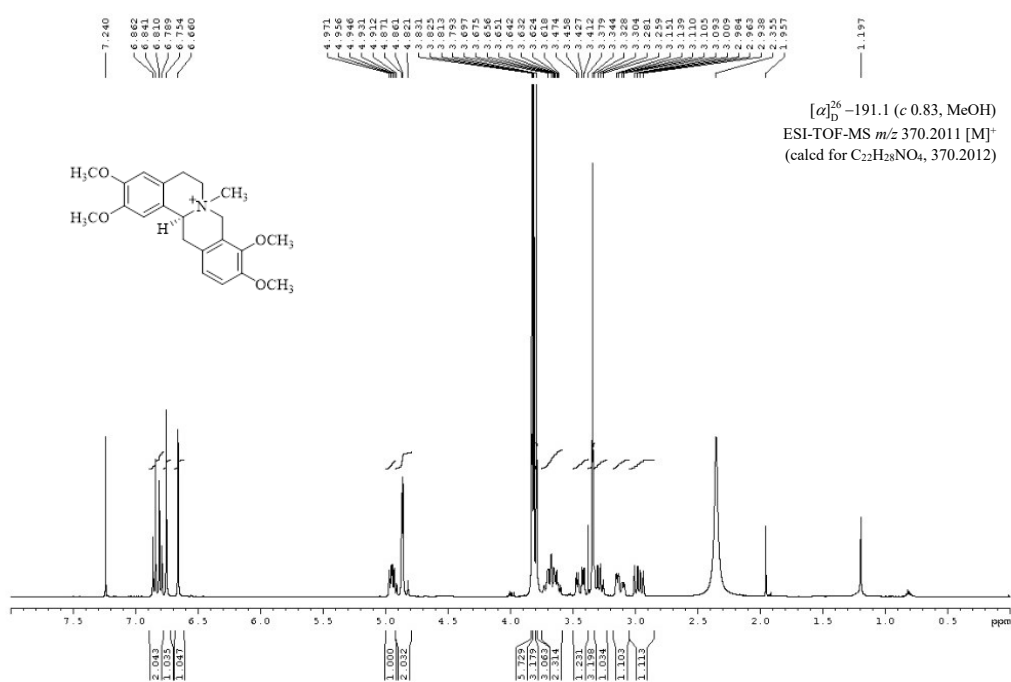


Figure S176. ^1H NMR spectrum (CDCl_3 + 5 drops CD_3OD , 400 MHz) of *N*-methyltetrahydro-palmatine (**17**)

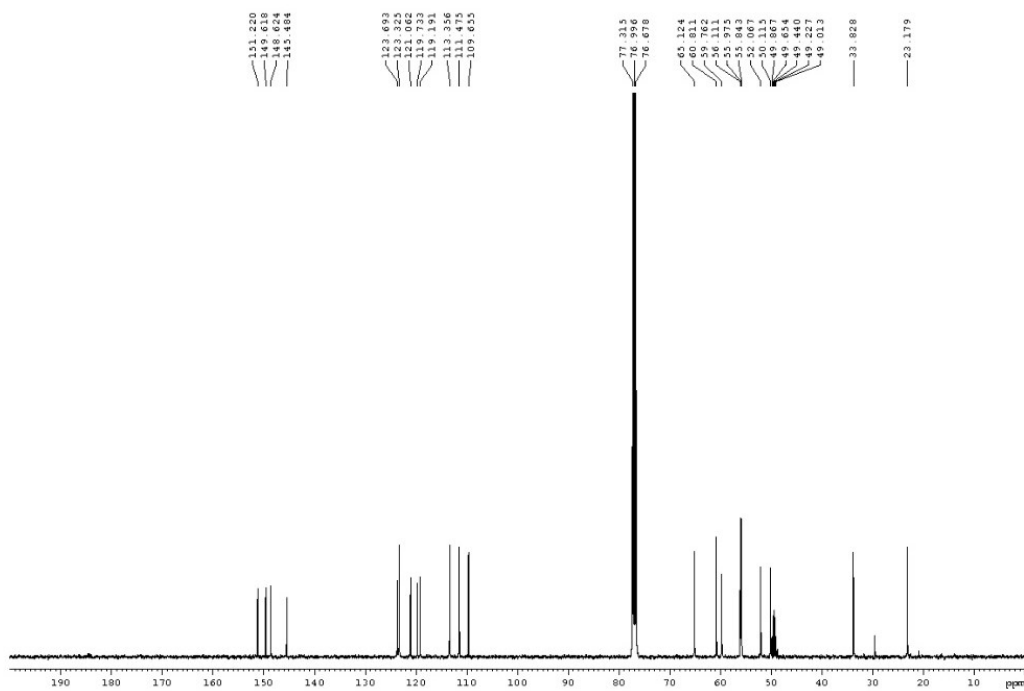


Figure S177. ^{13}C NMR spectrum (CDCl_3 + 5 drops CD_3OD , 100 MHz) of *N*-methyltetrahydro-palmatine (**17**)

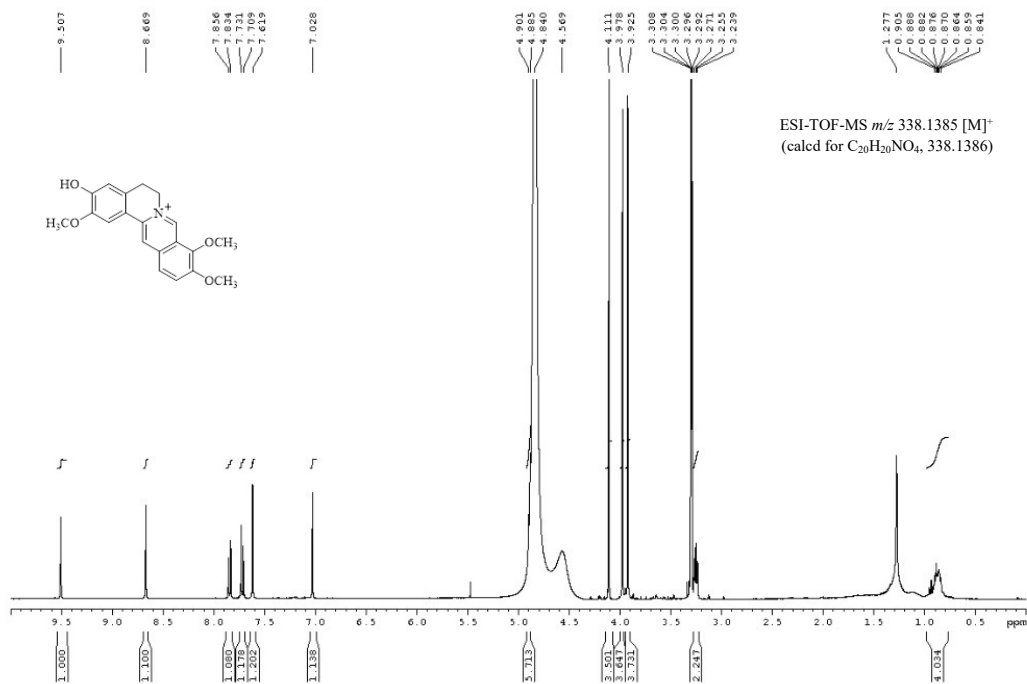


Figure S178. ^1H NMR spectrum (CD_3OD , 400 MHz) of jatrorrhizine (**18**)

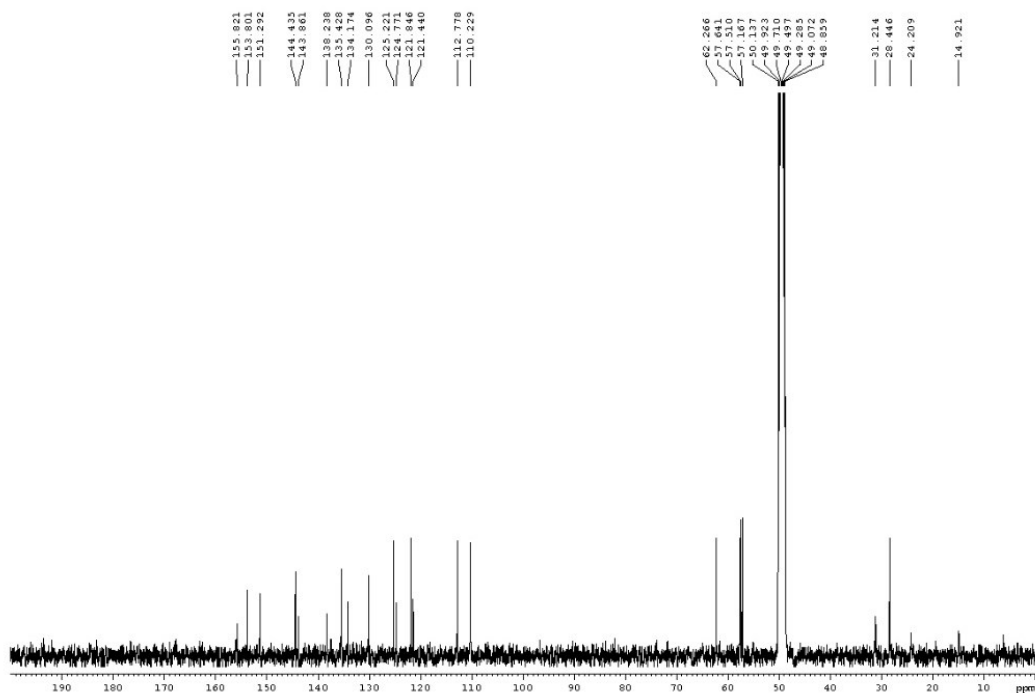


Figure S179. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of jatrorrhizine (18)

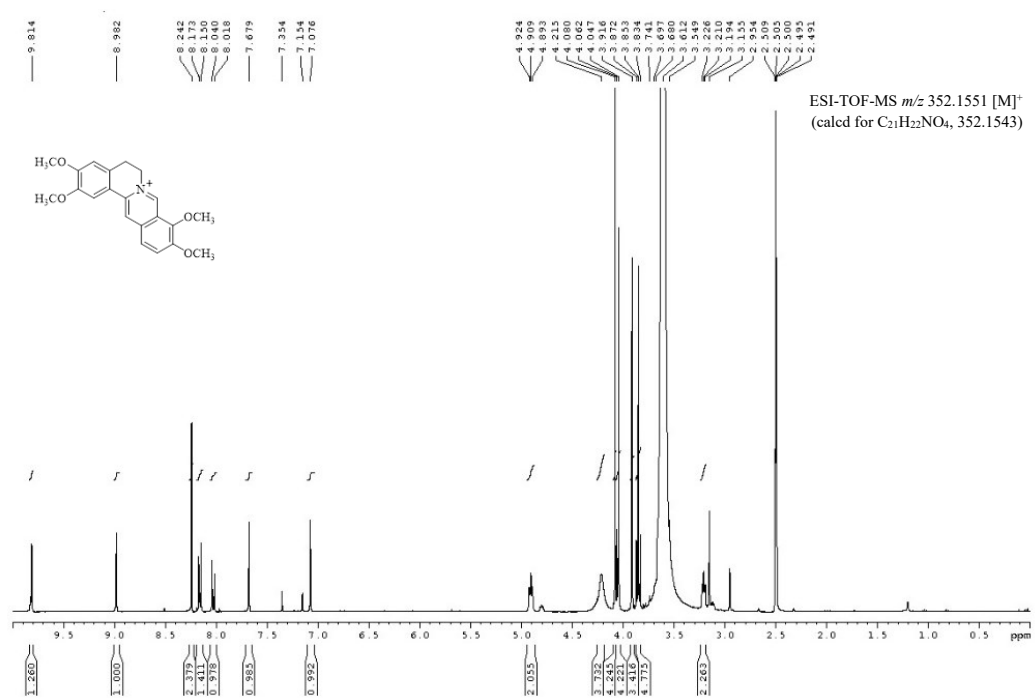


Figure S180. ^1H NMR spectrum ($\text{DMSO}-d_6$, 400 MHz) of palmatine (19)

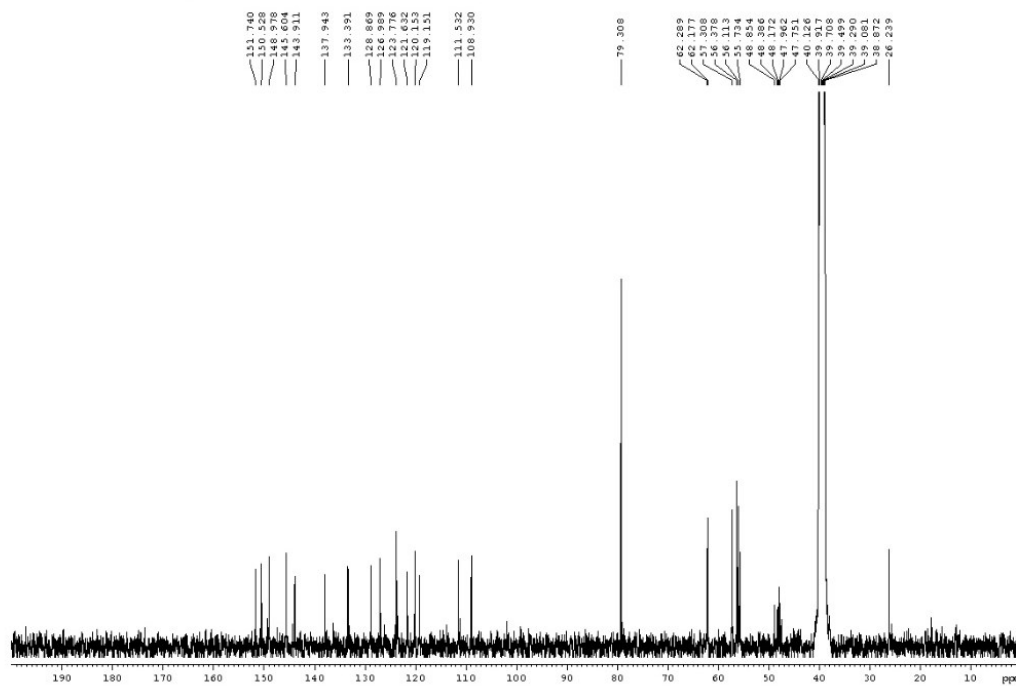


Figure S181. ^{13}C NMR spectrum ($\text{DMSO}-d_6$, 100 MHz) of palmatine (19)

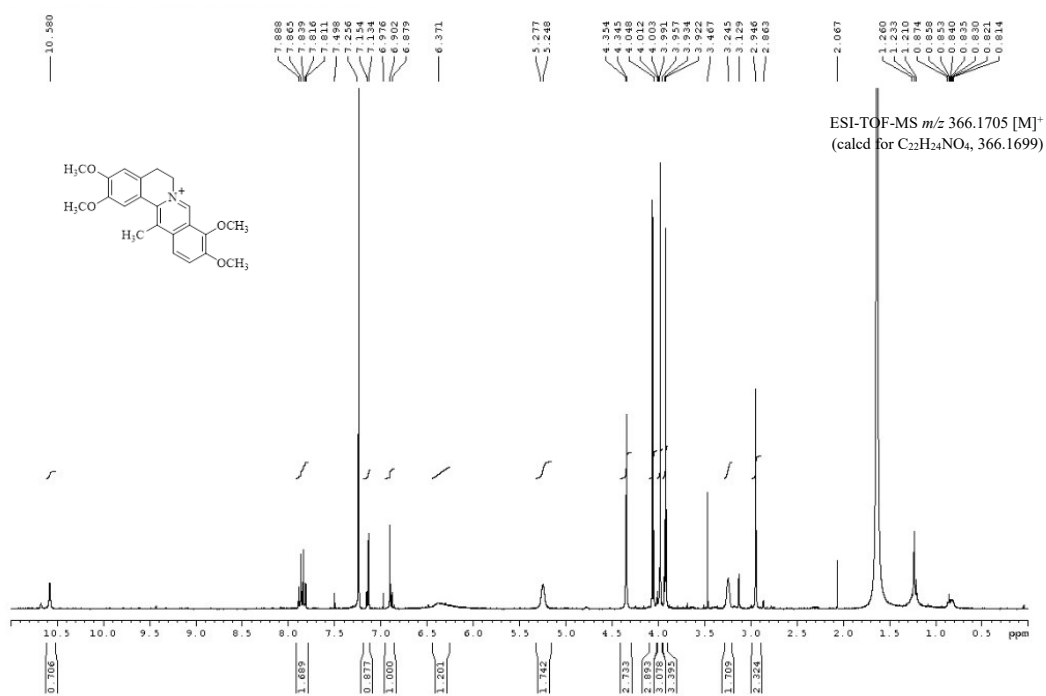


Figure S182. ^1H NMR spectrum (CDCl_3 , 400 MHz) of dehydrocorydaline (20)

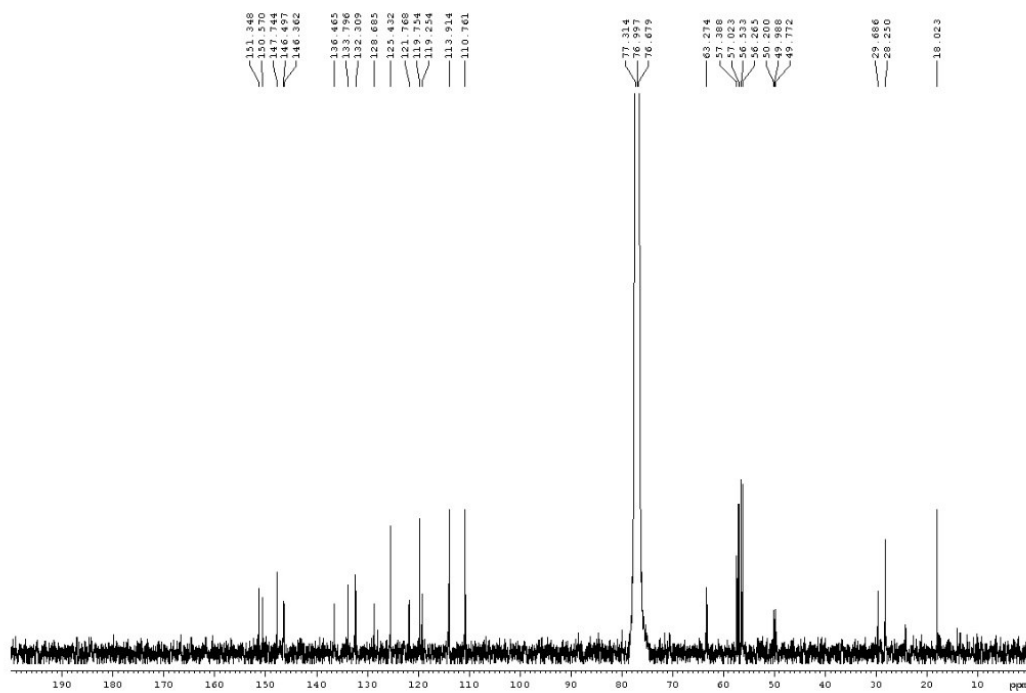


Figure S183. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of dehydrocorydaline (**20**)

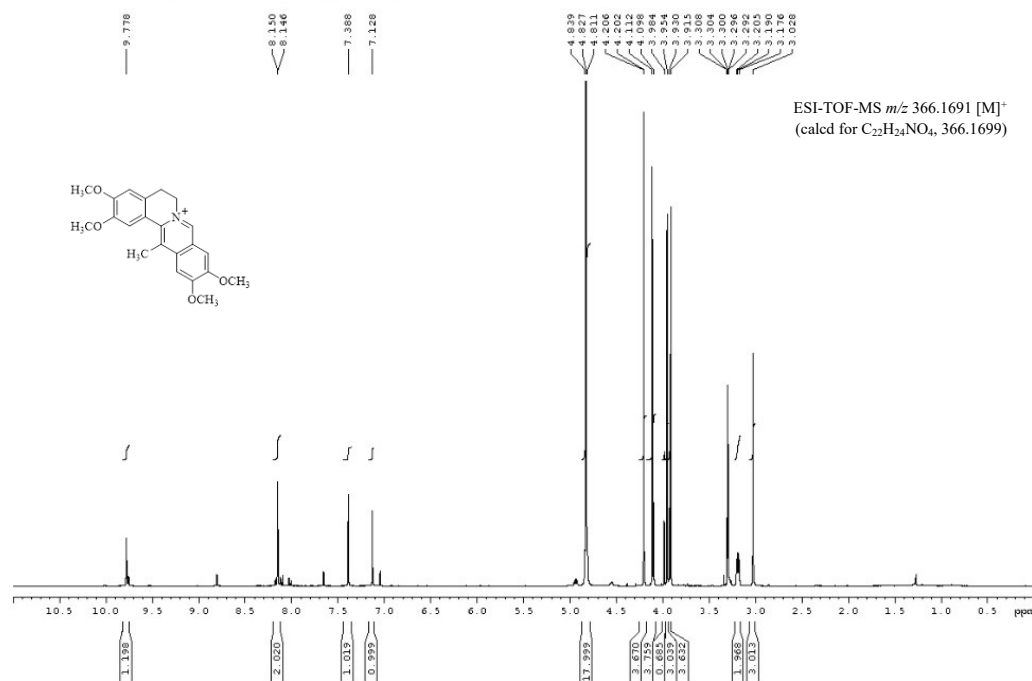


Figure S184. ^1H NMR spectrum (CD_3OD , 400 MHz) of pseudodehydrocorydaline (**21**)

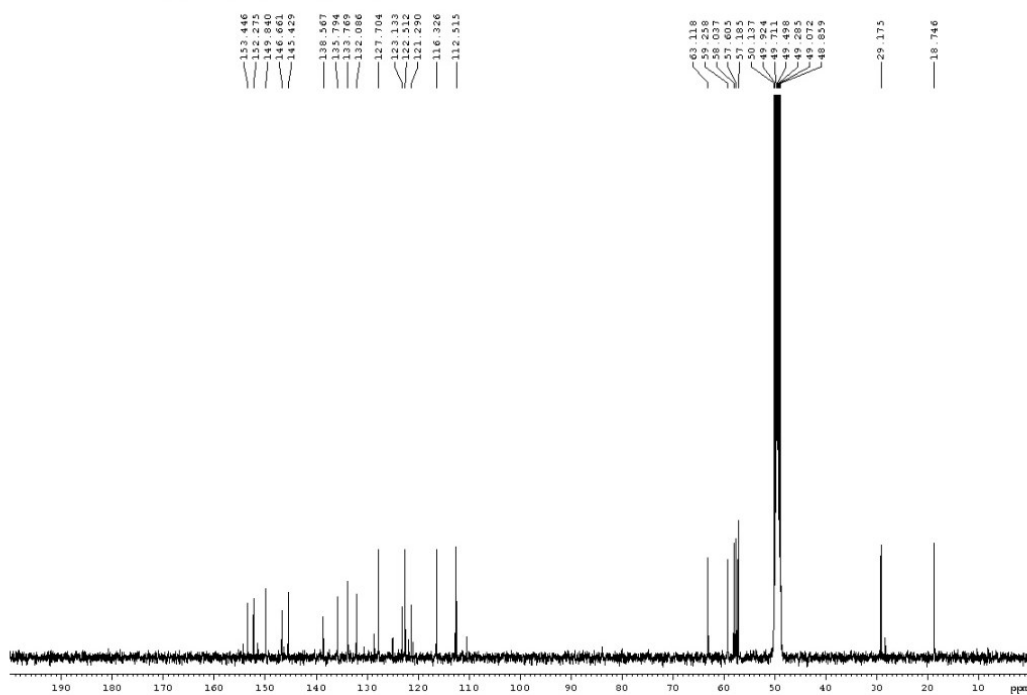


Figure S185. ^{13}C NMR spectrum (CD_3OD , 100 MHz) of pseudodehydrocorydaline (21)

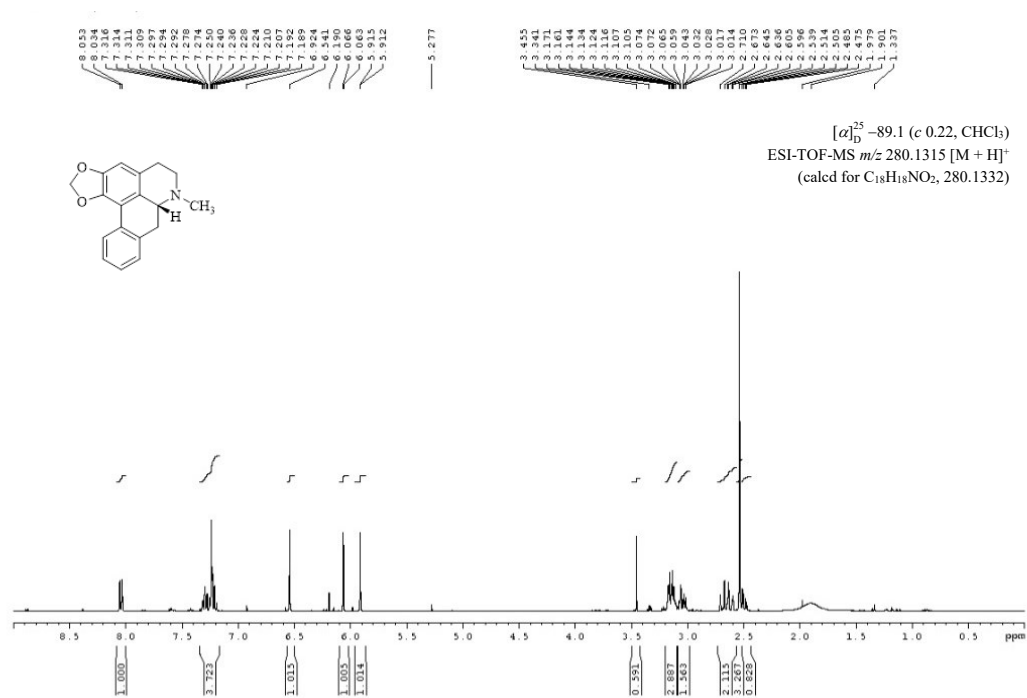


Figure S186. ^1H NMR spectrum (CDCl_3 , 400 MHz) of roemerine (22)

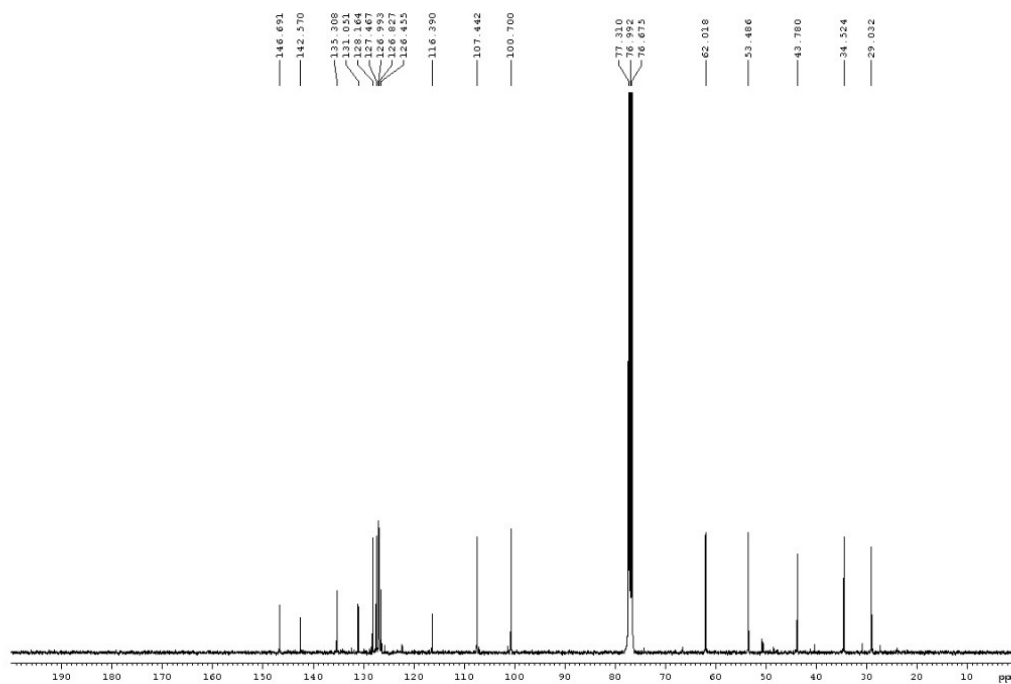


Figure S187. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of roemerine (**22**)

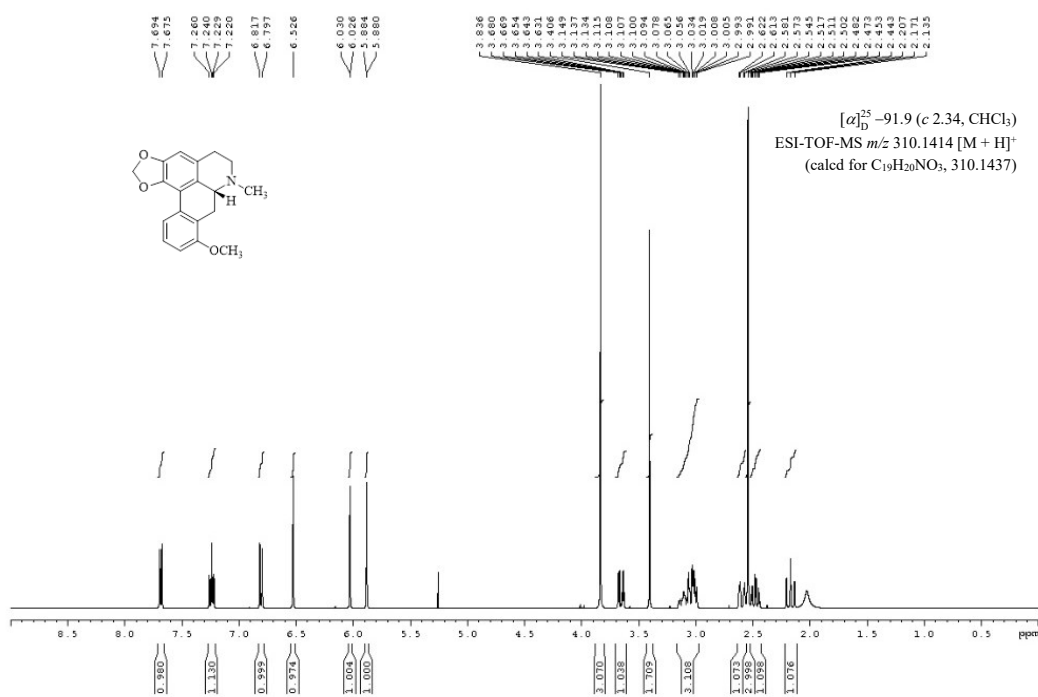


Figure S188. ^1H NMR spectrum (CDCl_3 , 400 MHz) of (-)-stephanine (**23**)

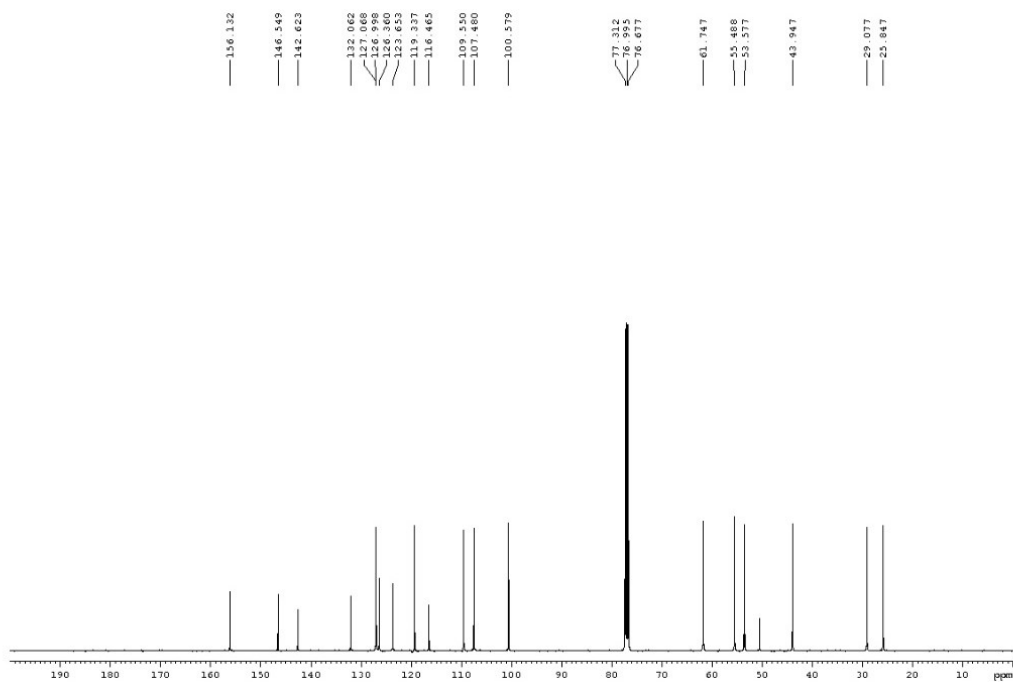


Figure S189. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of (-)-stephanine (23)

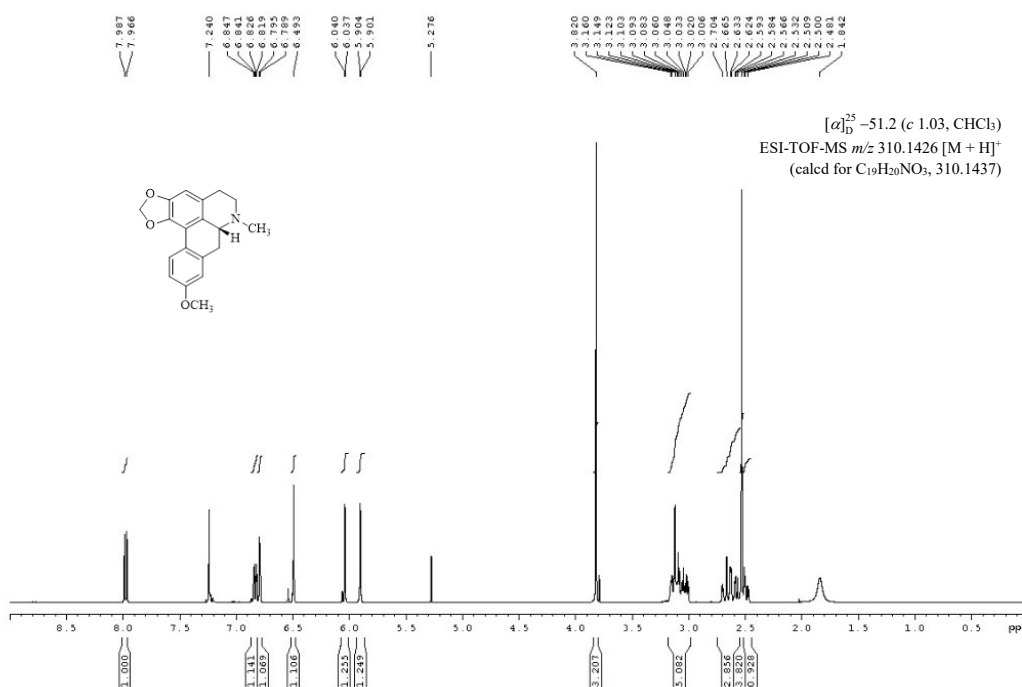


Figure S190. ^1H NMR spectrum (CDCl_3 , 400 MHz) of (-)-isolaureline (24)

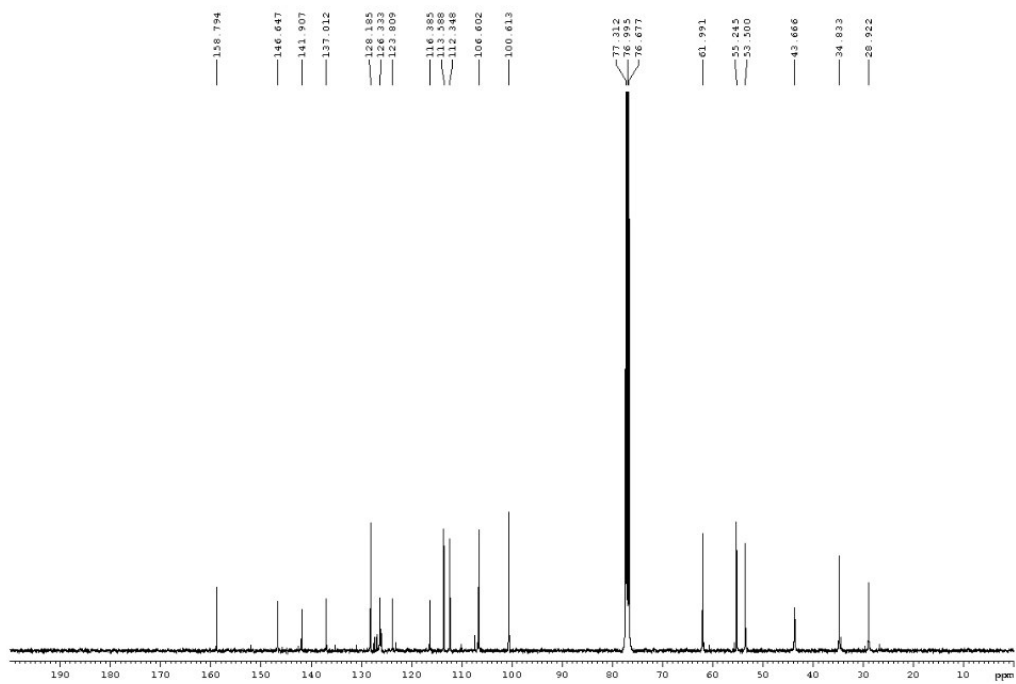


Figure S191. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of (-)-isolaureline (**24**)

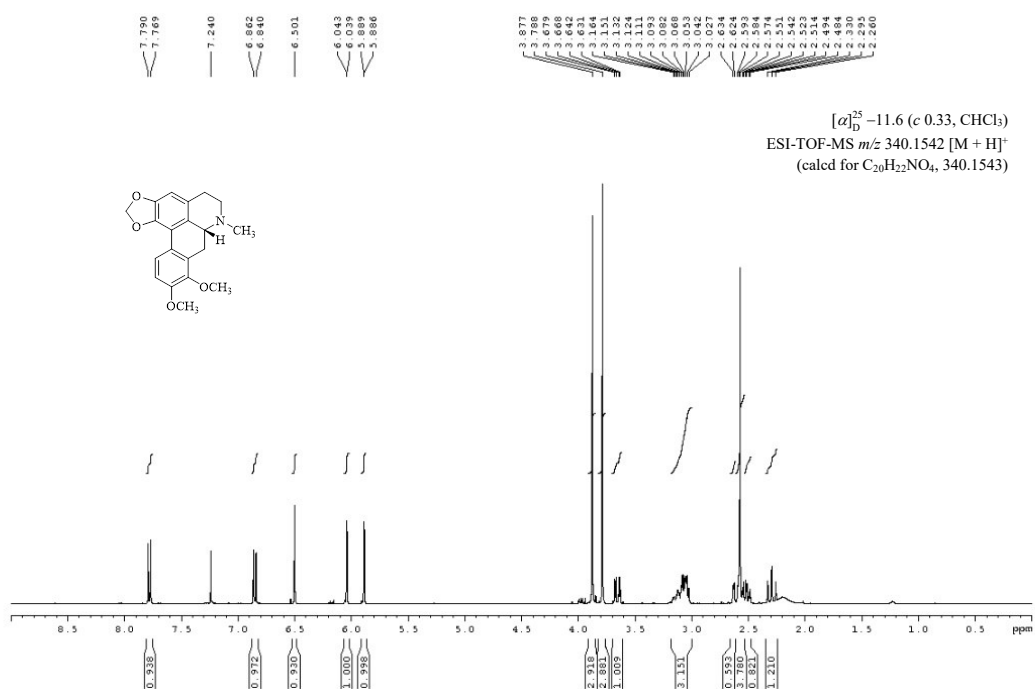


Figure S192. ^1H NMR spectrum (CDCl_3 , 400 MHz) of crebanine (**25**)

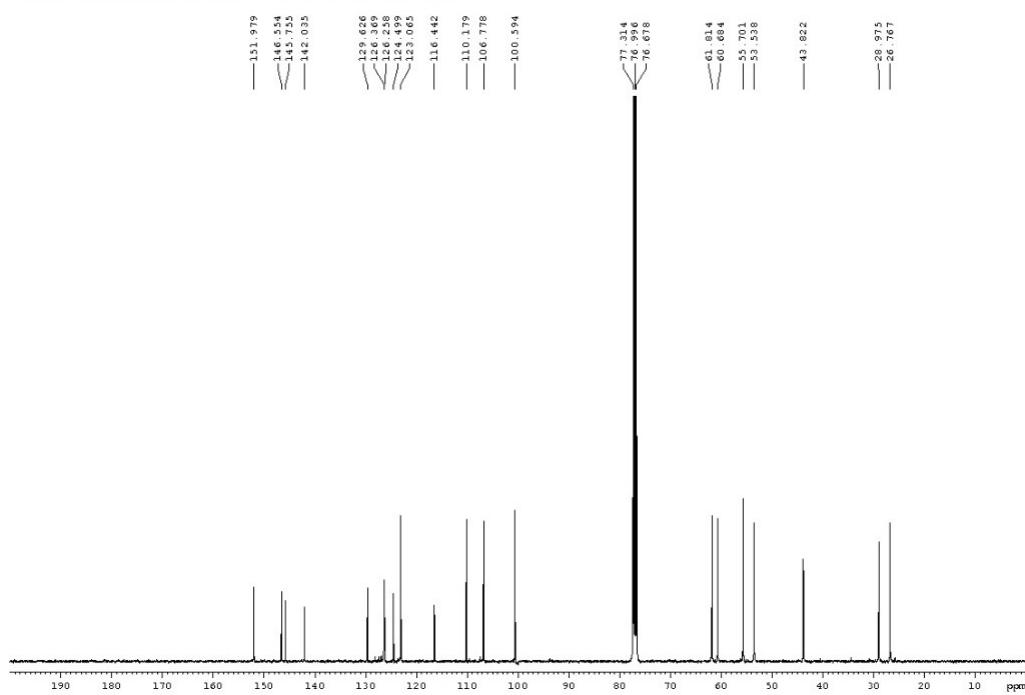


Figure S193. ^{13}C NMR spectrum (CDCl₃, 100 MHz) of crebanine (25)

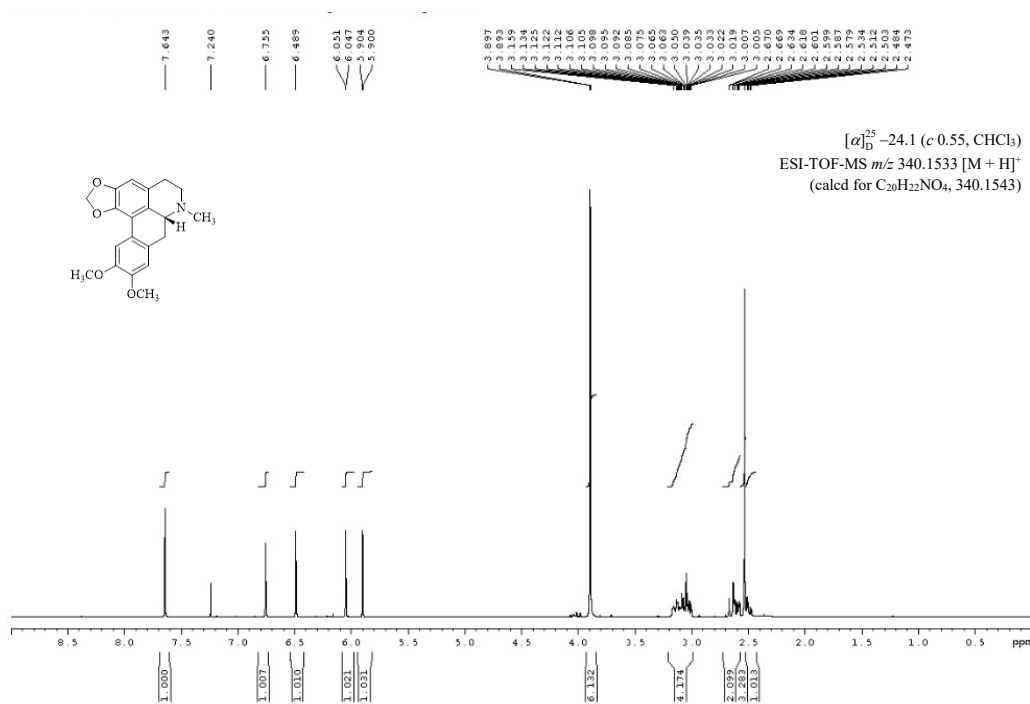


Figure S194. ^1H NMR spectrum (CDCl₃ + 5 drops CD₃OD, 400 MHz) of dicentrine (26)

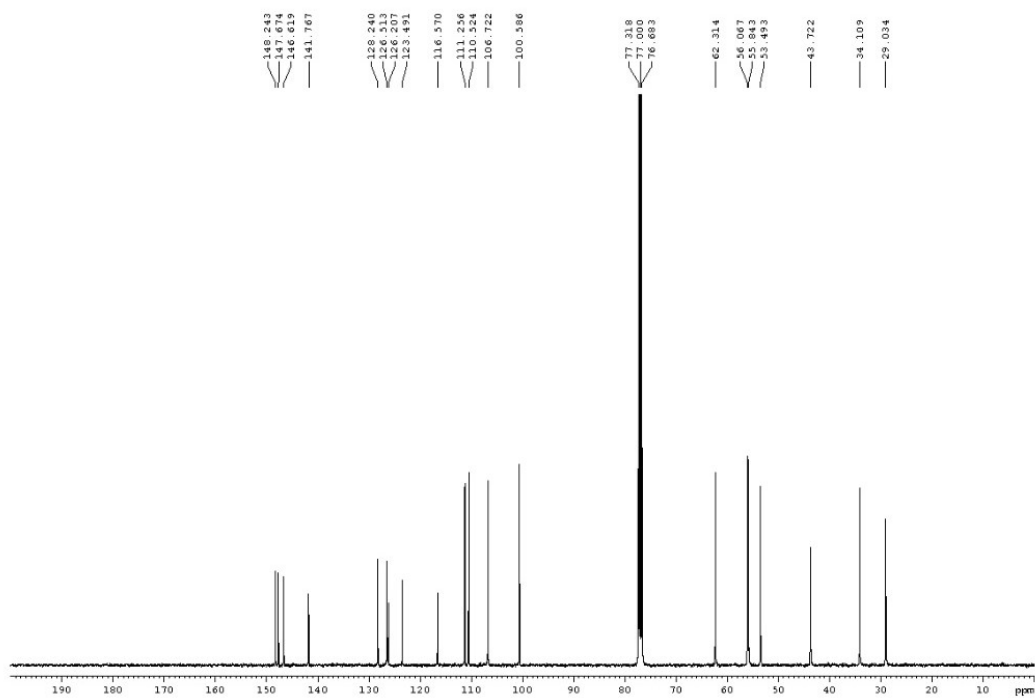


Figure S195. ¹³C NMR spectrum (CDCl₃ + 5 drops CD₃OD, 100 MHz) of dicentrine (26)

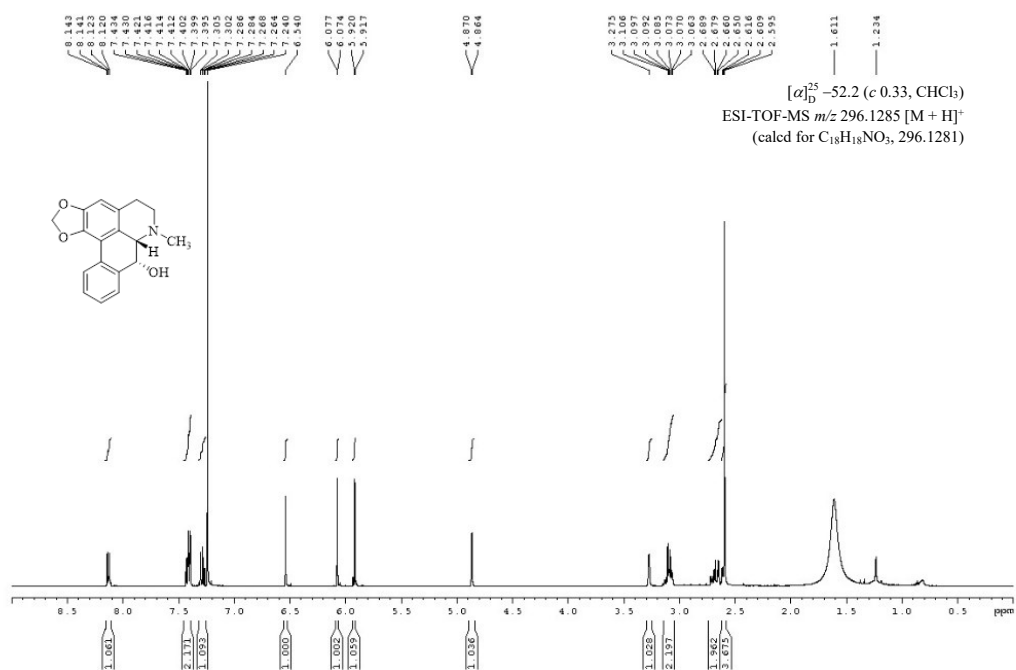


Figure S196. ¹H NMR spectrum (CDCl₃, 400 MHz) of (-)-ushinsunine (27)

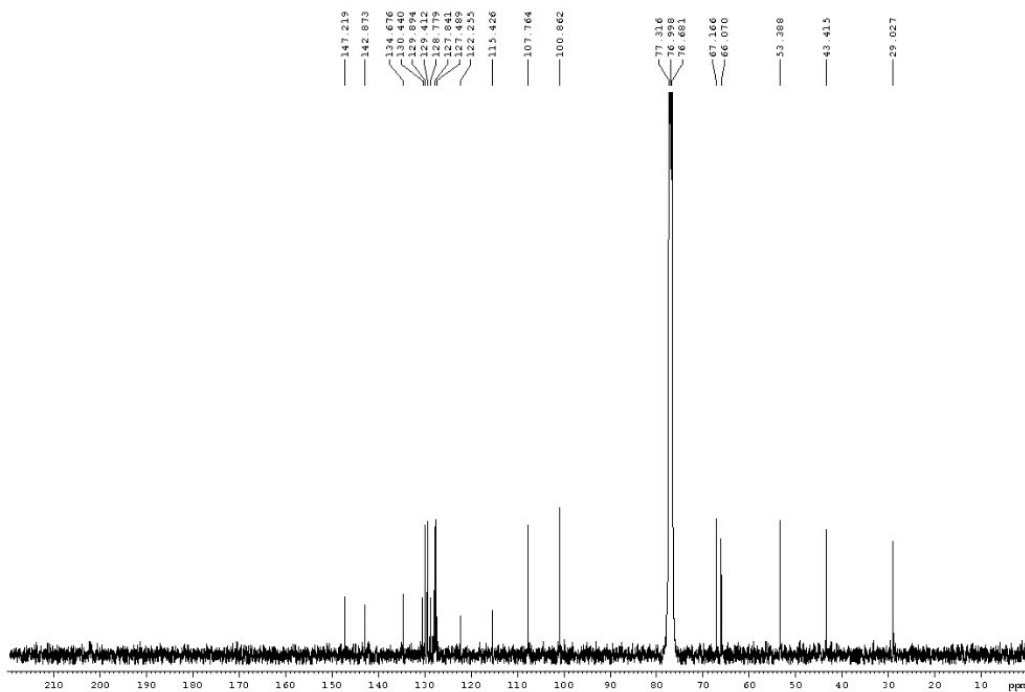


Figure S197. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of (-)-ushinsunine (27)

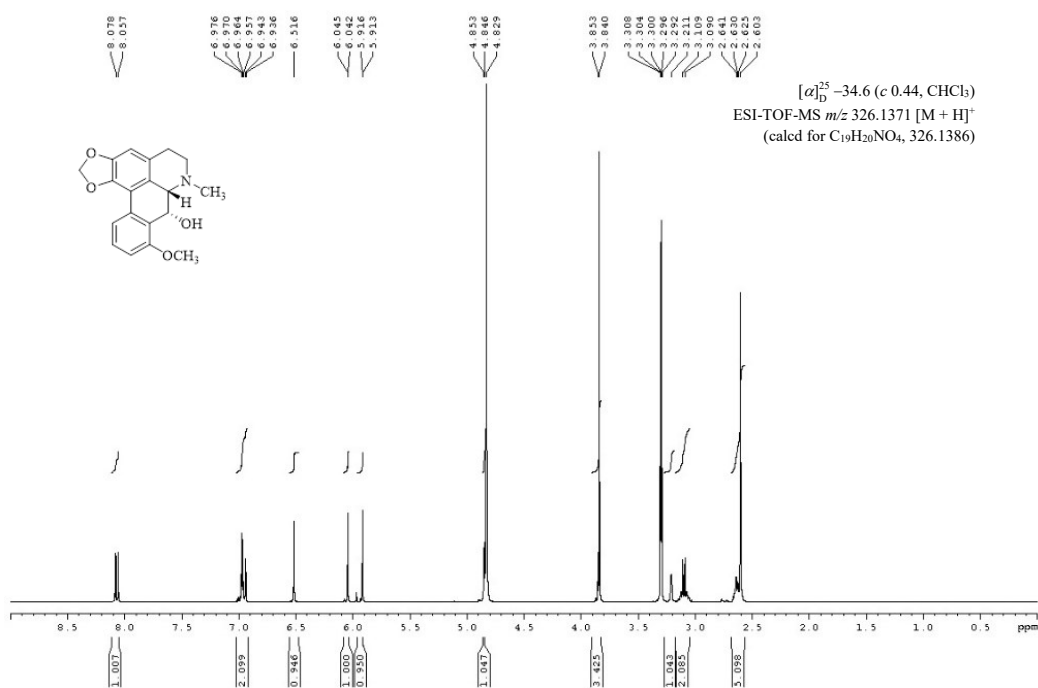


Figure S198. ^1H NMR spectrum (CD_3OD , 400 MHz) of (-)-ayuthianine (28)

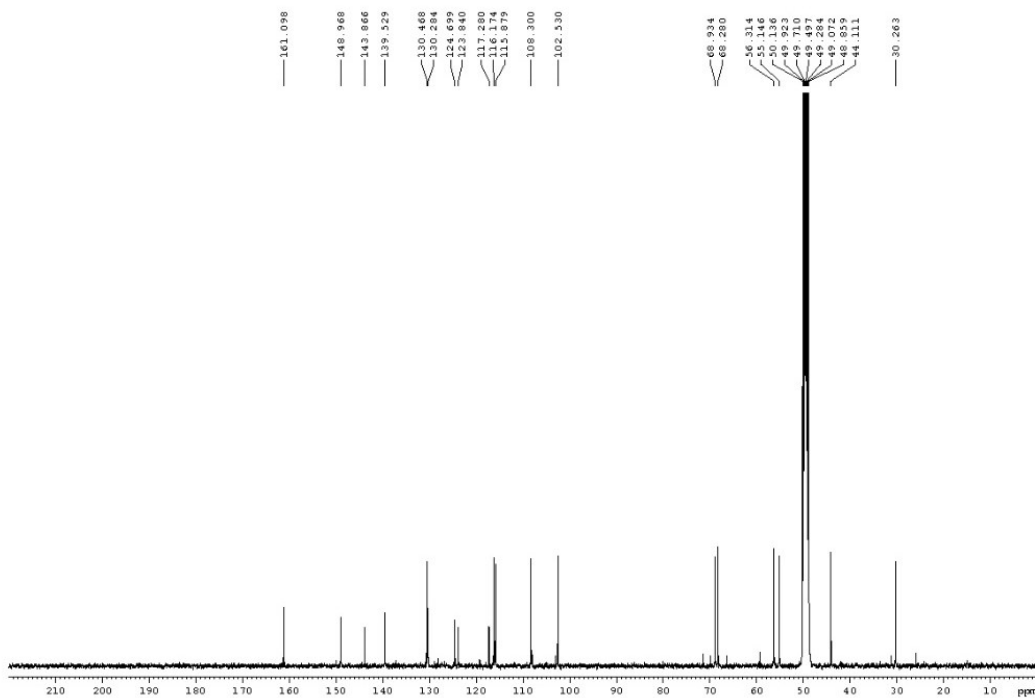


Figure S199. ^{13}C NMR spectrum (CD₃OD, 100 MHz) of (-)-ayuthianine (28)

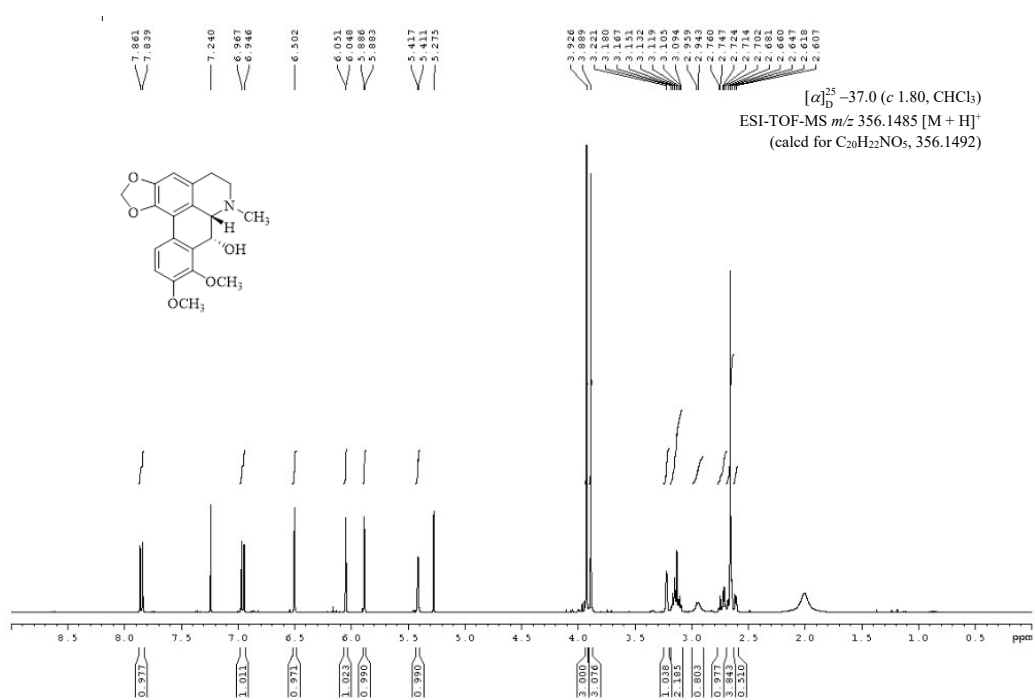


Figure S200. ^1H NMR spectrum (CDCl₃, 400 MHz) of sukhodianine (29)

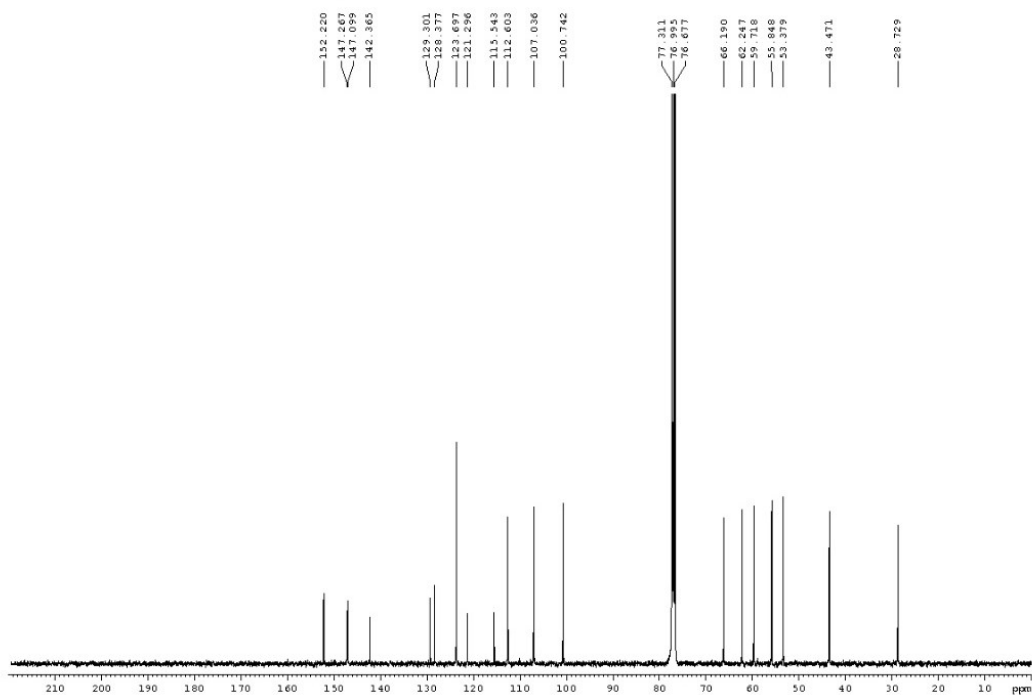


Figure S201. ^{13}C NMR spectrum (CDCl₃, 100 MHz) of sukhodianine (29)

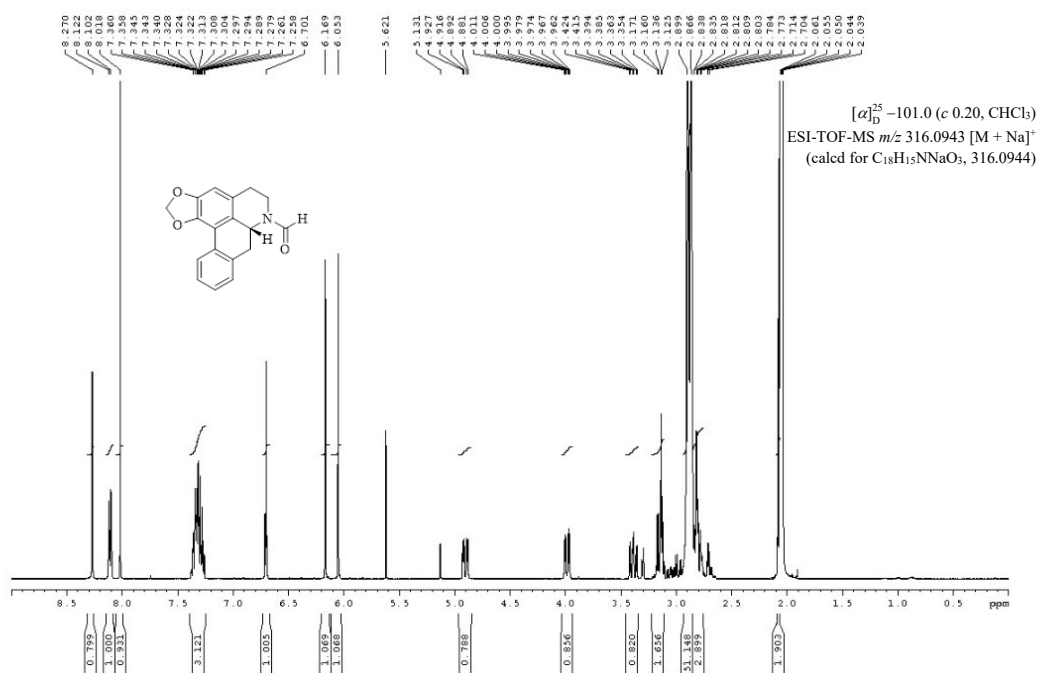


Figure S202. ^1H NMR spectrum (Acetone-*d*₆, 400 MHz) of (-)-*N*-fonylanonaine (30)

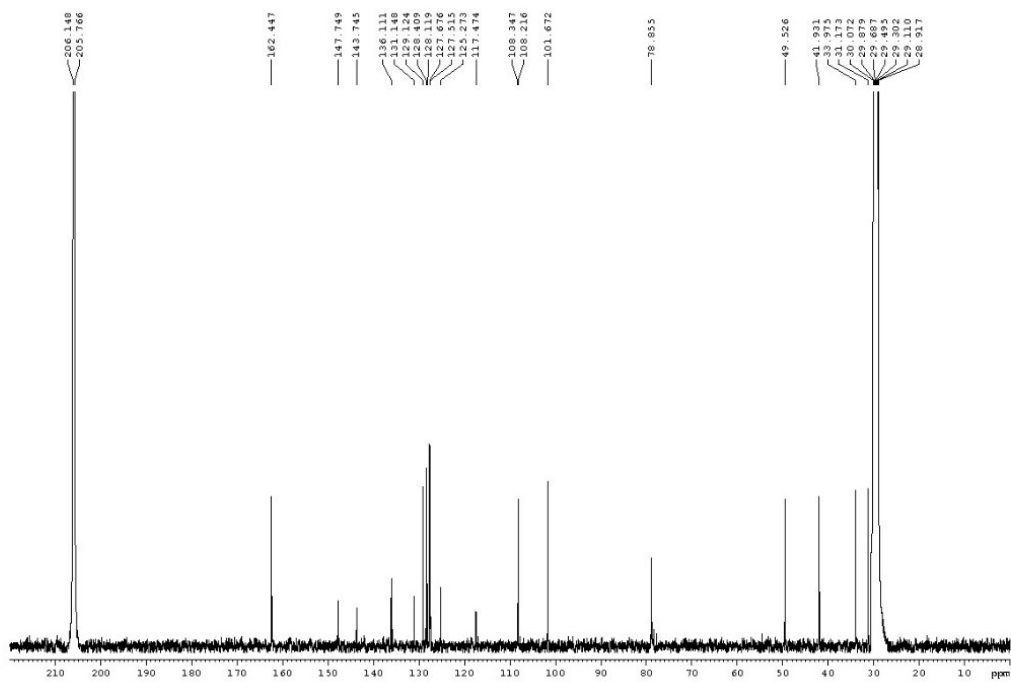


Figure S203. ^{13}C NMR spectrum (Acetone- d_6 , 100 MHz) of (-)-*N*-fonylanonaine (**30**)

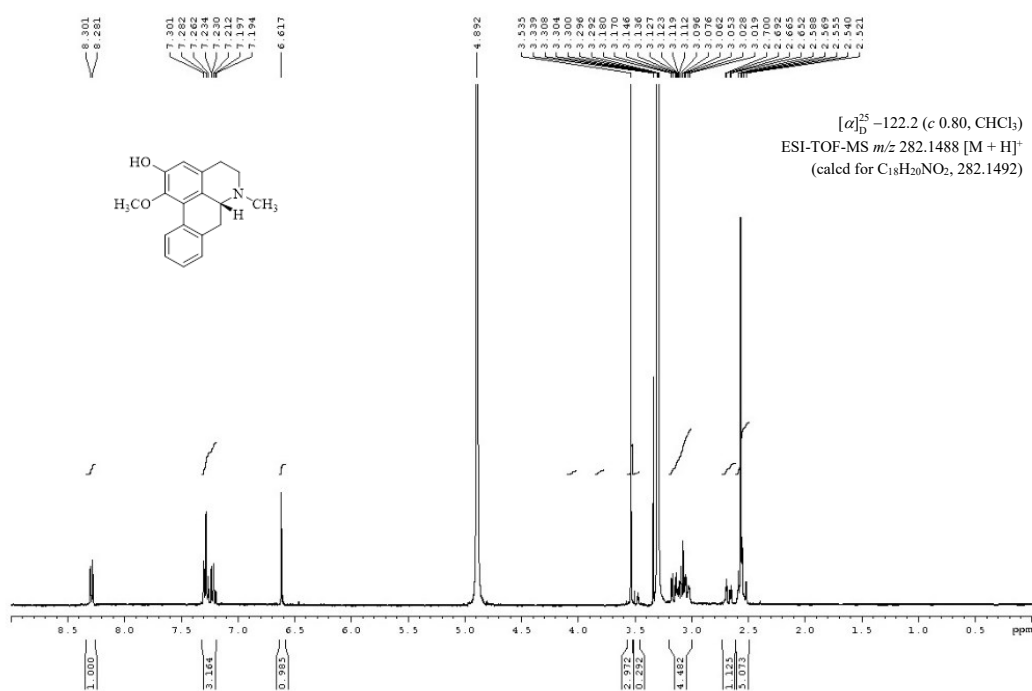


Figure S204. ^1H NMR spectrum (CD_3OD , 400 MHz) of (-)-*N*-methylasimilobine (**31**)

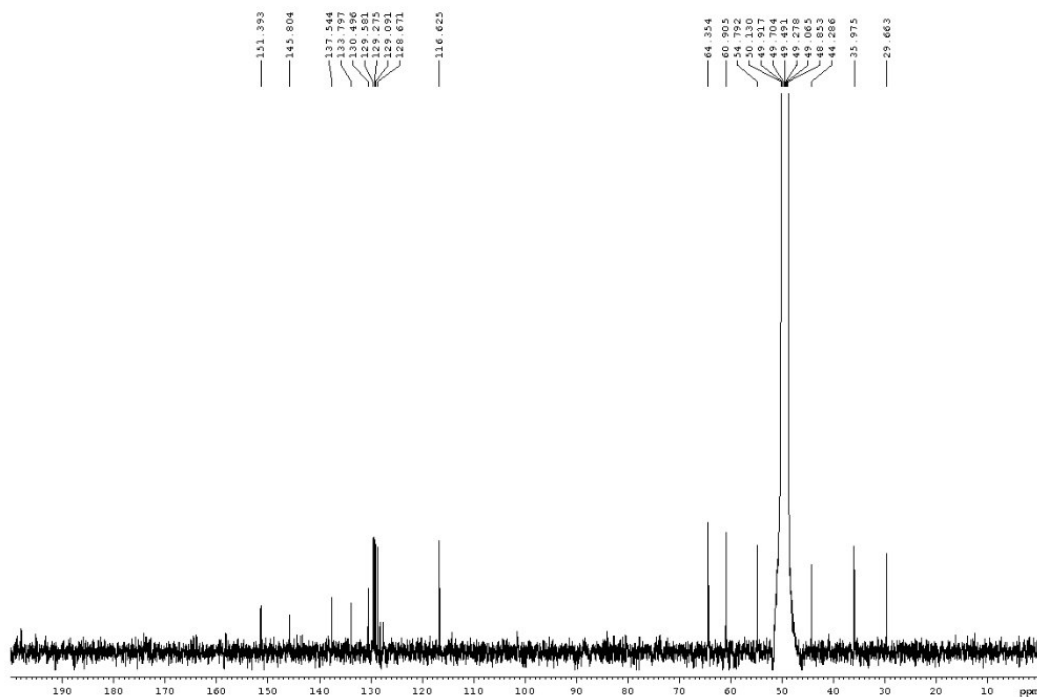


Figure S205. ^{13}C NMR spectrum (CD₃OD, 100 MHz) of (-)-N-methylasimilobine (31)

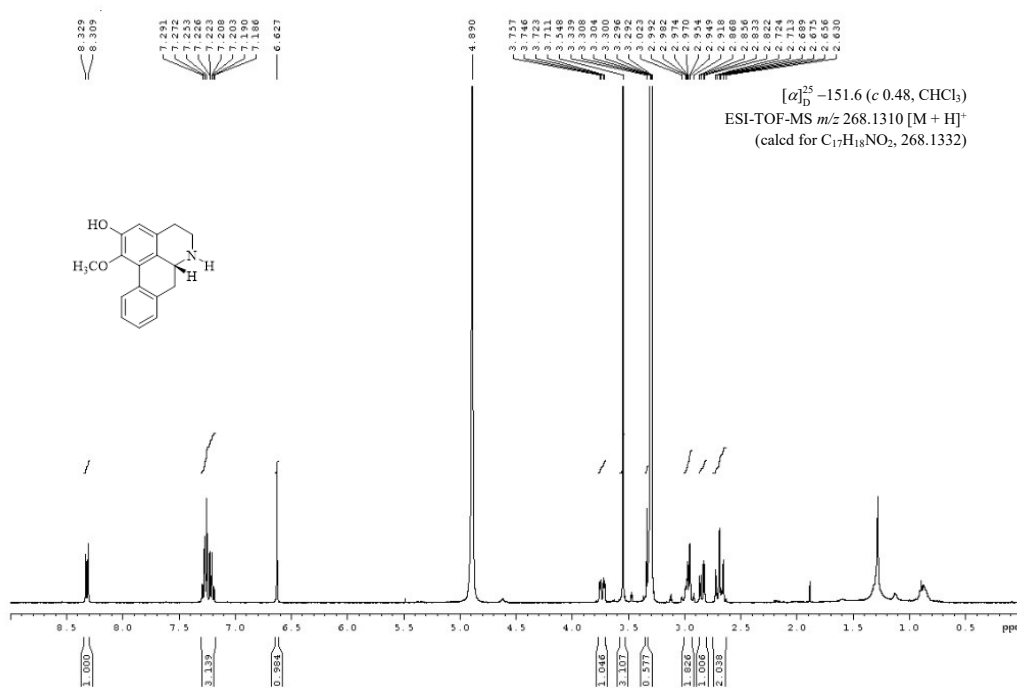


Figure S206. ^1H NMR spectrum (CD₃OD, 400 MHz) of (-)-asimilobine (32)

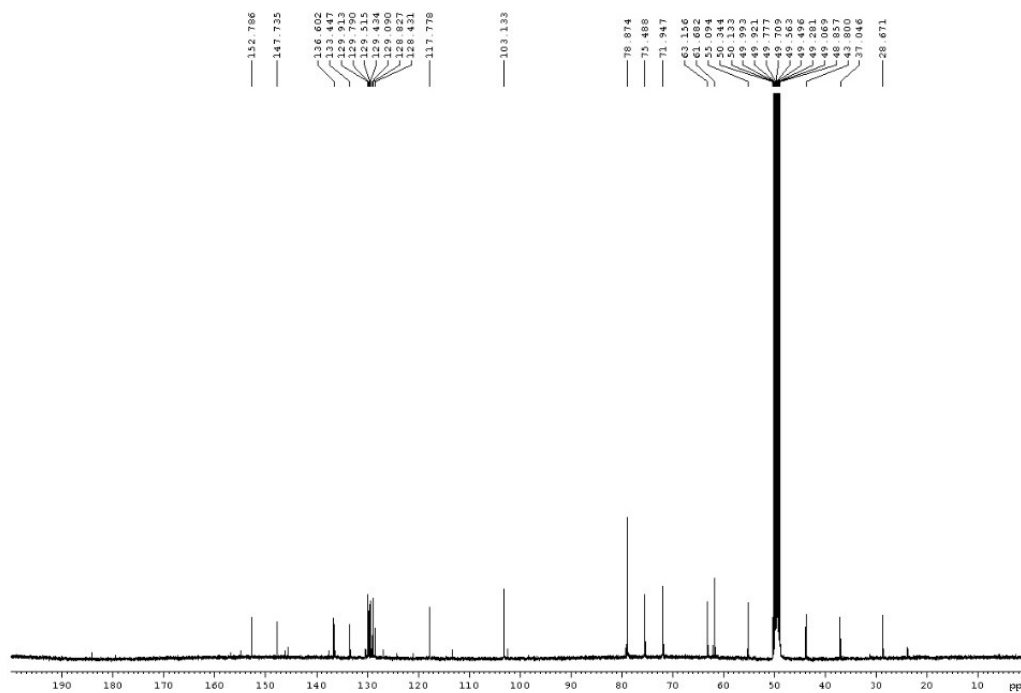


Figure S209. ¹³C NMR spectrum (CD₃OD, 100 MHz) of (-)-asimilobine-2-O-β-D-glucoside (33)

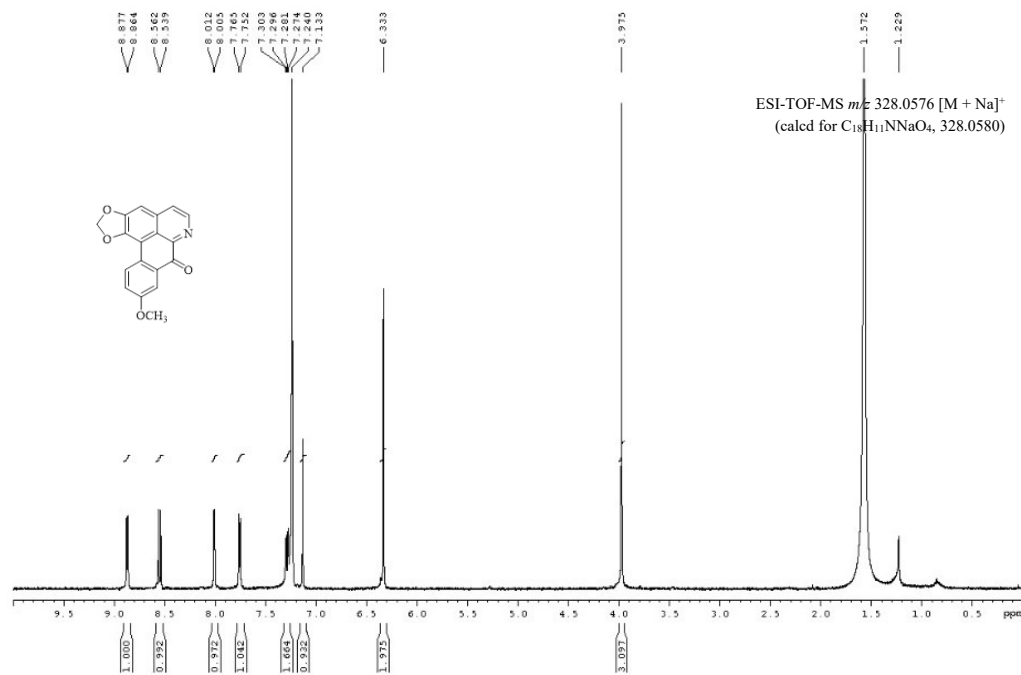


Figure S210. ¹H NMR spectrum (CDCl₃, 400 MHz) of lanuginosine (34)

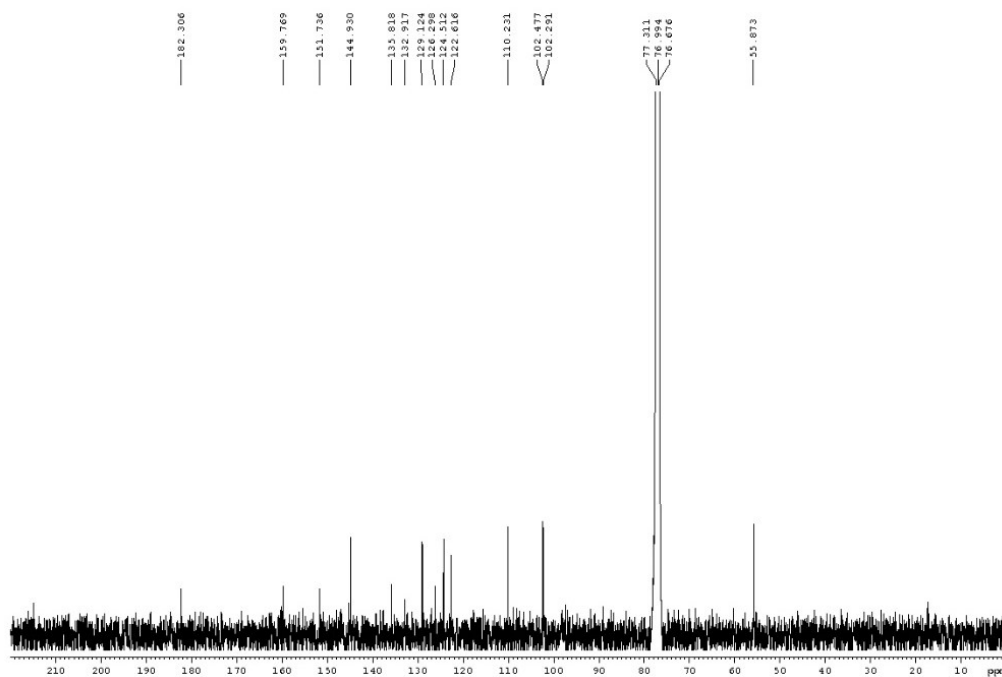


Figure S211. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of lanuginosine (34)

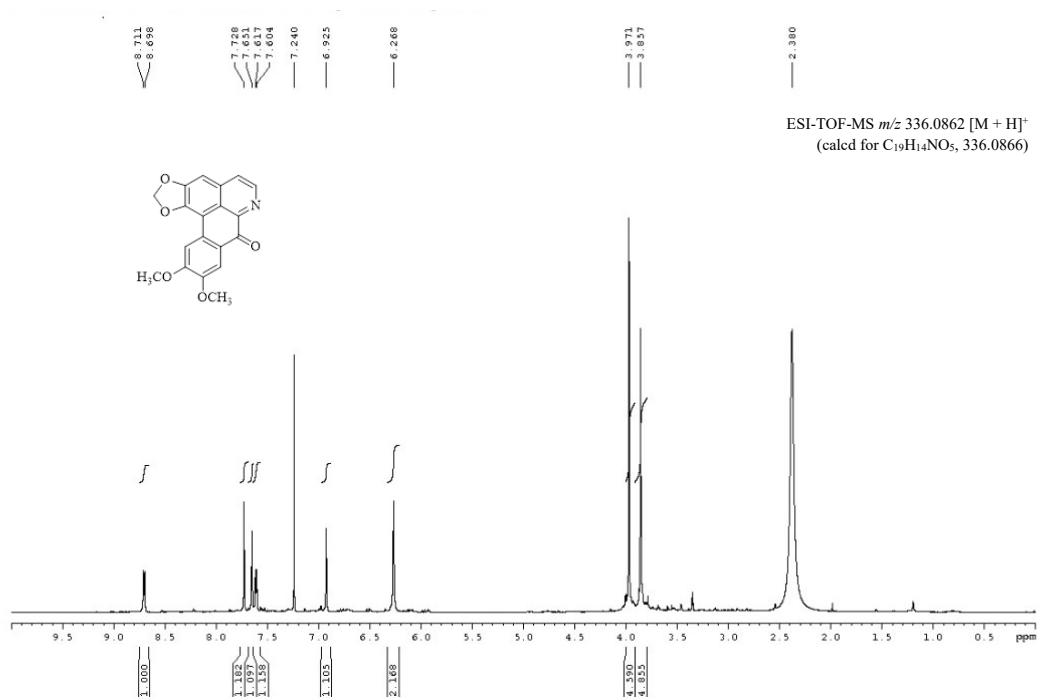


Figure S212. ^1H NMR spectrum ($\text{CDCl}_3 + 5$ drops CD_3OD , 400 MHz) of dicentrinone (35)

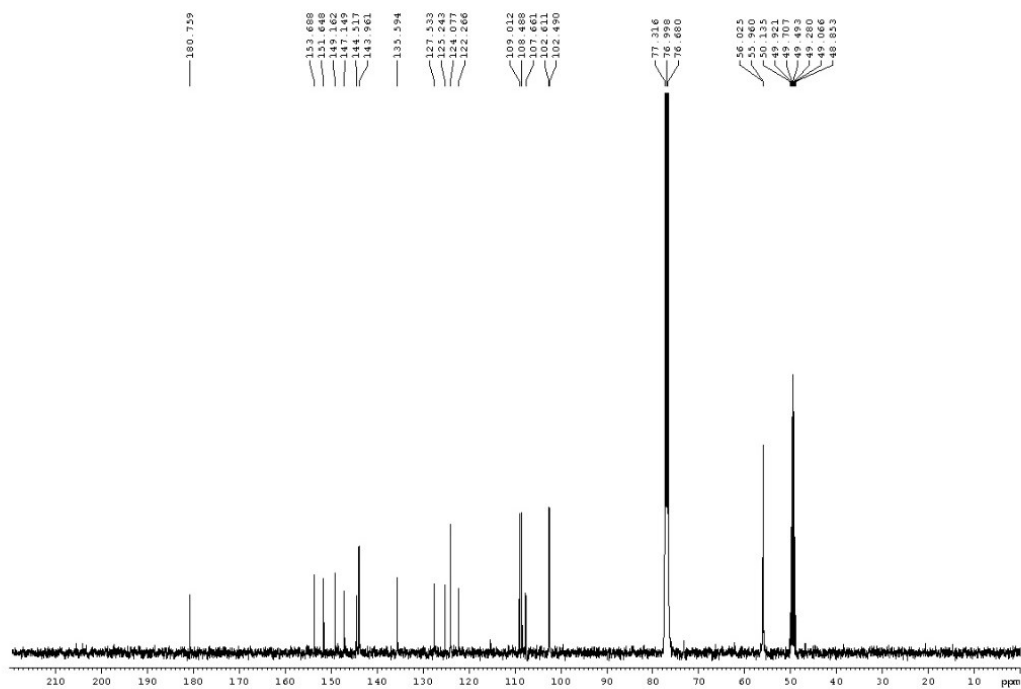


Figure S213. ^{13}C NMR spectrum ($\text{CDCl}_3 + 5$ drops CD_3OD , 100 MHz) of dicentrinone (**35**)

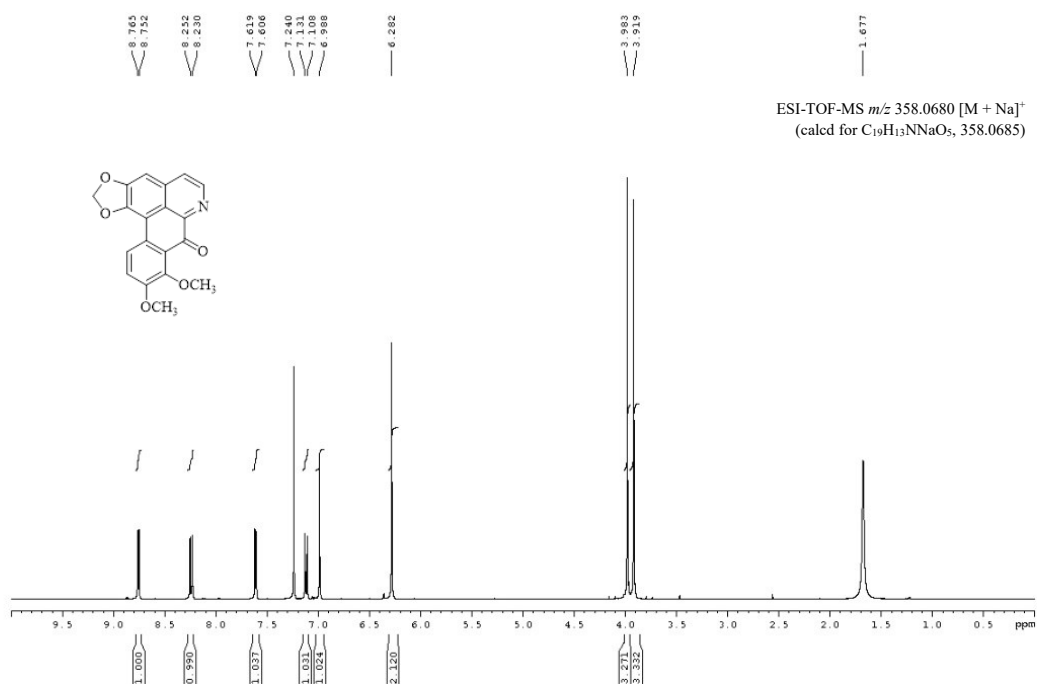


Figure S214. ^1H NMR spectrum (CDCl_3 , 400 MHz) of oxocrebanine (**36**)

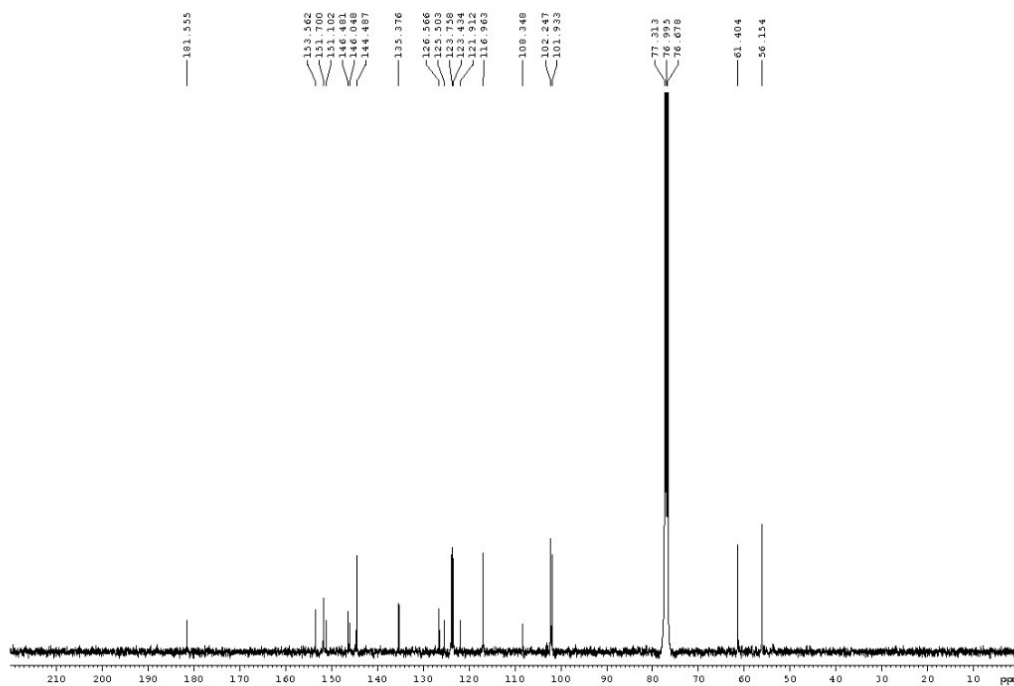


Figure S215. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of oxocrebanine (**36**)

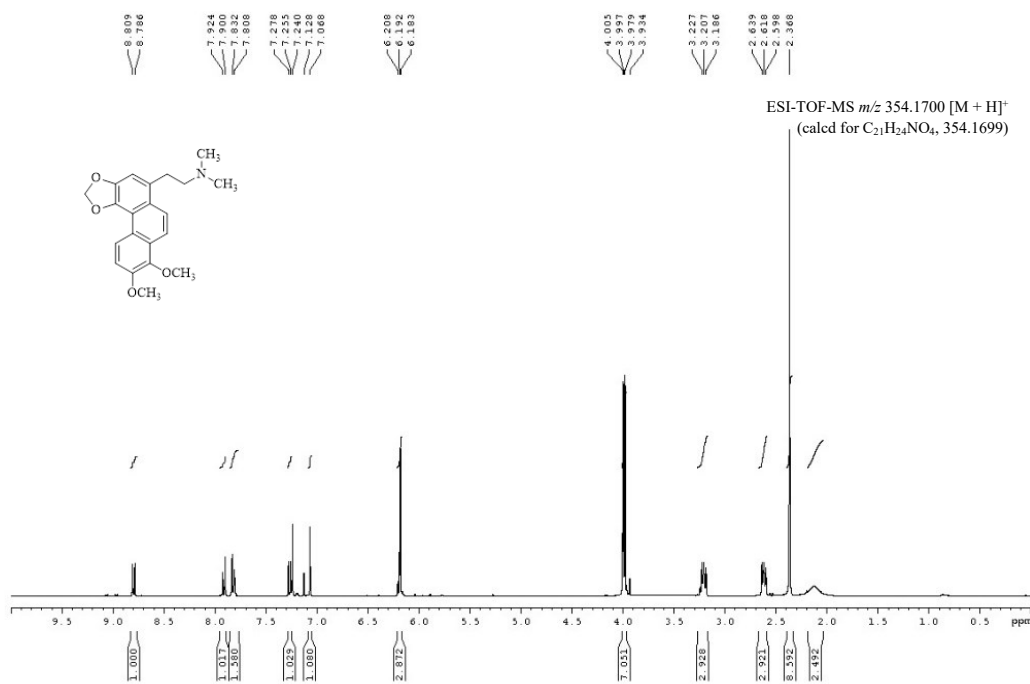


Figure S216. ^1H NMR spectrum (CDCl_3 , 400 MHz) of 8-methoxyuvoriopsine (**37**)

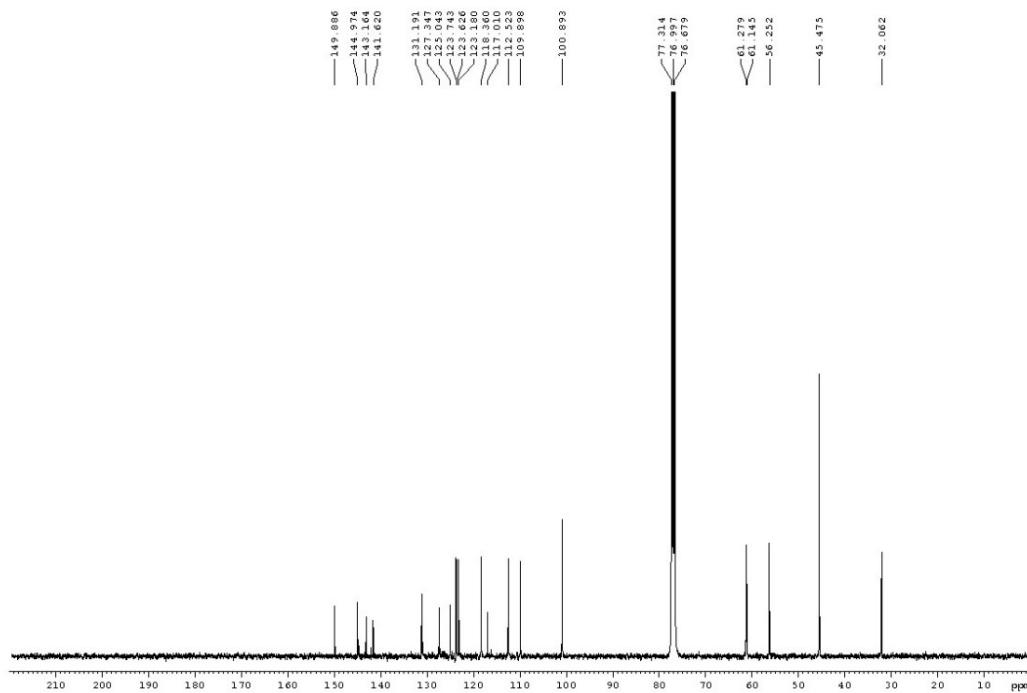


Figure S217. ¹³C NMR spectrum (CDCl₃, 100 MHz) of 8-methoxyyuvoriopsine (**37**)

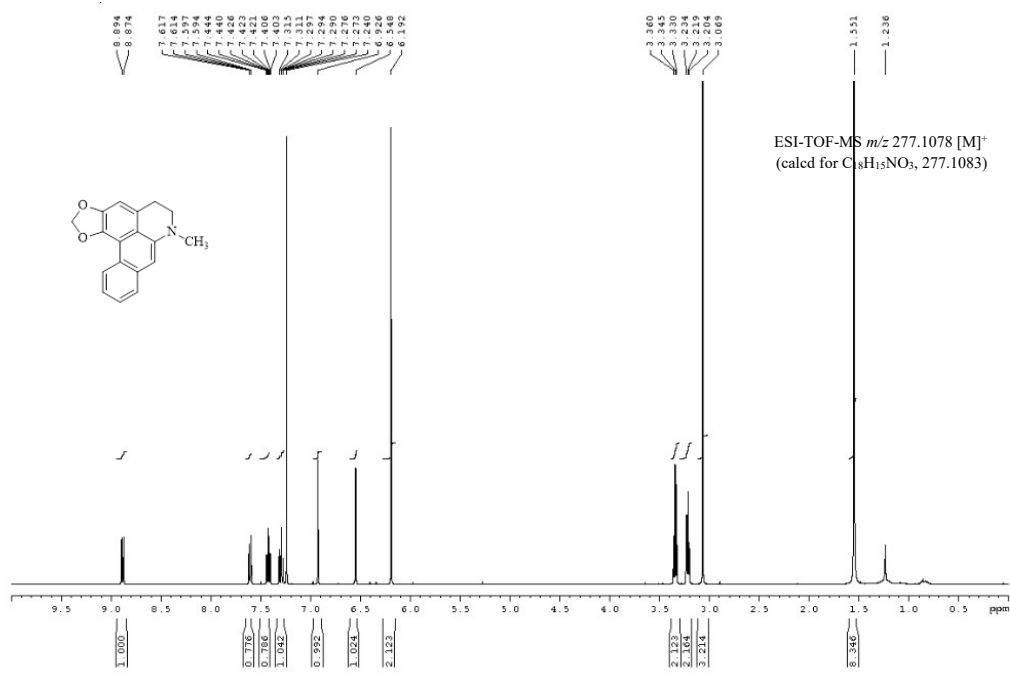


Figure S218. ¹H NMR spectrum (CDCl₃, 400 MHz) of dehydroroemerine (**38**)

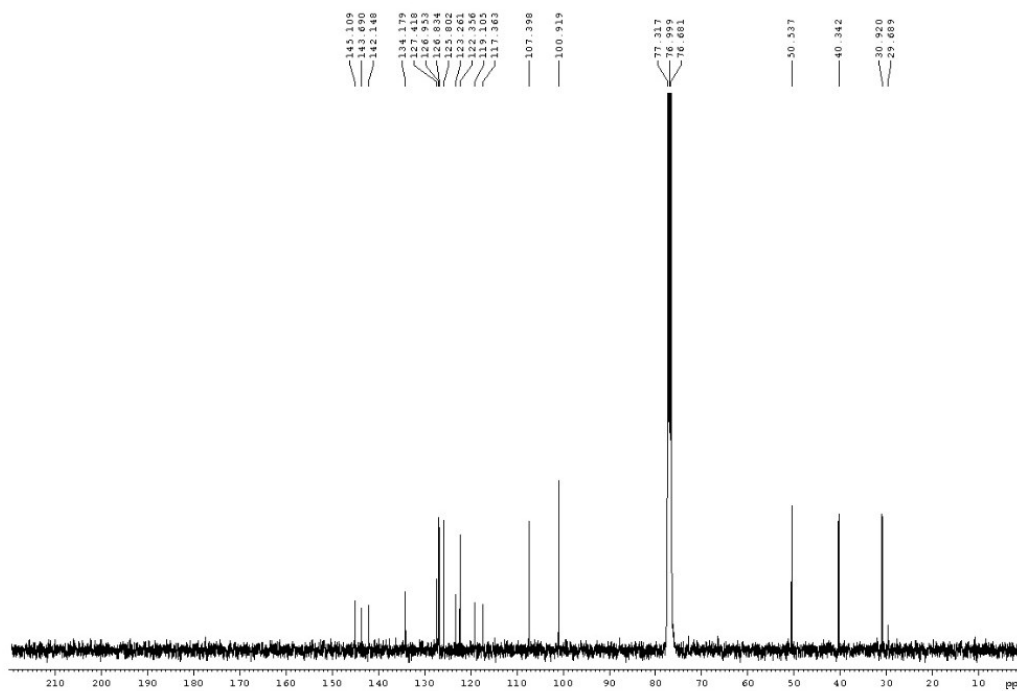


Figure S219. ¹³C NMR spectrum (CDCl₃, 100 MHz) of dehydroroemerine (38)

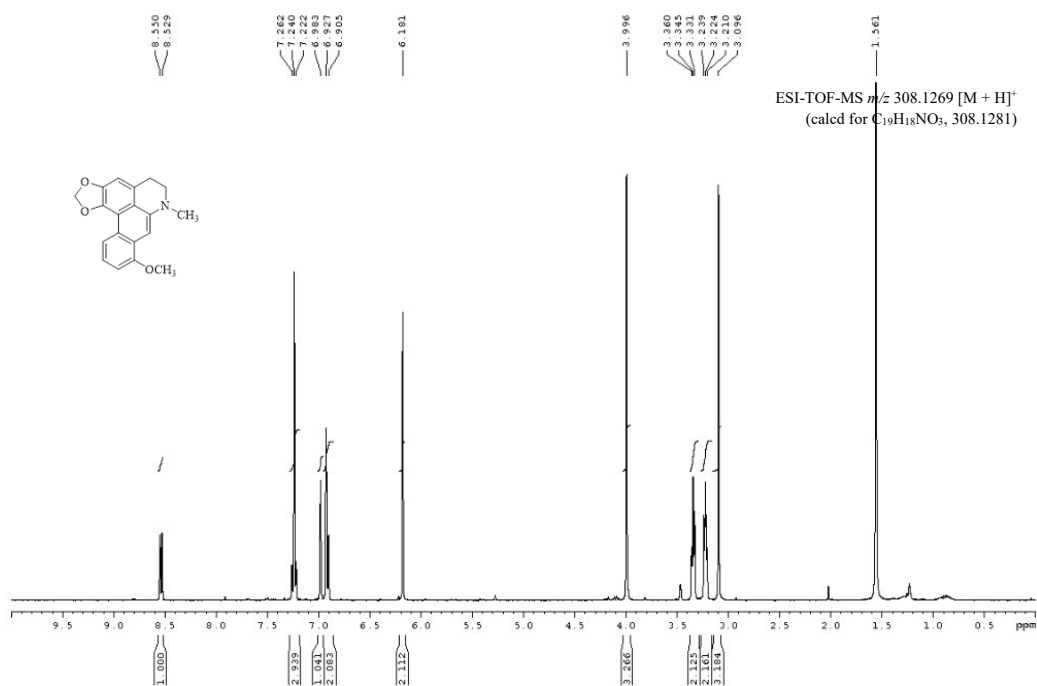


Figure S220. ¹H NMR spectrum (CDCl₃, 400 MHz) of dehydrostephanine (39)

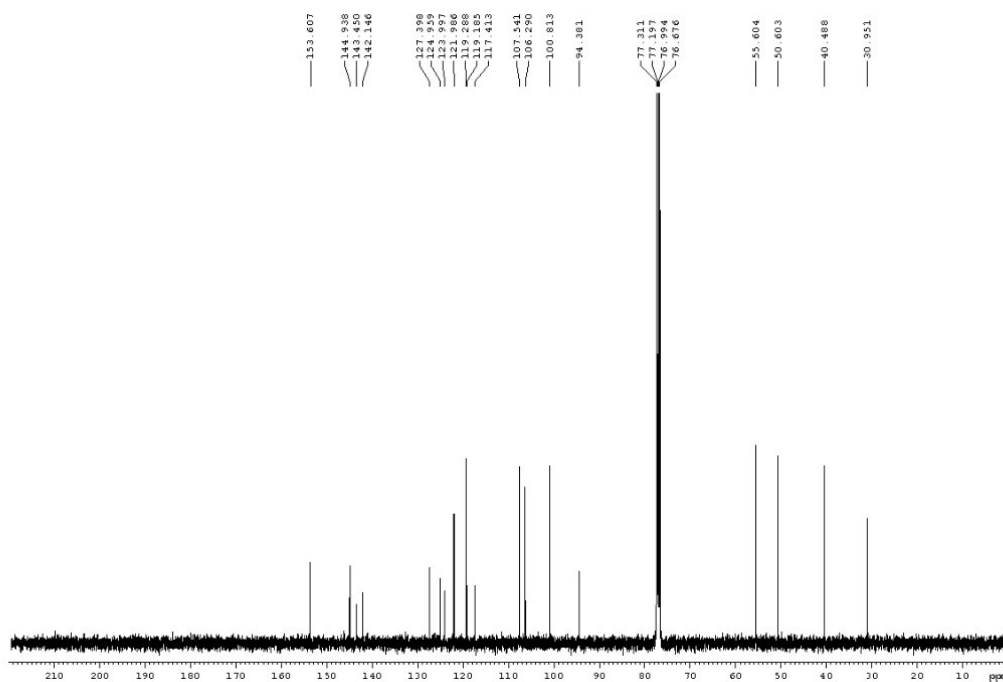


Figure S221. ¹³C NMR spectrum (CDCl₃, 100 MHz) of dehydrostephanine (39)

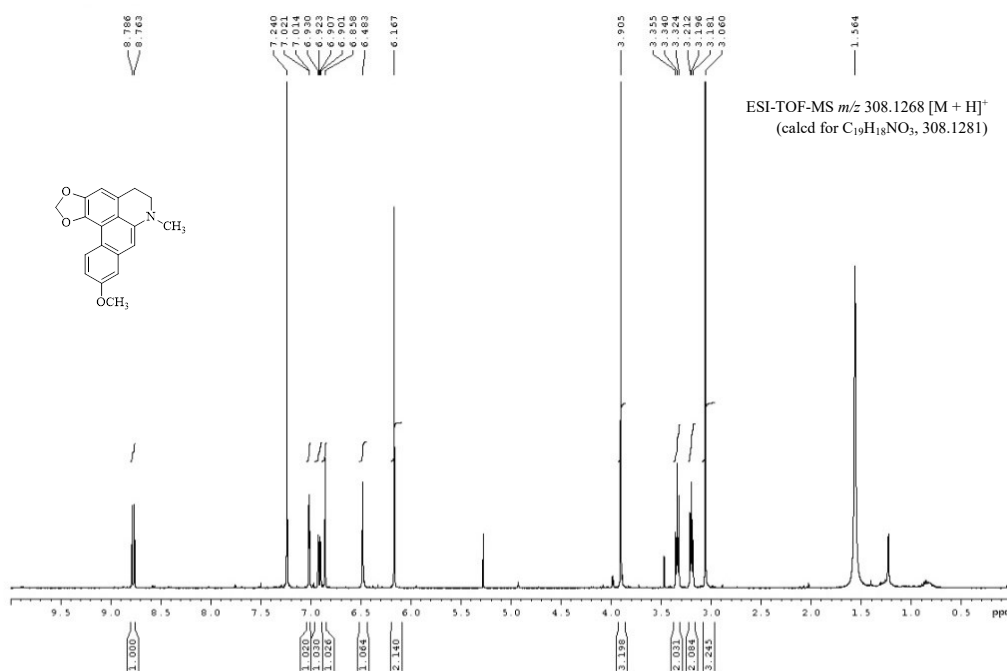


Figure S222. ¹H NMR spectrum (CDCl₃, 400 MHz) of dehydroisolaureline (40)

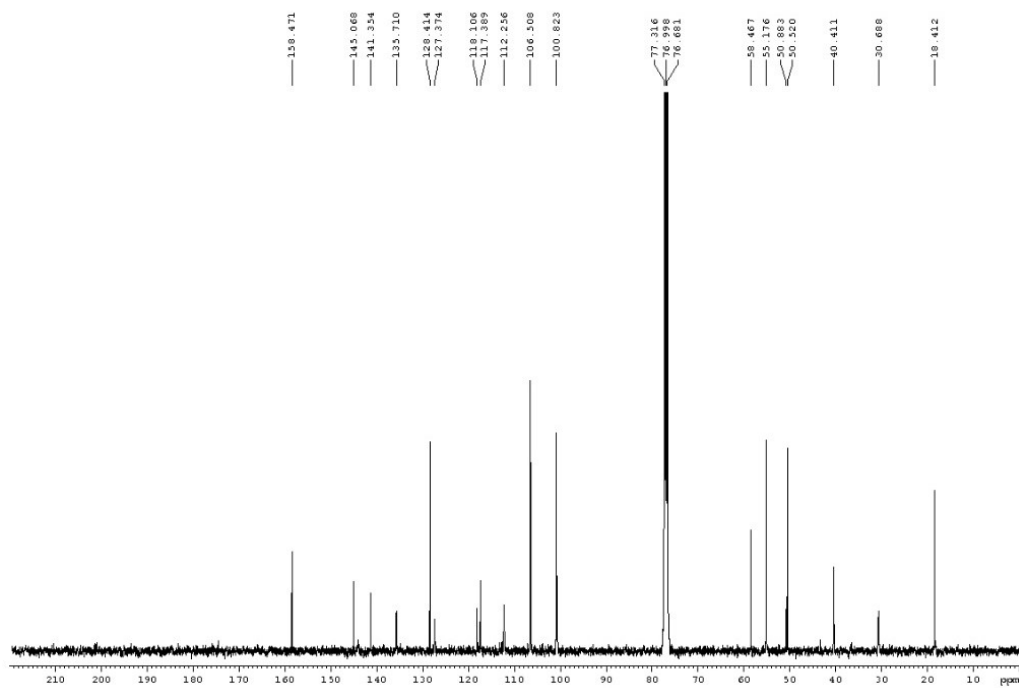


Figure S223. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of dehydroisolaureline (**40**)

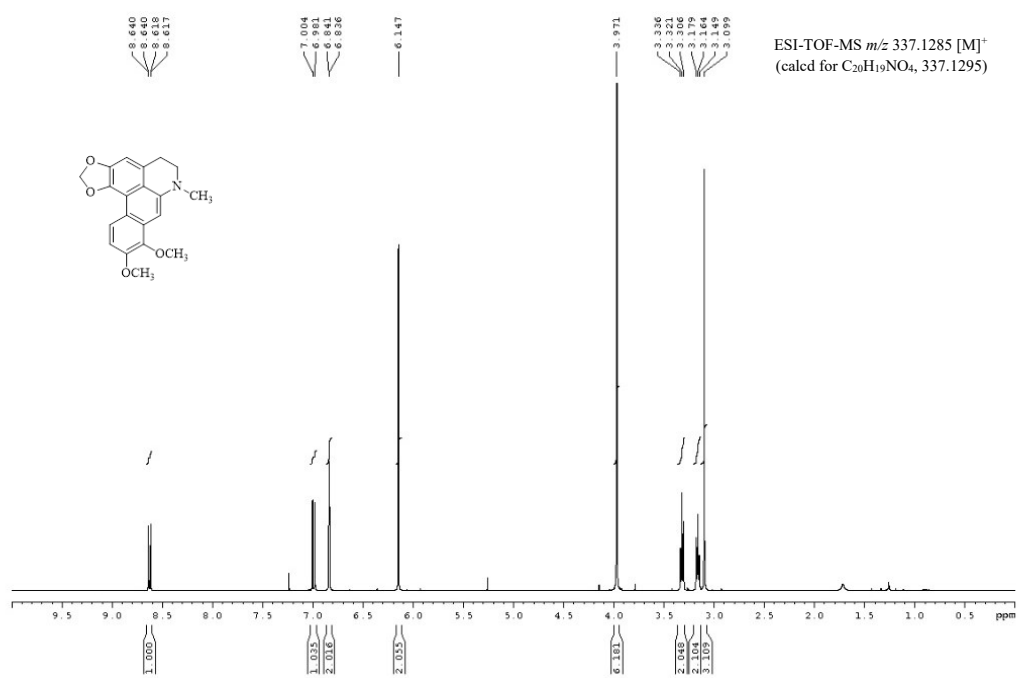


Figure S224. ^1H NMR spectrum (CDCl_3 , 400 MHz) of dehydrocrebanine (**41**)

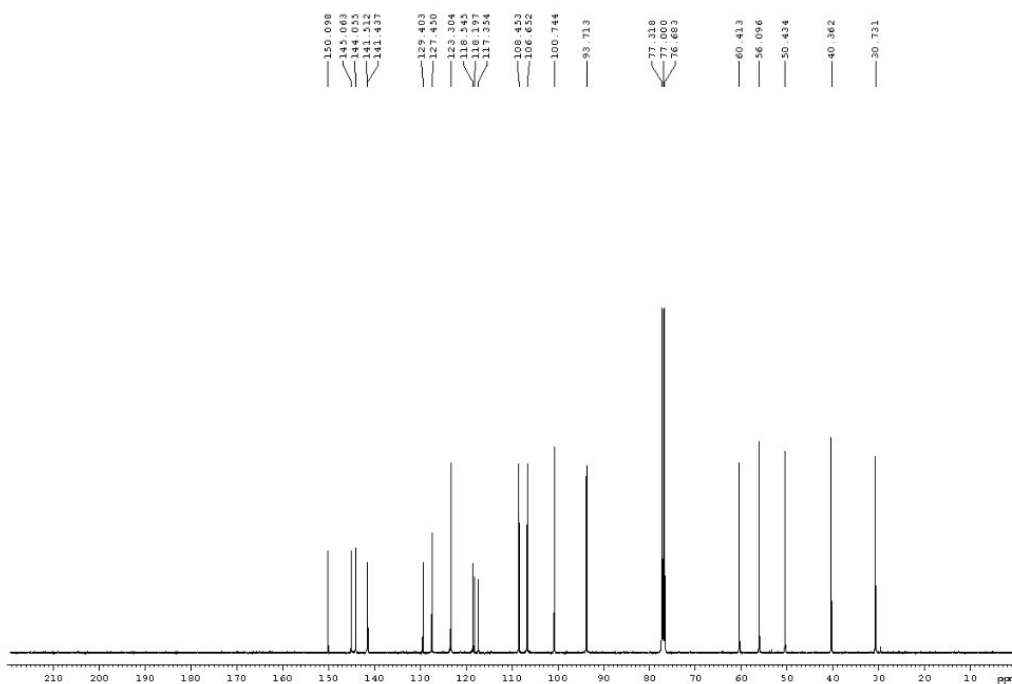


Figure S225. ¹³C NMR spectrum (CDCl₃, 100 MHz) of dehydrocrebanine (41)

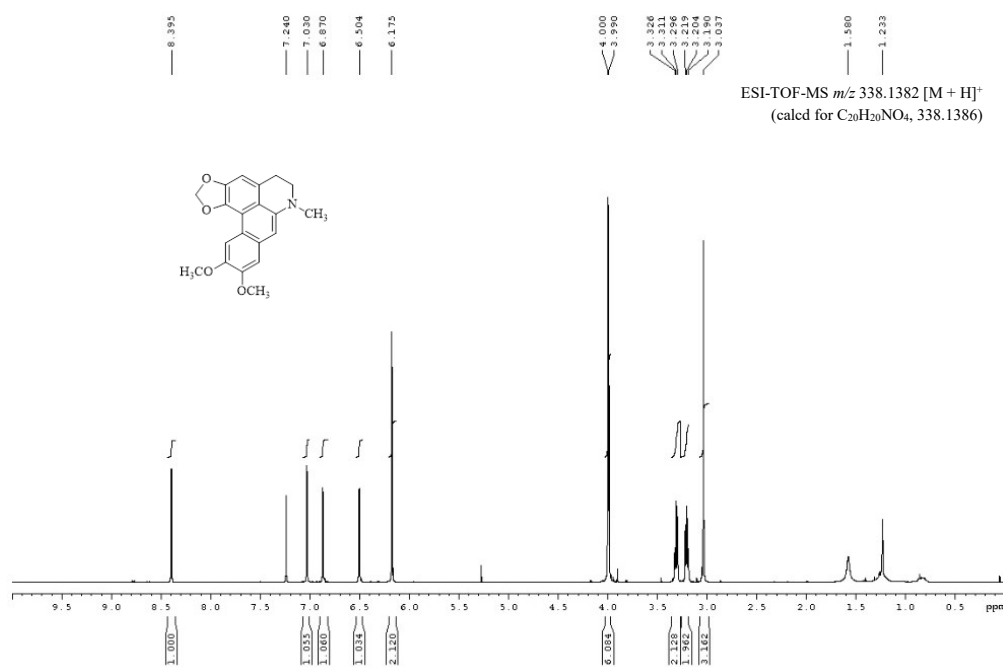


Figure S226. ¹H NMR spectrum (CDCl₃, 400 MHz) of dehydrodicentrine (42)

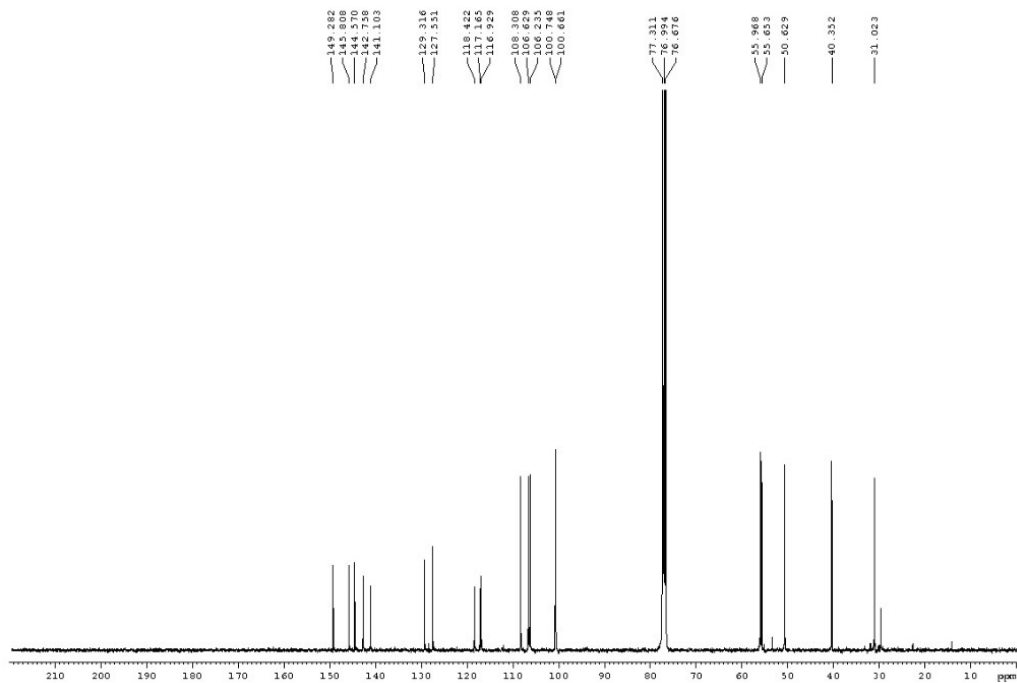


Figure S227. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of dehydrodicentrine (**42**)

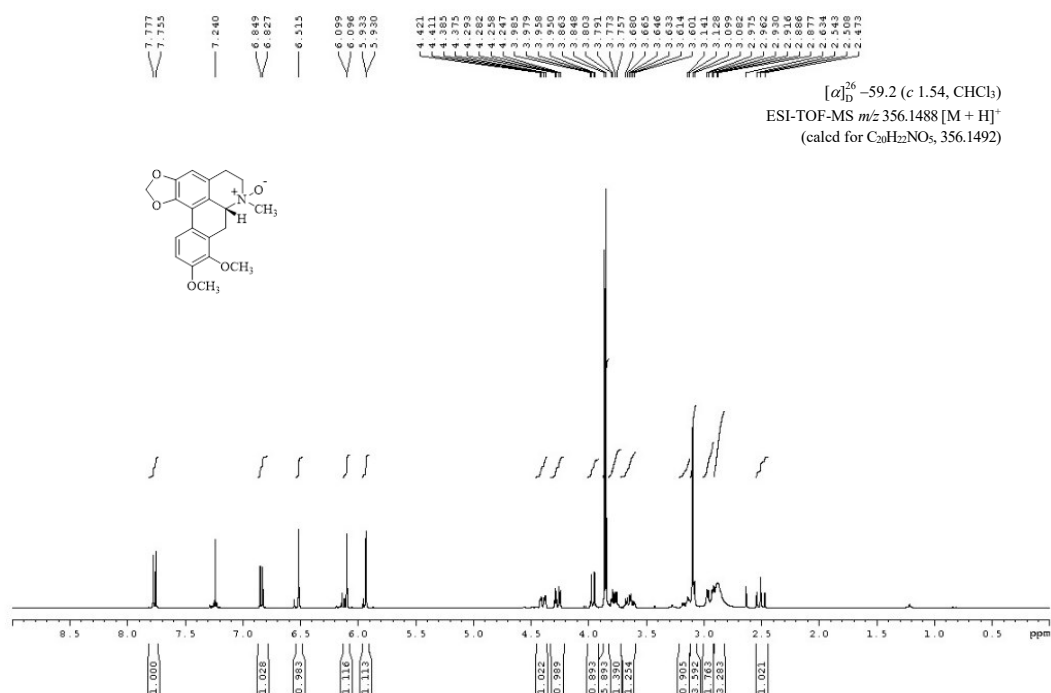


Figure S228. ^1H NMR spectrum (CDCl_3 , 400 MHz) of (-)-crebanine- β -N-oxide (**43**)

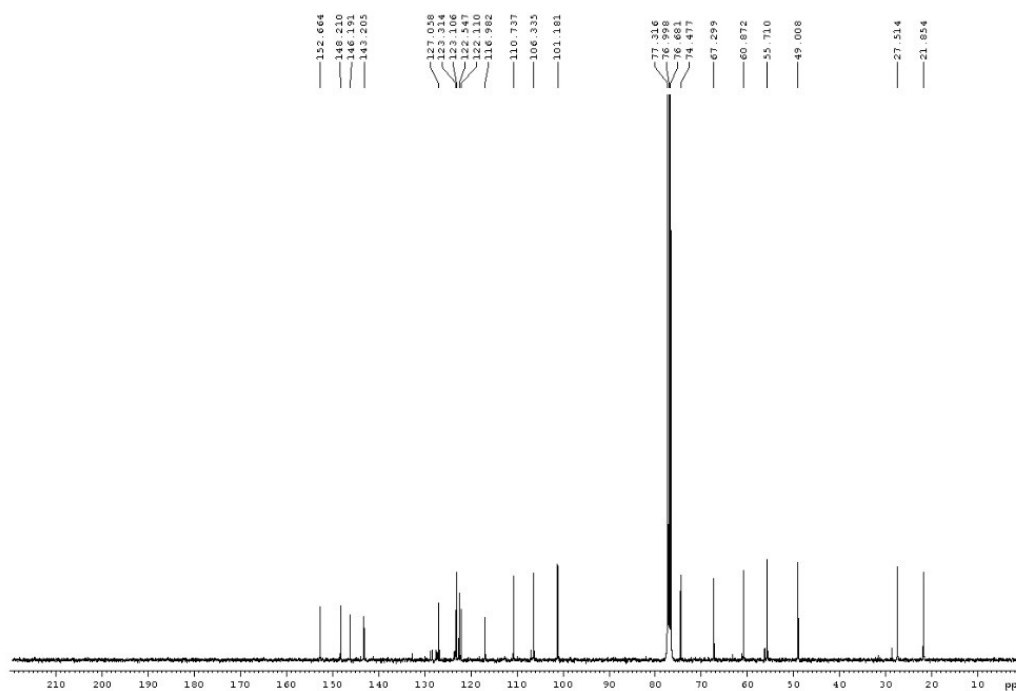


Figure S229. ^{13}C NMR spectrum (CDCl₃, 100 MHz) of (-)-crebanine- β -*N*-oxide (43)

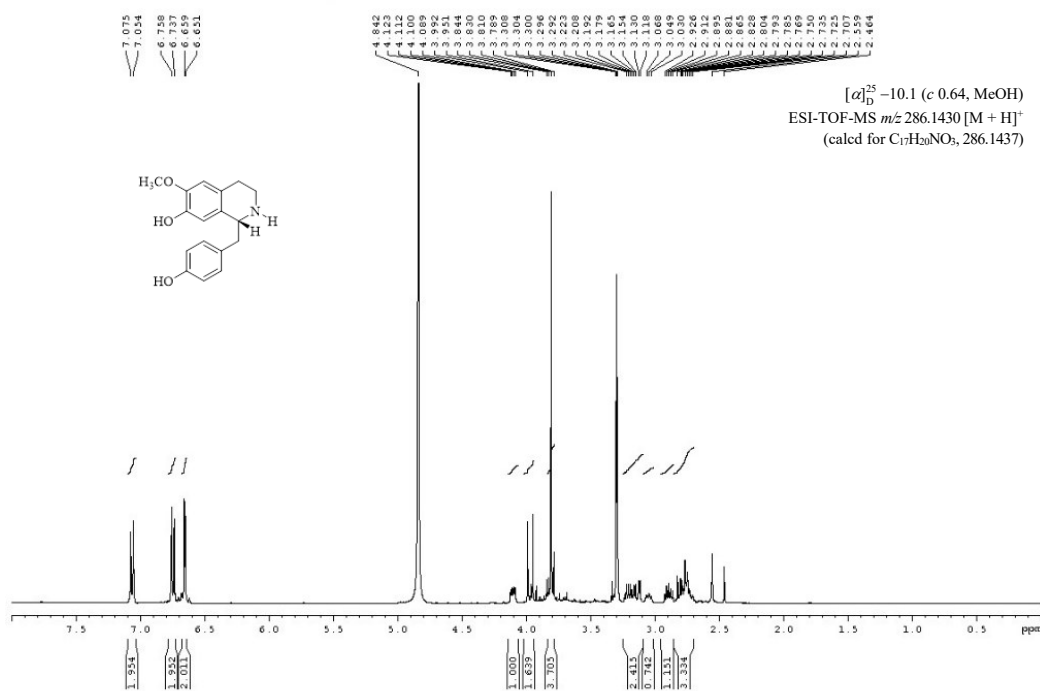


Figure S230. ^1H NMR spectrum (CD₃OD, 400 MHz) of coclaurine (44)

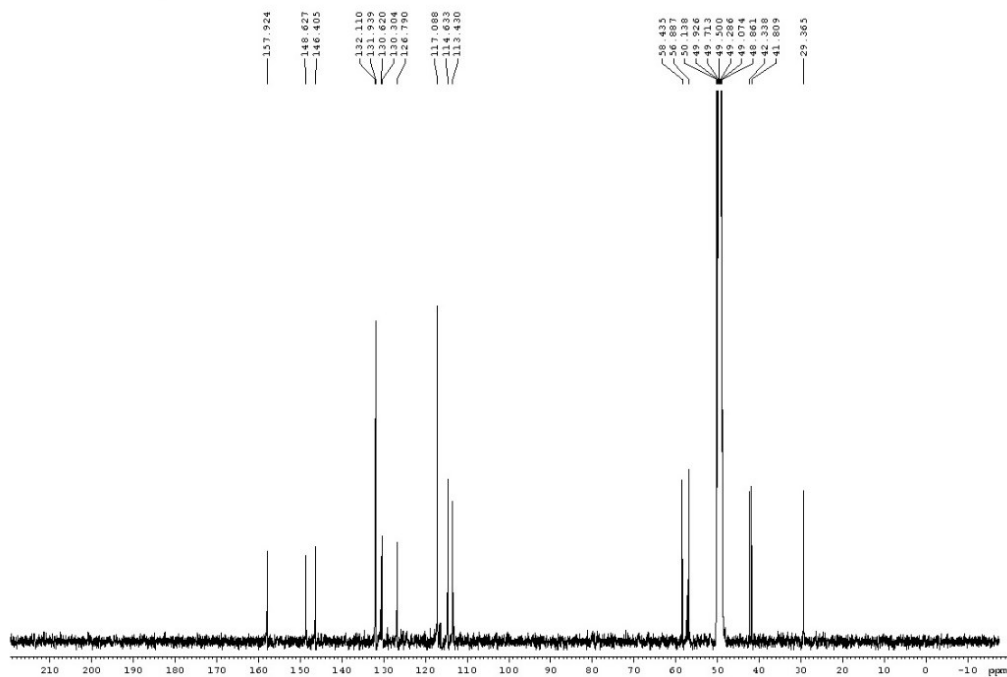


Figure S231. ¹³C NMR spectrum (CD₃OD, 100 MHz) of coclaurine (**44**)

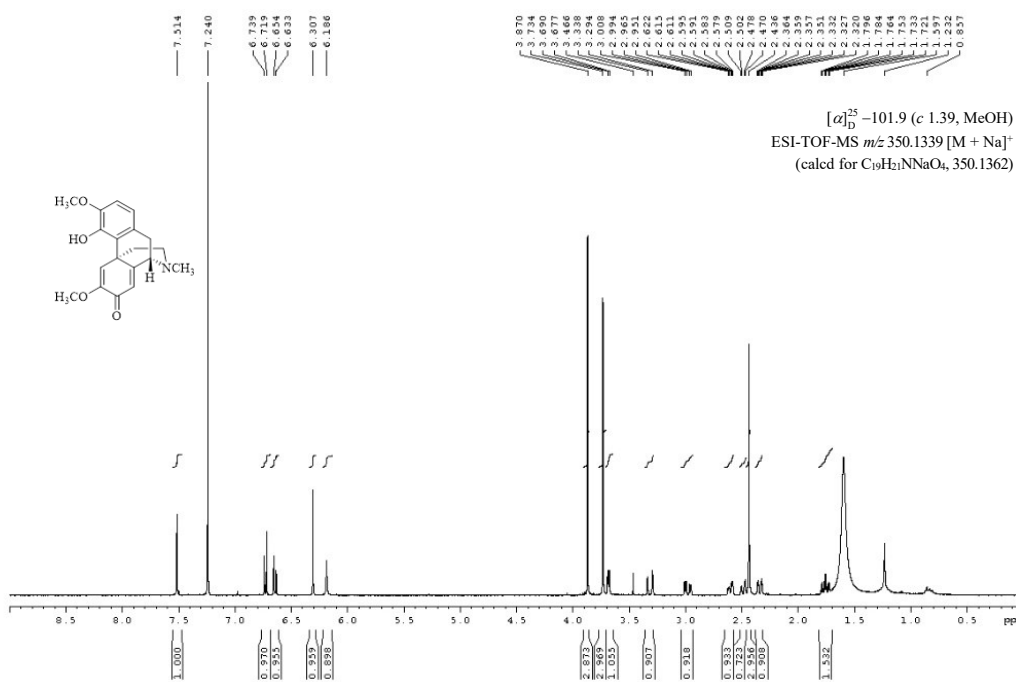


Figure S232. ¹H NMR spectrum (CDCl₃, 400 MHz) of salutaridine (**45**)

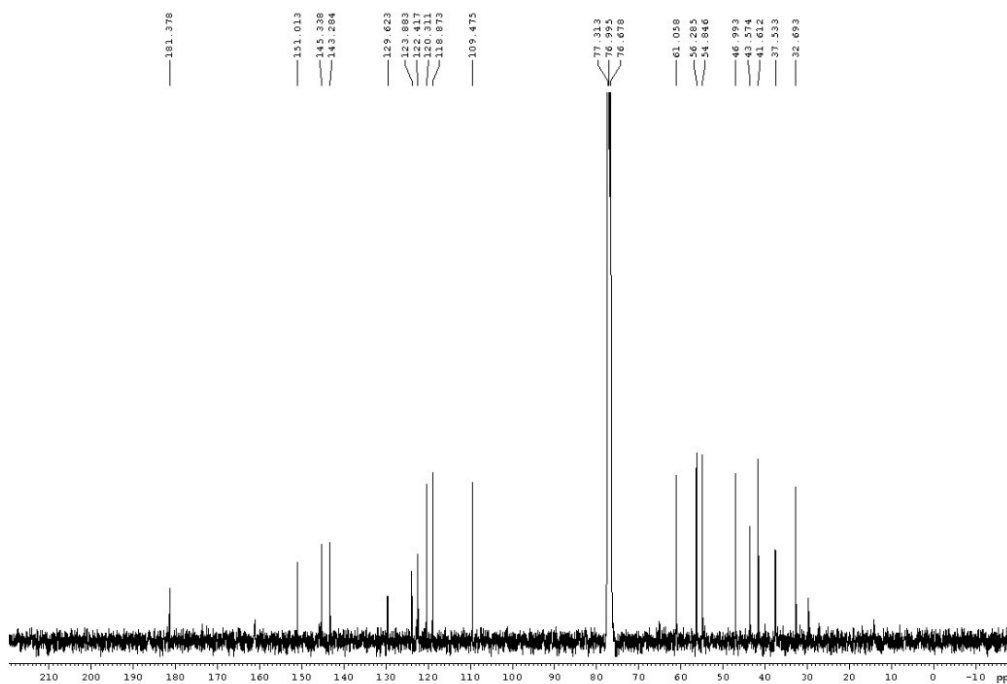


Figure S233. ^{13}C NMR spectrum (CDCl_3 , 100 MHz) of salutaridine (45)

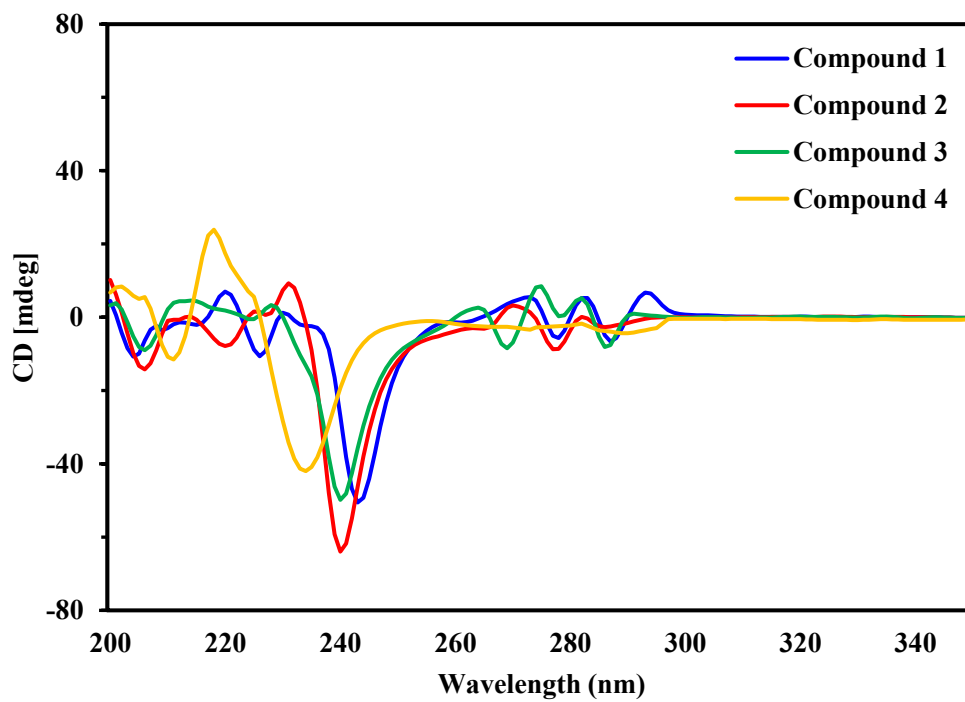


Figure S234. ECD spectra of stephapierrines A-D (1-4).

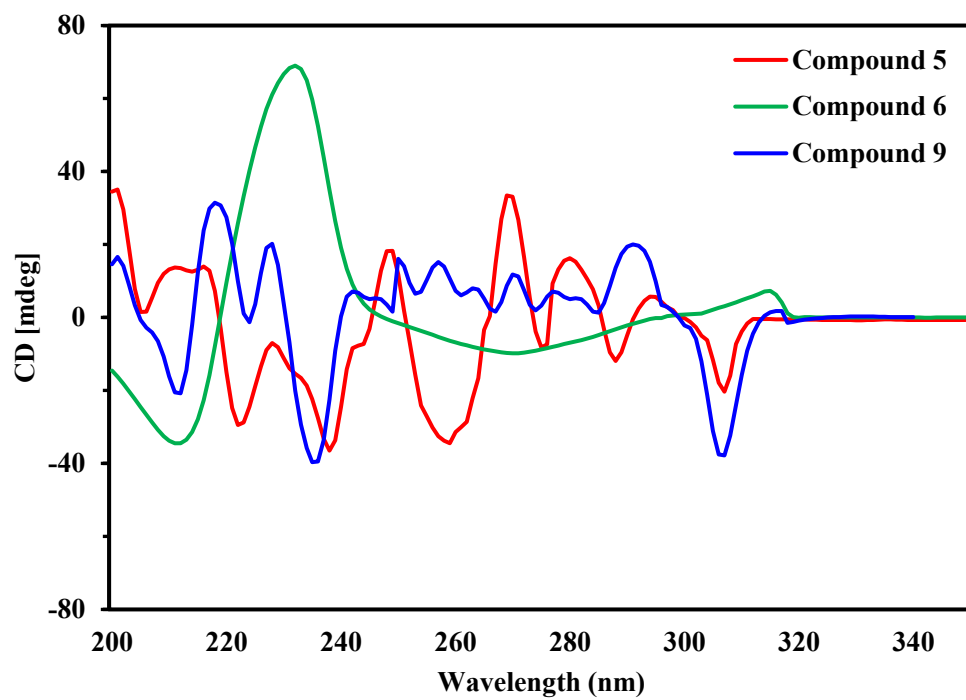
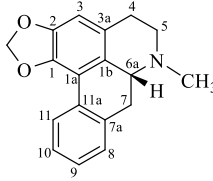
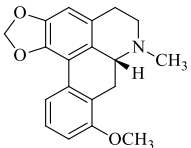
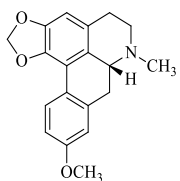
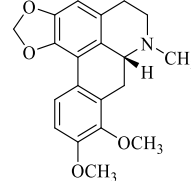
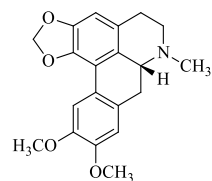
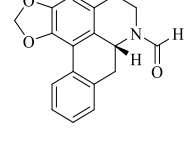
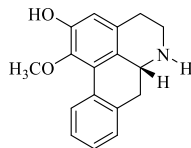
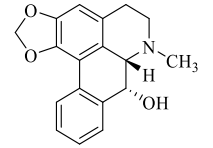
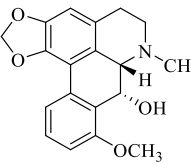
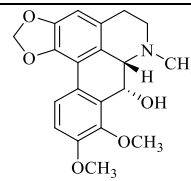
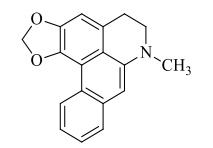
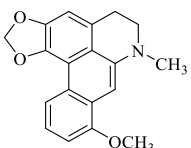
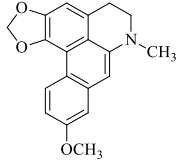
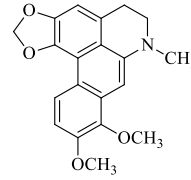
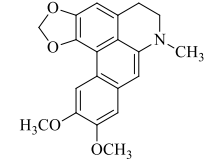


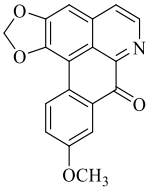
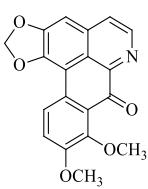
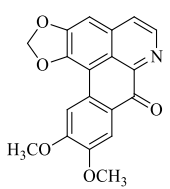
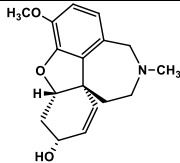
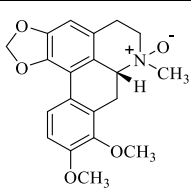
Figure S235. ECD spectra of stephapierrines E-F (**5-6**) and *O,N*-diacetylasimilobine (**9**).

Table S1. Cholinesterase inhibitory activities of aporphine alkaloids

							
22	23	24	25	26	30	32	
AChE ^a	8.32 ± 0.12	11.34 ± 0.20	11.94 ± 0.39	17.37 ± 0.22	6.11 ± 0.38	140.15 ± 0.83	141.47 ± 0.82
BuChE ^a	2.85 ± 0.08	2.80 ± 0.07	16.58 ± 0.54	10.51 ± 0.27	26.41 ± 0.43	inactive ^b	10.08 ± 0.15
							
27	28	29					
AChE ^a	17.63 ± 0.67	6.12 ± 0.63	4.30 ± 0.28				
BuChE ^a	7.42 ± 0.16	5.87 ± 0.06	22.47 ± 0.10				
							
38	39	40	41	42			
AChE ^a	1.21 ± 0.09	2.85 ± 0.24	147.18 ± 0.71	32.49 ± 0.52	1.09 ± 0.02		
BuChE ^a	3.34 ± 0.02	3.26 ± 0.05	20.32 ± 0.39	14.11 ± 0.25	5.57 ± 0.15		

^a IC₅₀ in μM^b Inactive at 0.1 mg/ml

Table S1. (cont.)

				
	34	36	35	
AChE ^a	73.08 ± 0.33	inactive ^b	265.82 ± 0.80	
BuChE ^a	13.60 ± 0.30	inactive ^b	inactive ^b	
				
	Galanthamine	43		
AChE ^a	1.21 ± 0.11	inactive ^b		
BuChE ^a	3.59 ± 0.07	150.57 ± 0.54		

^a IC₅₀ in μM^b Inactive at 0.1 mg/ml