

## Supporting Information

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### Alkaloids of *Papaver libanoticum* and their Cytotoxic Activity

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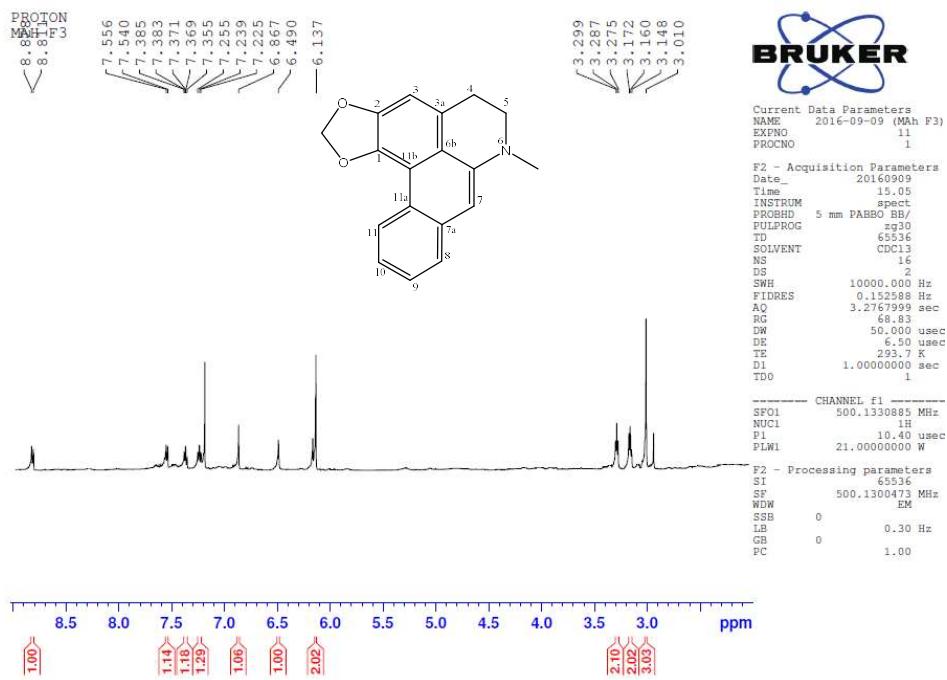
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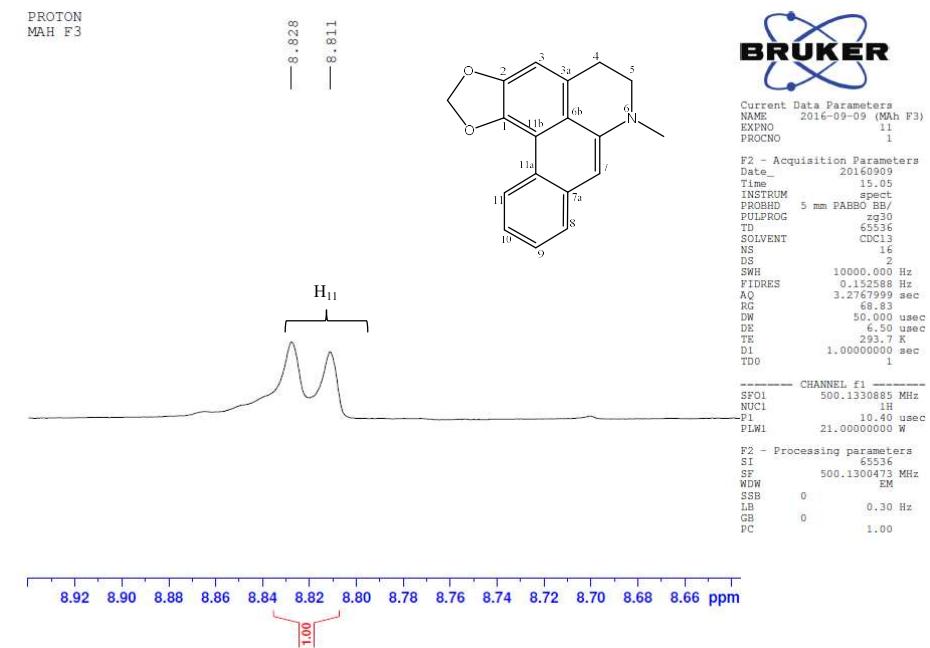
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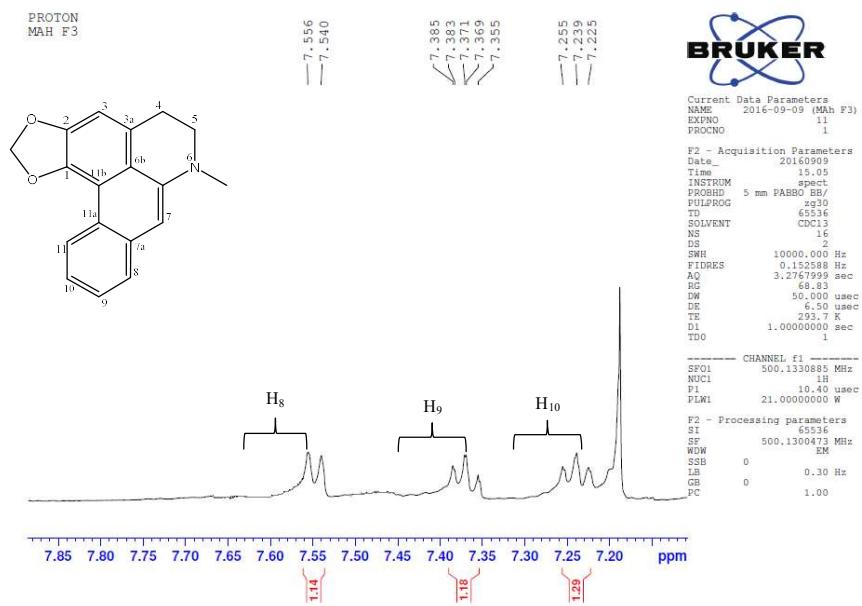
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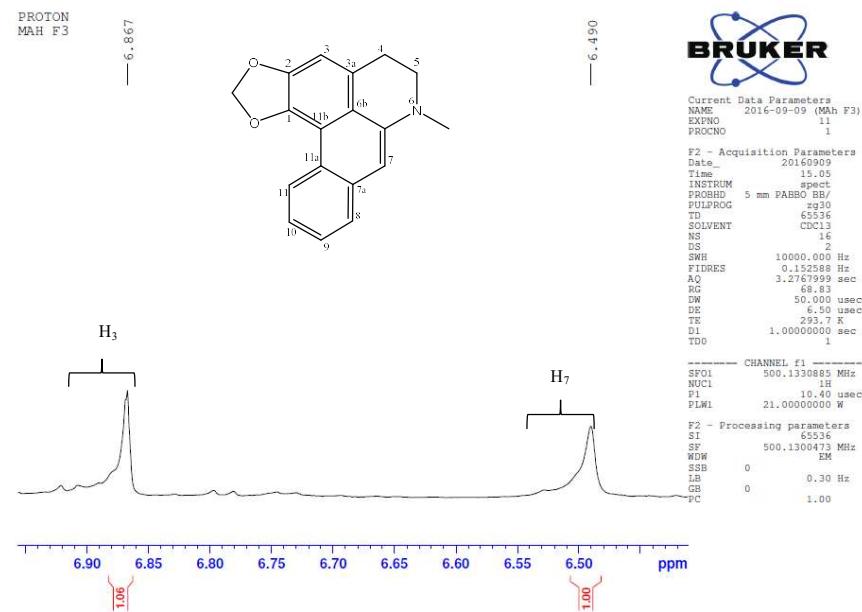
**S1:**  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 1 (dehydroremerine)



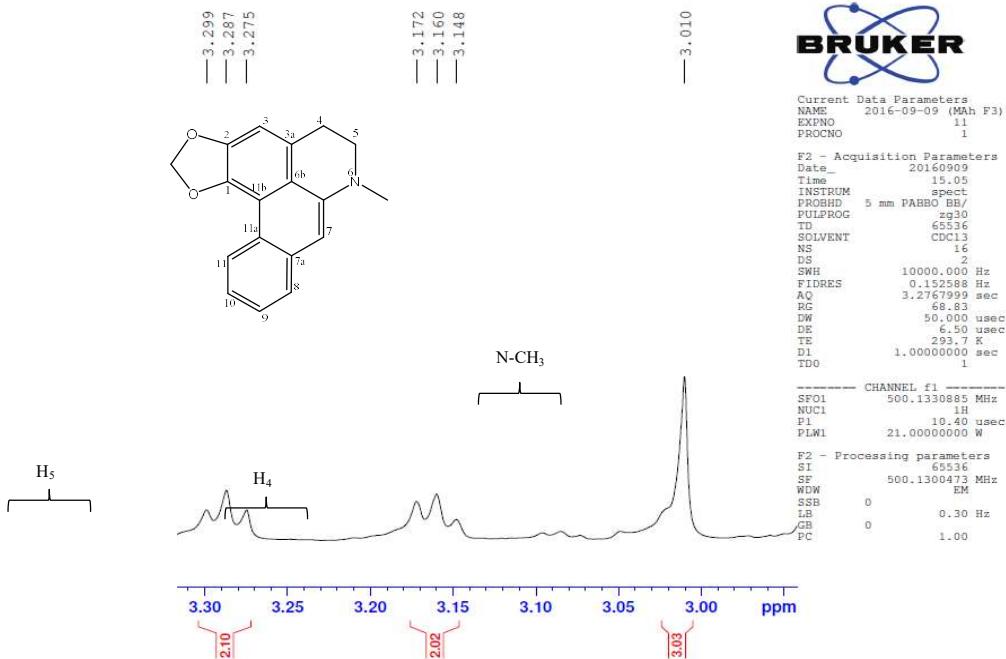
**S2:** Expansion of the  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 1 (dehydroremerine)



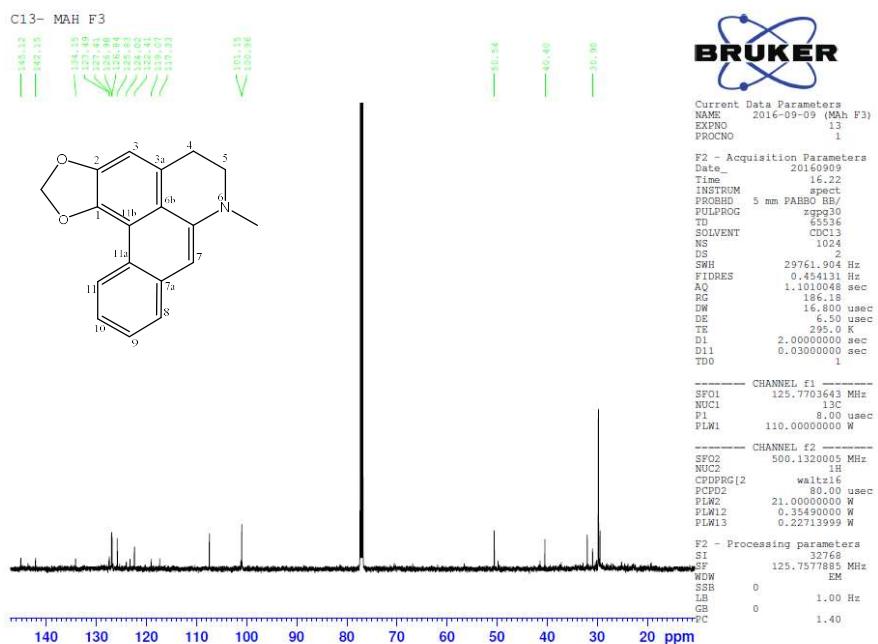
**S3:** Expansion of the  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 1 (dehydroremerine)



**S4:** Expansion of the  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 1 (dehydroremerine)

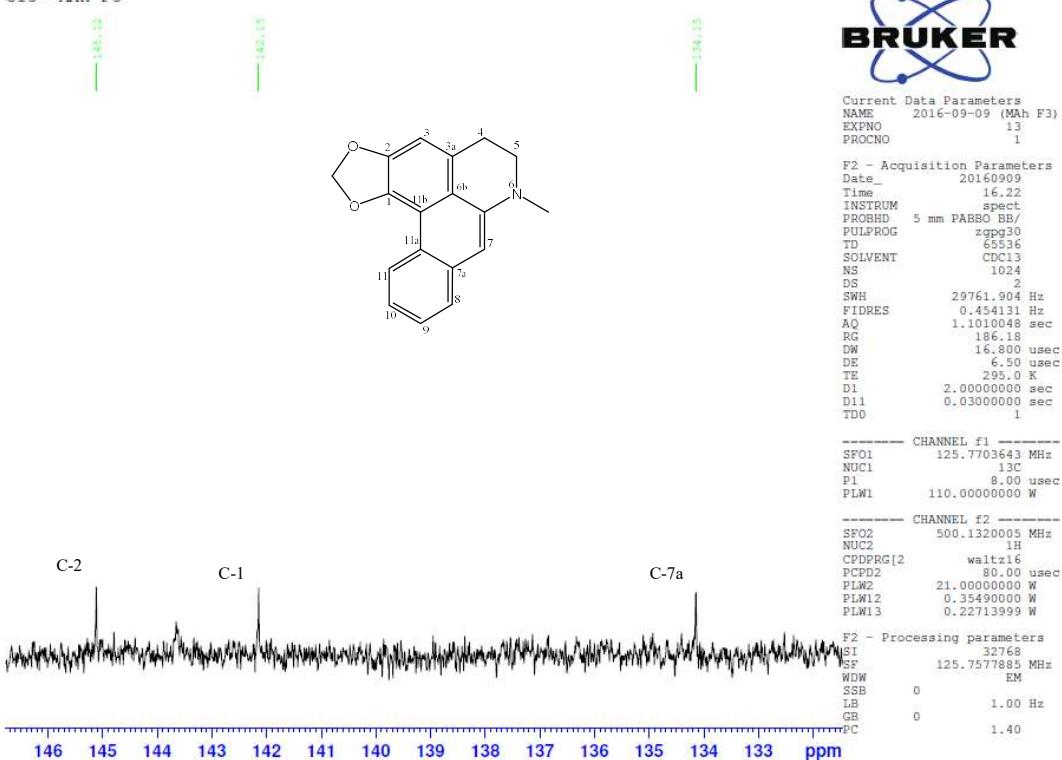


**S5:** Expansion of the  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 1 (dehydremerine)

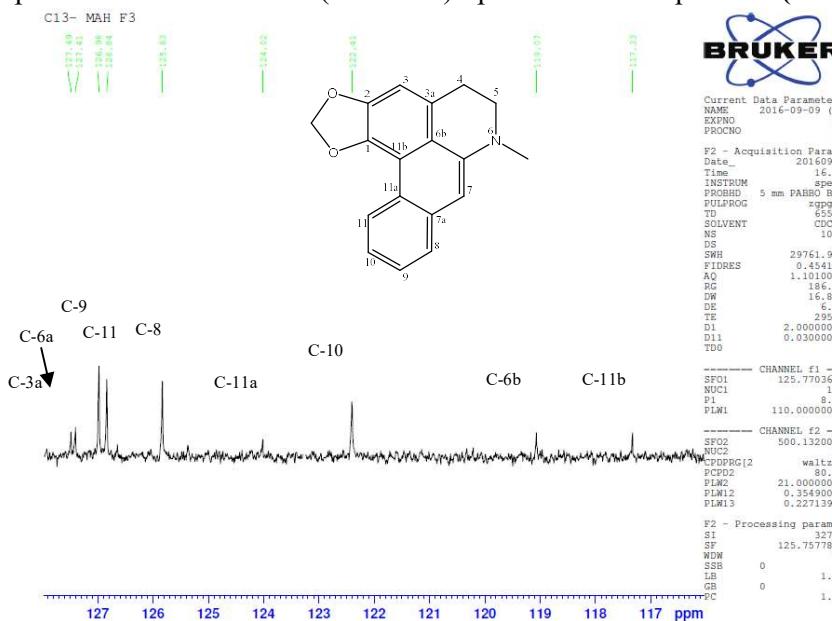


**S6:**  $^{13}\text{C}$  -NMR (500 MHz) Spectrum of Compound 1 (dehydremerine)

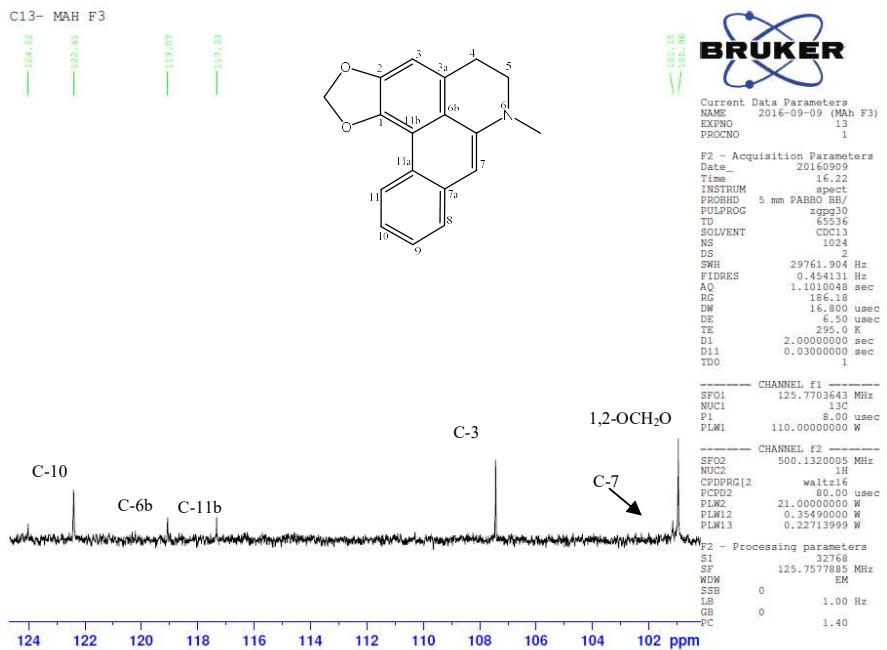
C13- MAH F3



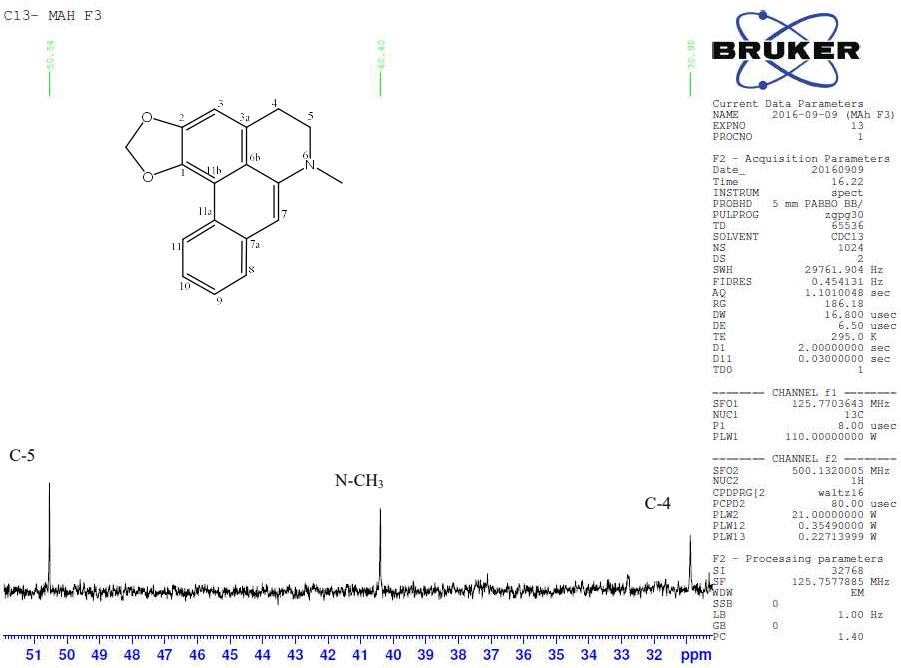
S7: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 1 (dehydrremerine)



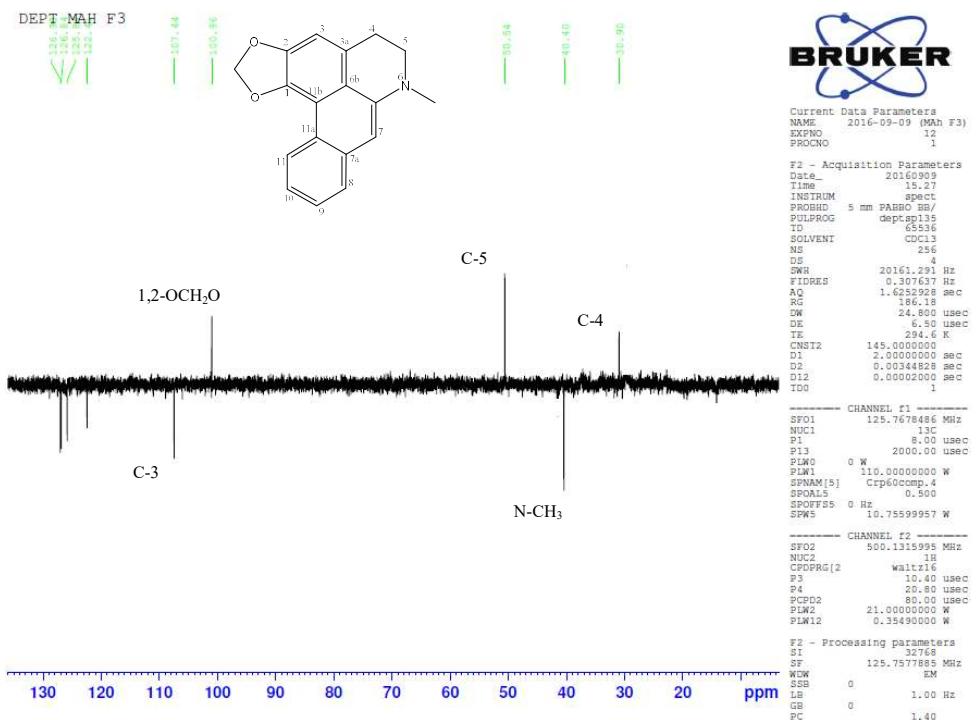
S8: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 1 (dehydrremerine)



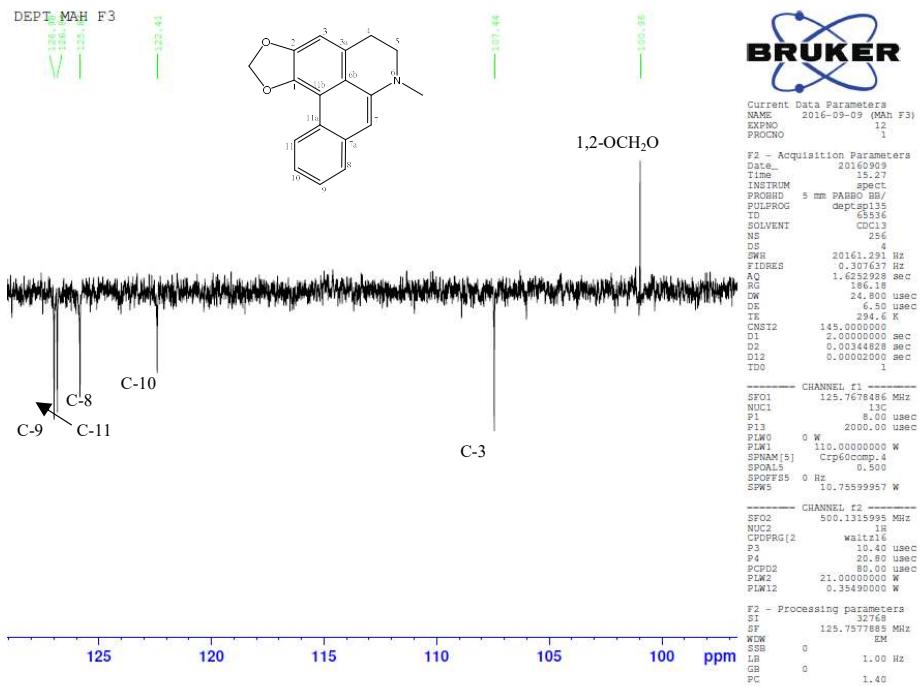
S9: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 1 (dehydrremerine)



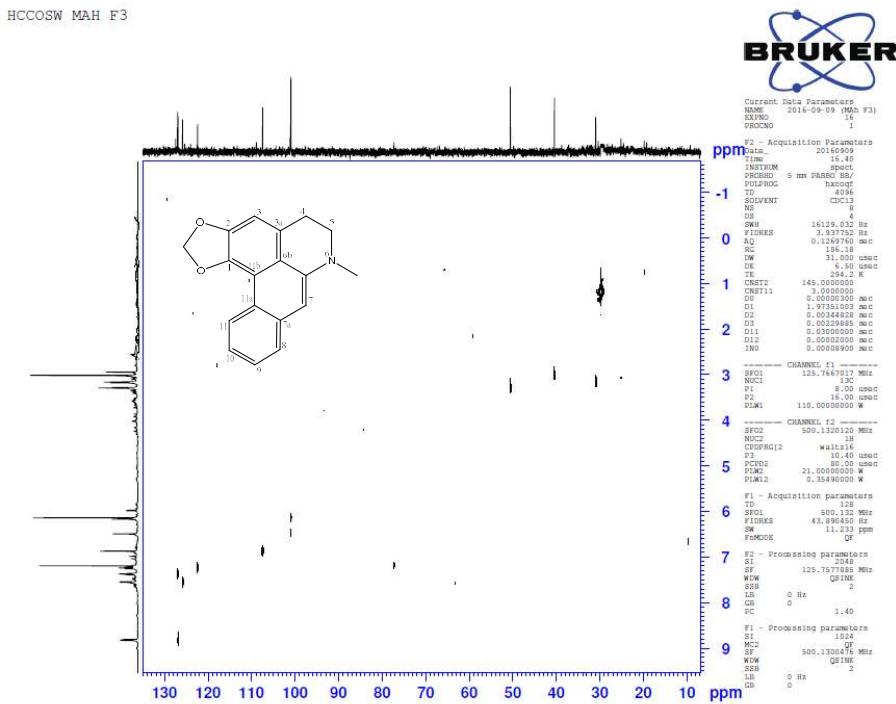
S10: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 1 (dehydrremerine)



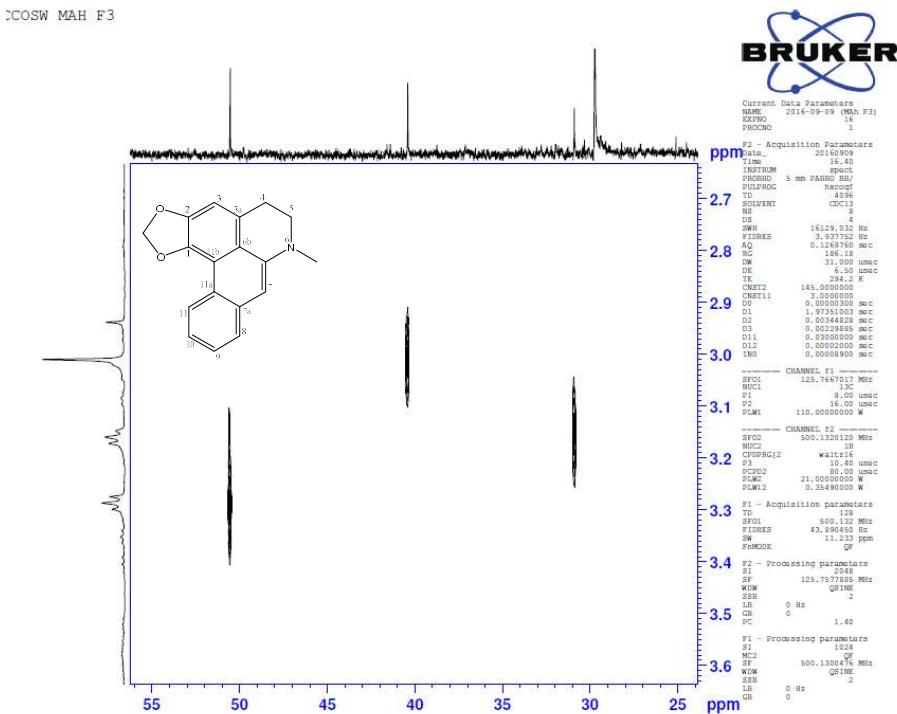
**S11:** DEPT (500 MHz) Spectrum of Compound 1 (dehydroremerine)



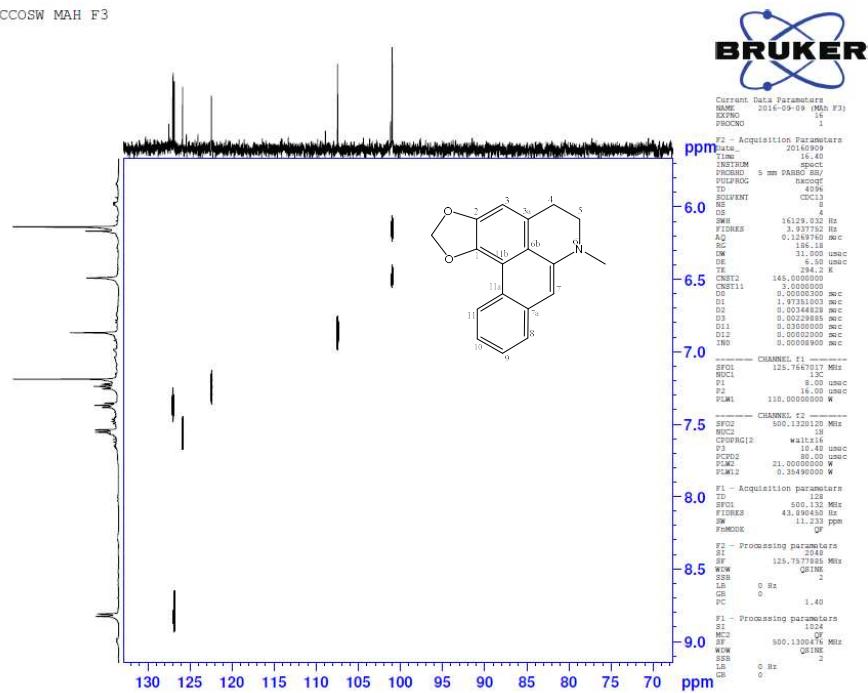
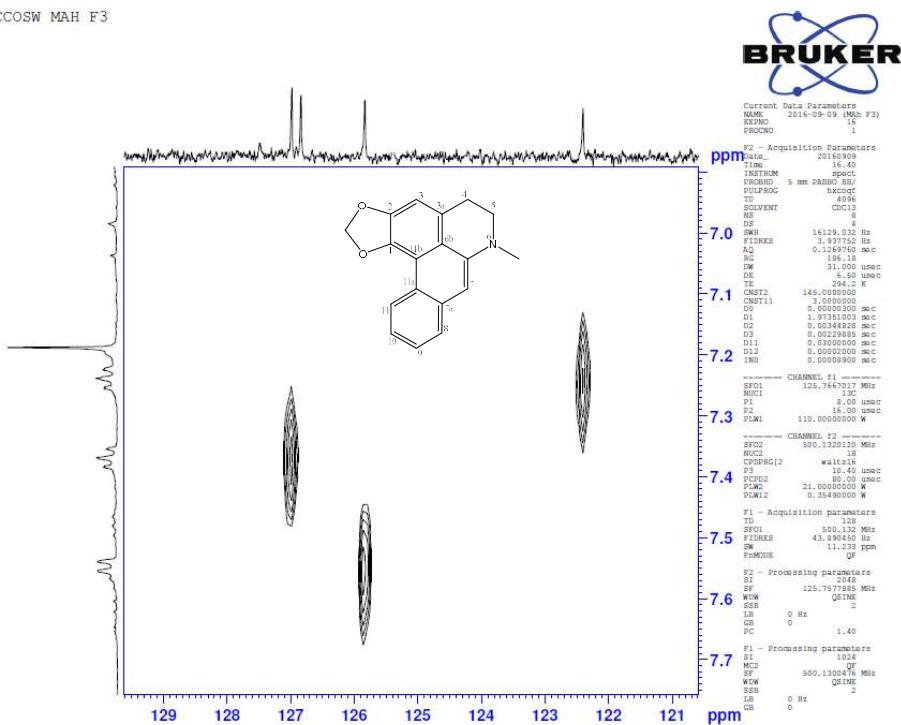
**S12:** Expansion of the DEPT (500 MHz) Spectrum of Compound 1 (dehydroremerine)



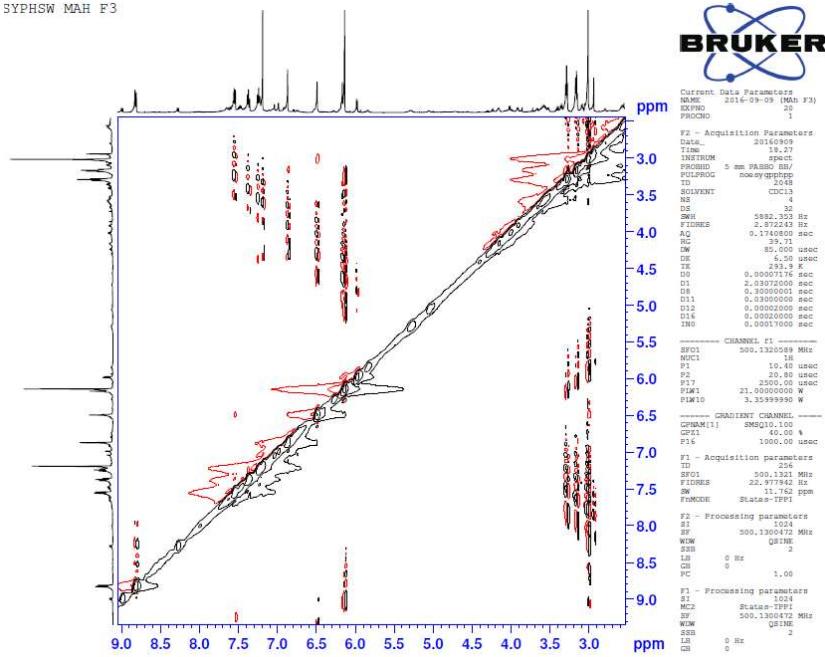
### S13: HCCOW Spectrum of Compound 1 (dehydroremerine)



**S14:** Expansion of the HCCOW Spectrum of Compound 1 (dehydroremerine)

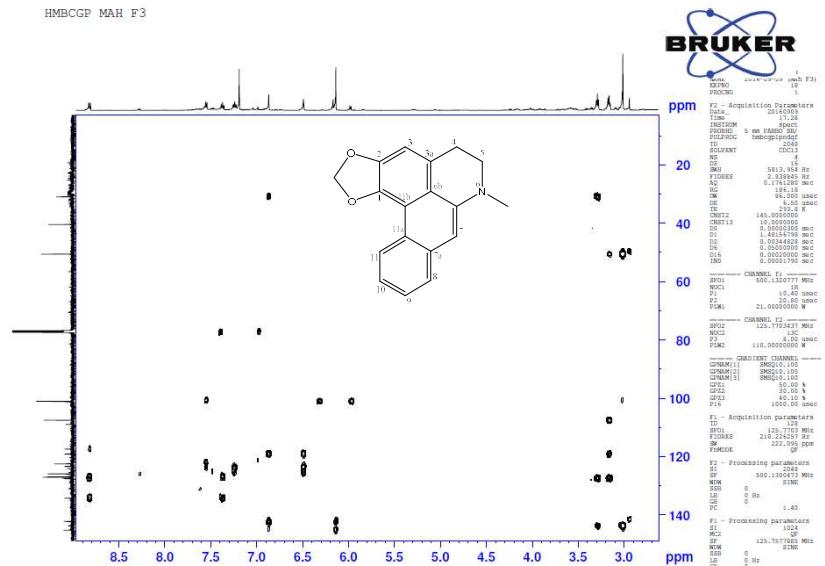
**S15:** Expansion of the HCCOW Spectrum of Compound 1 (dehydroremerine)**S16:** Expansion of the HCCOW Spectrum of Compound 1 (dehydroremerine)

SYPHSW MAH F3

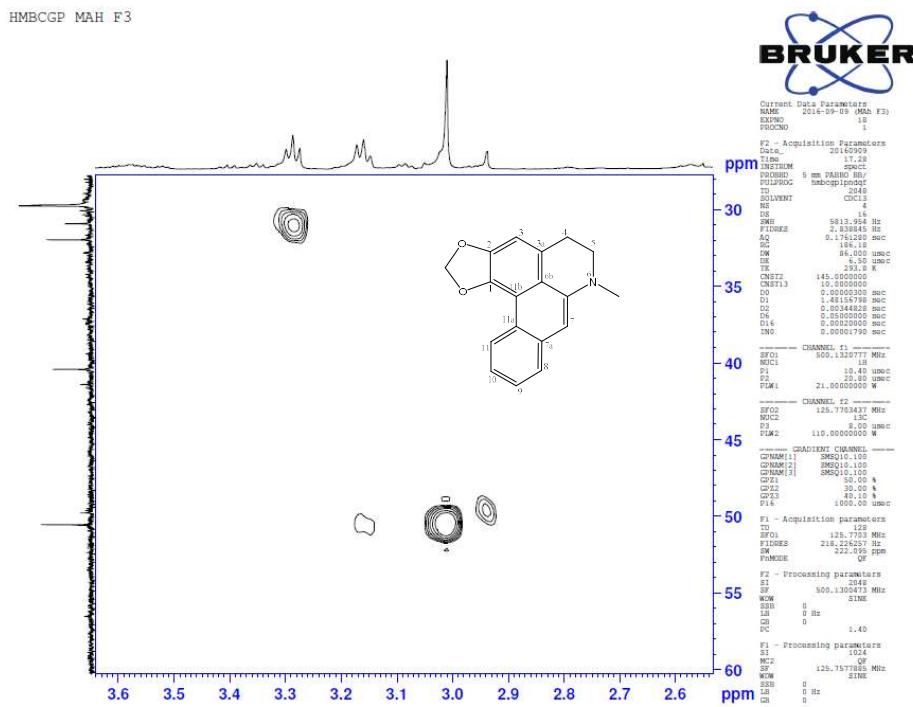


S17: NOSY (500 MHz) Spectrum of Compound 1 (dehydroremerine)

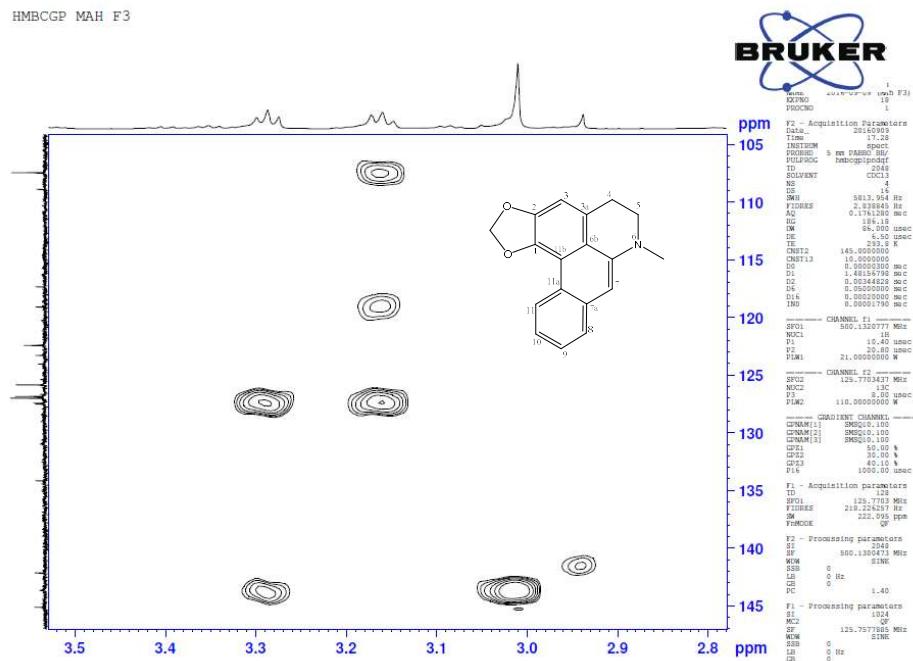
HMBCGP MAH F3



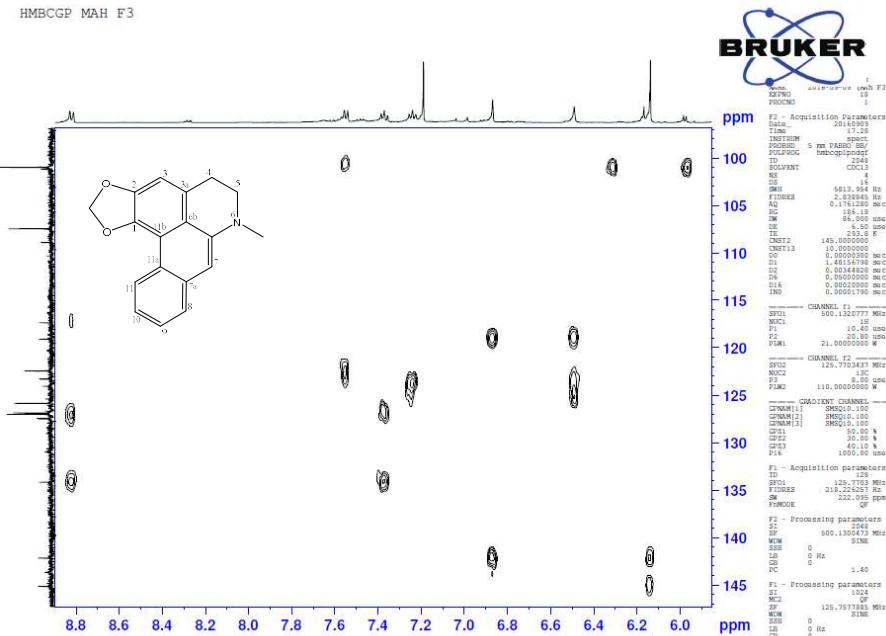
S18: HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)



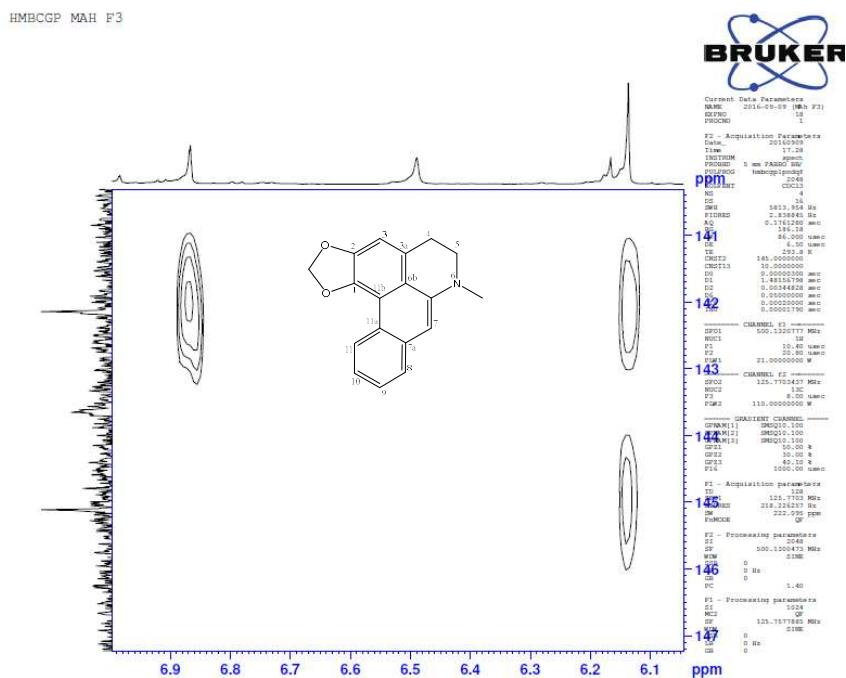
**S19:** Expansion of the HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)



**S20:** Expansion of the HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)

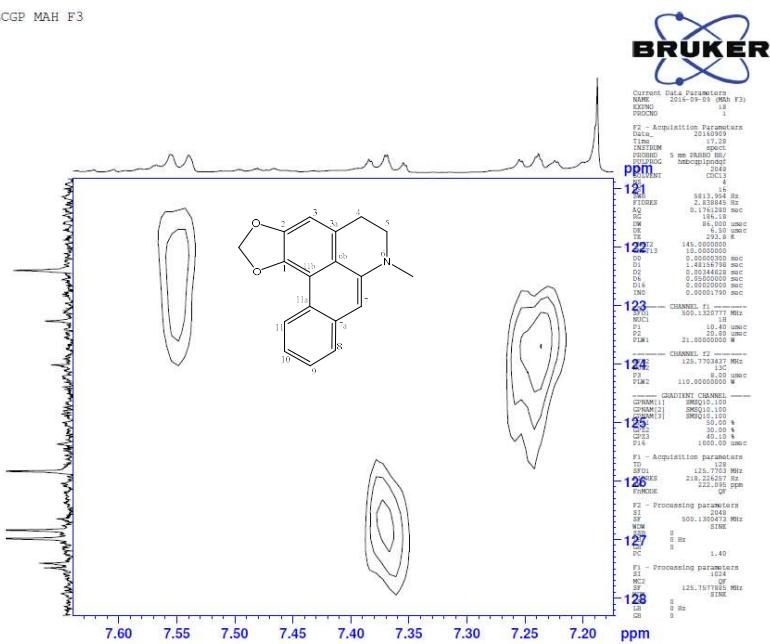


**S21:** Expansion of the HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)



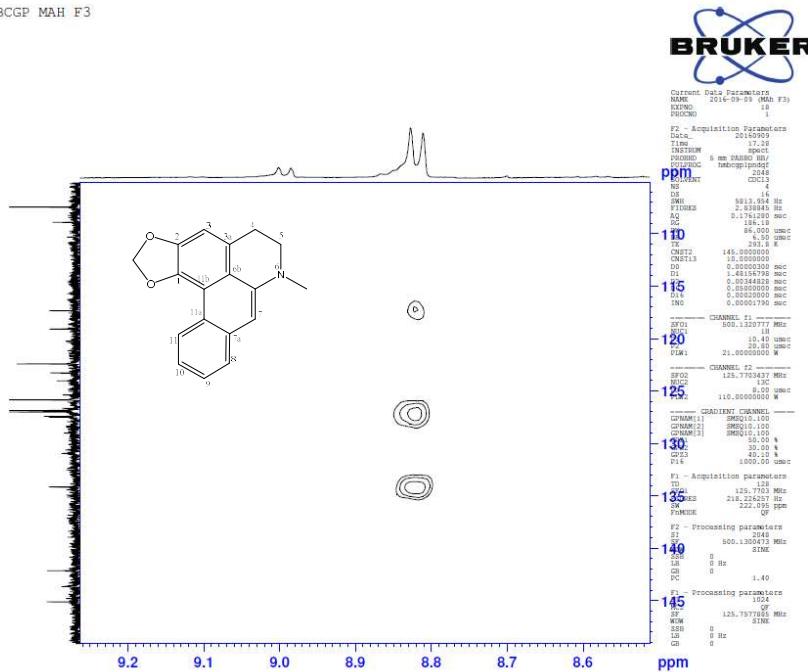
**S22:** Expansion of the HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)

HMBCGP MAH F3

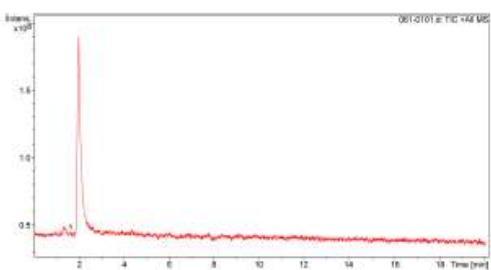


S23: Expansion of the HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)

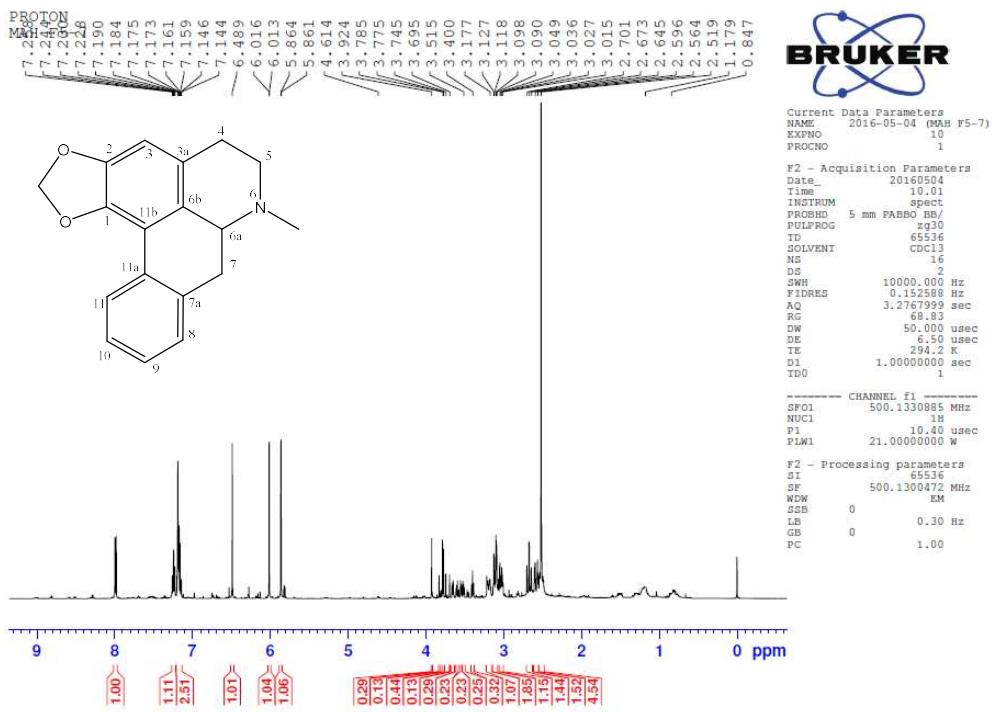
HMBCGP MAH F3



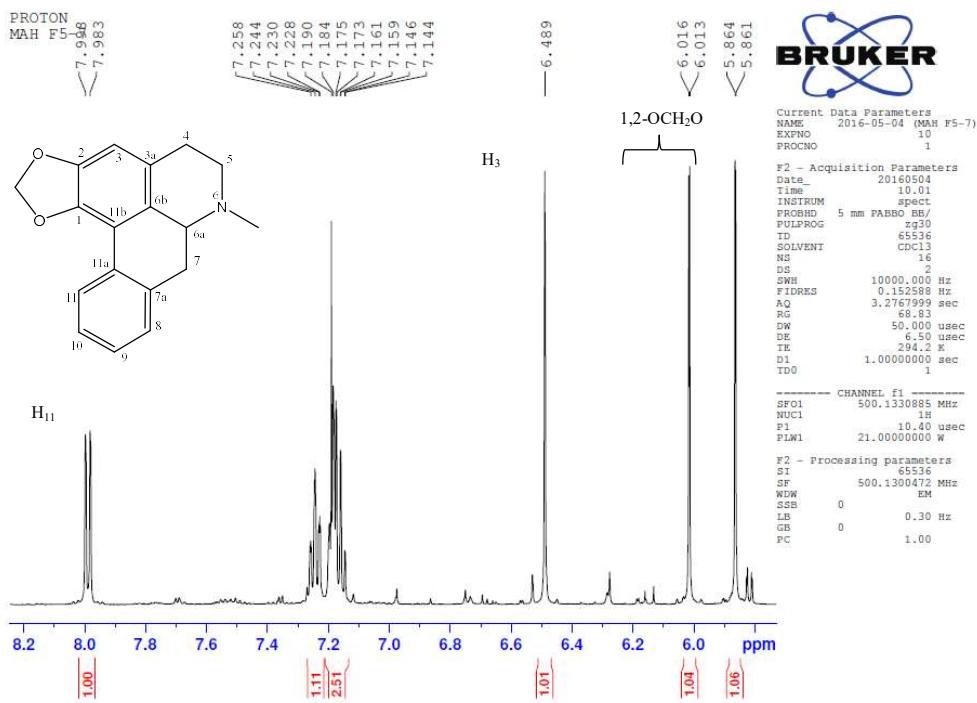
S24: Expansion of the HMBC (500 MHz) Spectrum of Compound 1 (dehydroremerine)



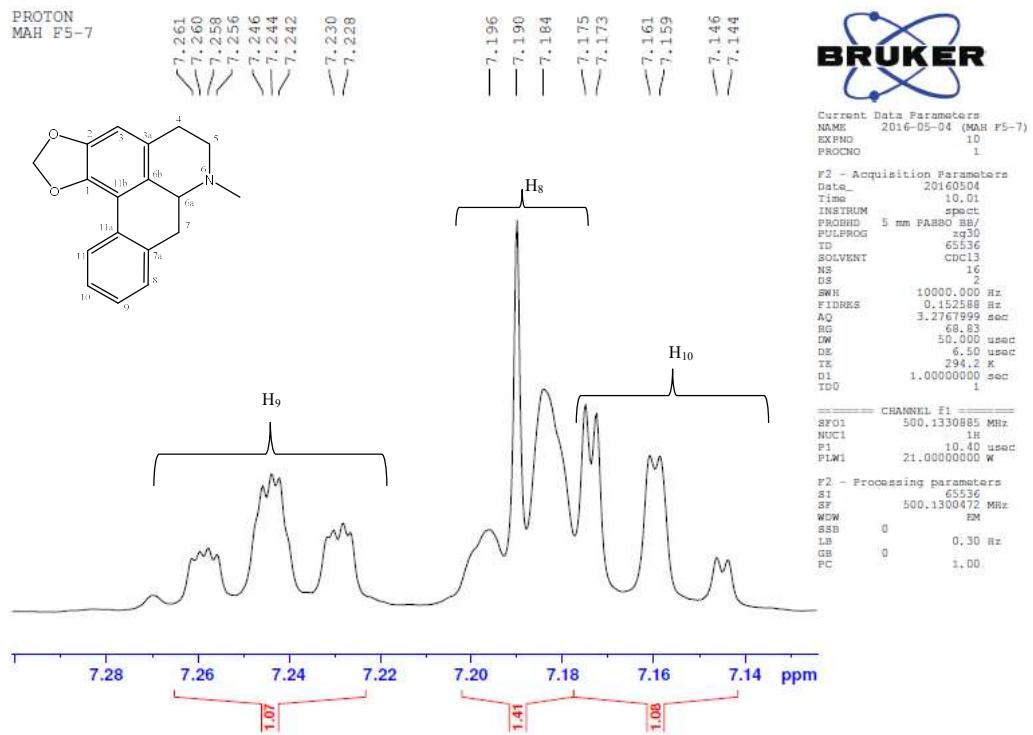
**S25:** LC-MS Spectrum of Compound 2 (reomerine)



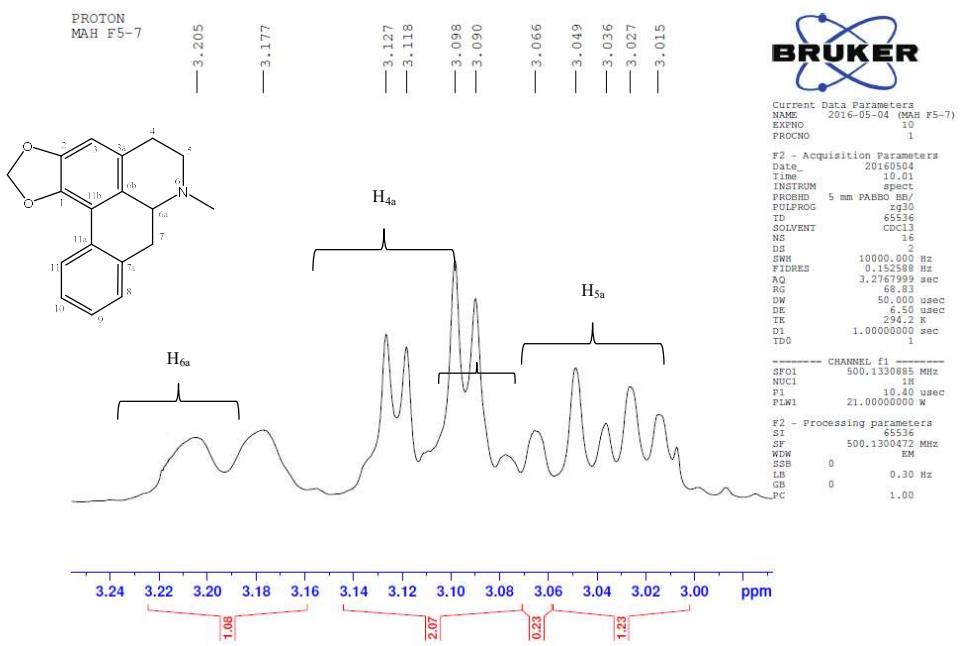
**S26:** <sup>1</sup>H-NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)



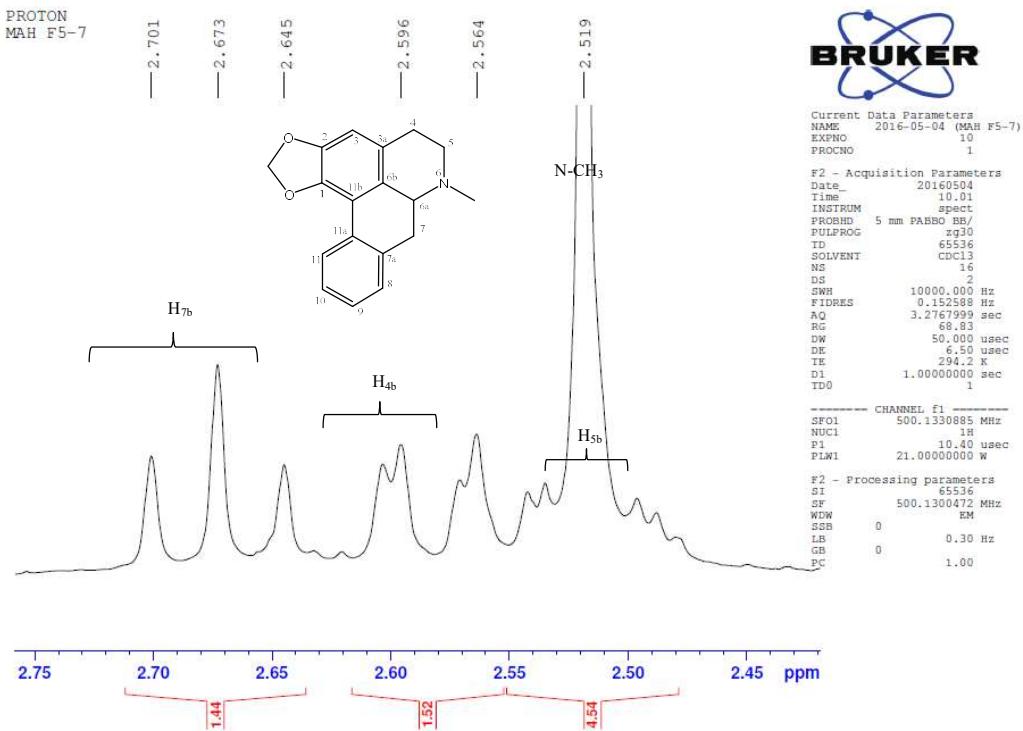
**S27:** Expansion  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 2 (reomerine)



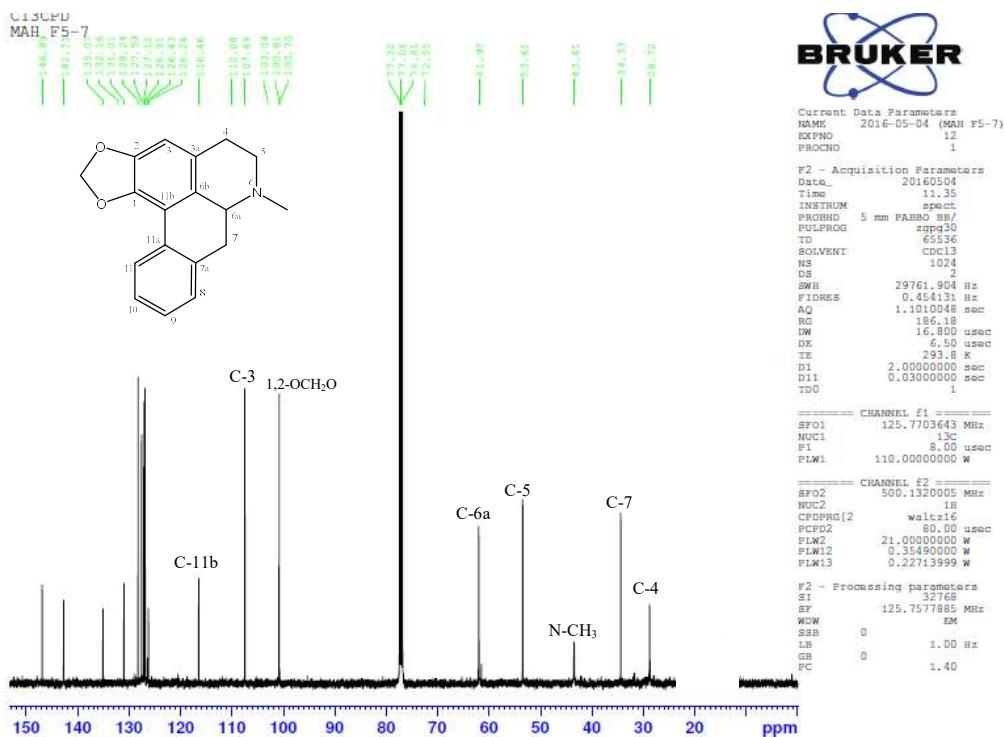
**S28:** Expansion  $^1\text{H}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 2 (reomerine)



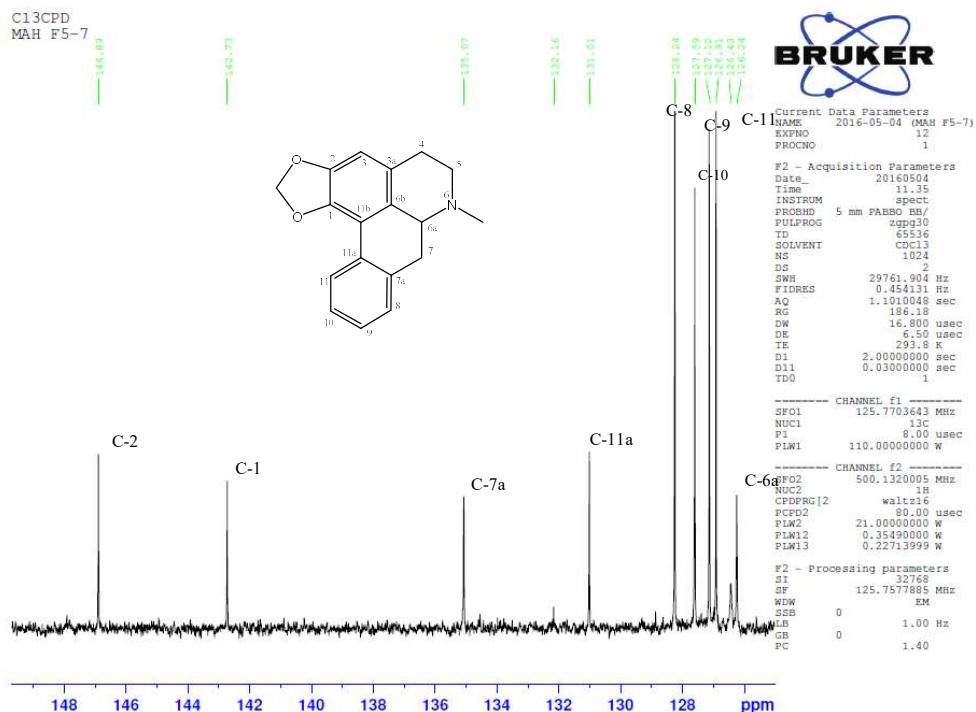
S29: Expansion <sup>1</sup>H-NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)



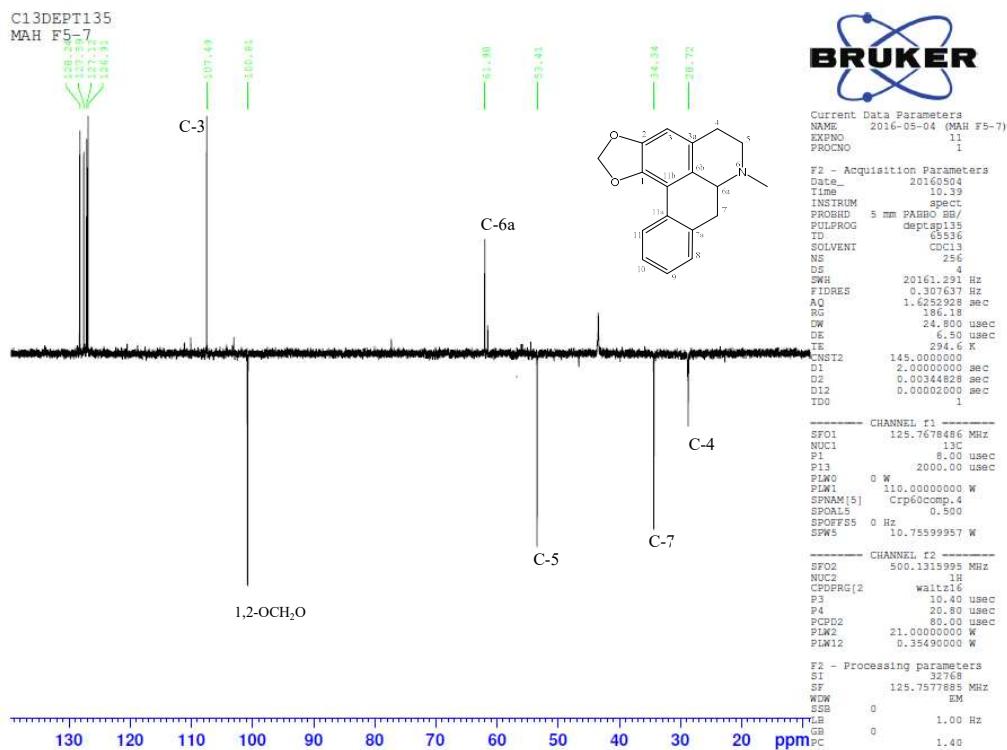
S30: Expansion <sup>1</sup>H-NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)



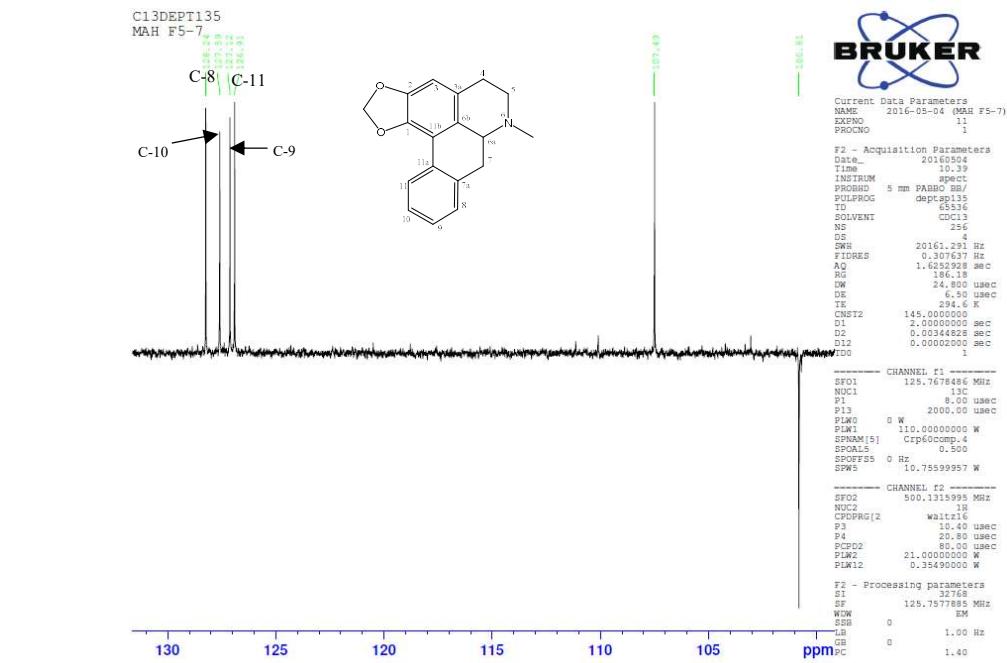
**S31:**  $^{13}\text{C}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound **2** (reomerine)



**S32:** Expansion of the  $^{13}\text{C}$ -NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of Compound 2 (reomerine)



**S33:** Expansion of the DEPT (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound **2** (reomerine)



**S34:** Expansion of the DEPT (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)

HCCOSW HCCOSW  
MAH F5-7



Current Data Parameters  
NAME 2014-05-10 (MAH F16-20)

EXPNO 1  
PROCNO 1

E2 - Acquisition Parameters

Data 20140510

Time 11.22

INSTRUM spect

PROMPT 5 mm PABBO BB/

PULPROG hxcosf

TDR 4936

TDIV 4096

SCLEVNT C6C13

NS 8

DS 0

SWH 17887.143 Hz

FIDRES 4.159454 Hz

AQ 0.000000 sec

RG 186.18

DW 38.000 usec

DE 10.000 usec

TE 293.2 K

CNSTZ2 145.000000

CNST11 3.000000

DC 0.0000300 sec

D1 1.98579000 sec

D2 0.0000000 sec

D3 0.00229885 sec

D11 0.03000000 sec

D12 0.0000000 sec

IND 0.00009900 sec

===== CHANNEL F1 =====

SFO1 123.7679370 MHz

NUC1 13C

D1 8.00 usec

P1 16.00 usec

PLW1 110.00000000 W

===== CHANNEL F2 =====

SFO2 500.1318736 MHz

NUC2 1H

CPDPGR12 waltz16

P3 10.40 usec

PCP12 80.00 usec

PCP212 21.00000000 W

PLW12 0.38490000 W

F1 - Acquisition parameters

TD 128

SD 500.1318736

SW 10.098 ppm

PRMODE QF

F2 - Processing parameters

S1 1024

MC2 1024

SF 125.7577985 MHz

WDW QSIINE

SSB 2

LB 0 Hz

GB 0

PC 1.40

F1 - Processing parameters

S1 1024

MC2 1024

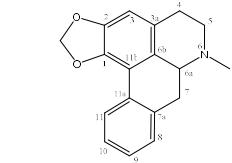
SF 500.1300449 MHz

WDW QSIINE

SSB 2

LB 0 Hz

GB 0



S35: HCCOW Spectrum of Compound 2 (reomerine)

HCCOSW HCCOSW  
MAH F5-7



Current Data Parameters

NAME 2014-05-10 (MAH F16-20)

EXPNO 1  
PROCNO 1

E2 - Acquisition Parameters

Data 20140510

Time 11.22

INSTRUM spect

PROMPT 5 mm PABBO BB/

PULPROG hxcosf

TDR 4936

TDIV 4096

SCLEVNT C6C13

NS 8

DS 0

SWH 17887.143 Hz

FIDRES 4.159454 Hz

AQ 0.000000 sec

RG 186.18

DW 38.000 usec

DE 10.000 usec

TE 293.2 K

CNSTZ2 145.000000

CNST11 3.000000

DC 0.0000300 sec

D1 1.98579000 sec

D2 0.0000000 sec

D3 0.00229885 sec

D11 0.03000000 sec

D12 0.0000000 sec

IND 0.00009900 sec

===== CHANNEL F1 =====

SFO1 123.7679370 MHz

NUC1 13C

D1 8.00 usec

P1 16.00 usec

PLW1 110.00000000 W

===== CHANNEL F2 =====

SFO2 500.1318736 MHz

NUC2 1H

CPDPGR12 waltz16

P3 10.40 usec

PCP12 80.00 usec

PCP212 21.00000000 W

PLW12 0.38490000 W

F1 - Acquisition parameters

TD 128

SD 500.1318736

SW 10.098 ppm

PRMODE QF

F2 - Processing parameters

S1 1024

MC2 1024

SF 125.7577985 MHz

WDW QSIINE

SSB 2

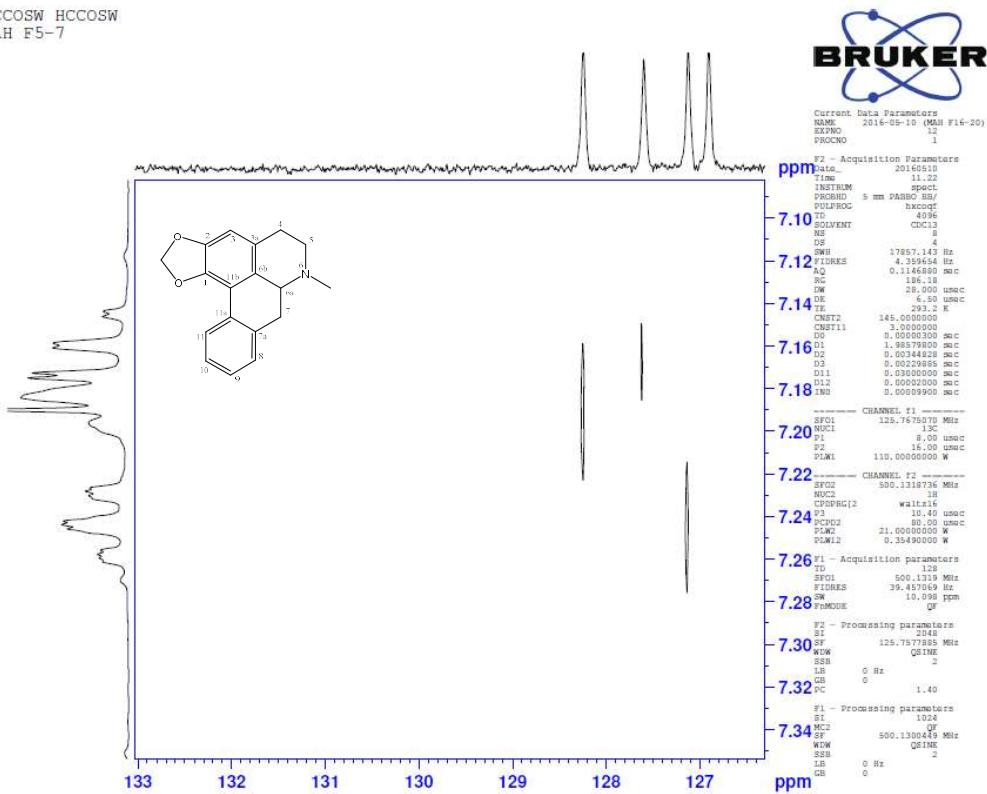
LB 0 Hz

GB 0

PC 1.40

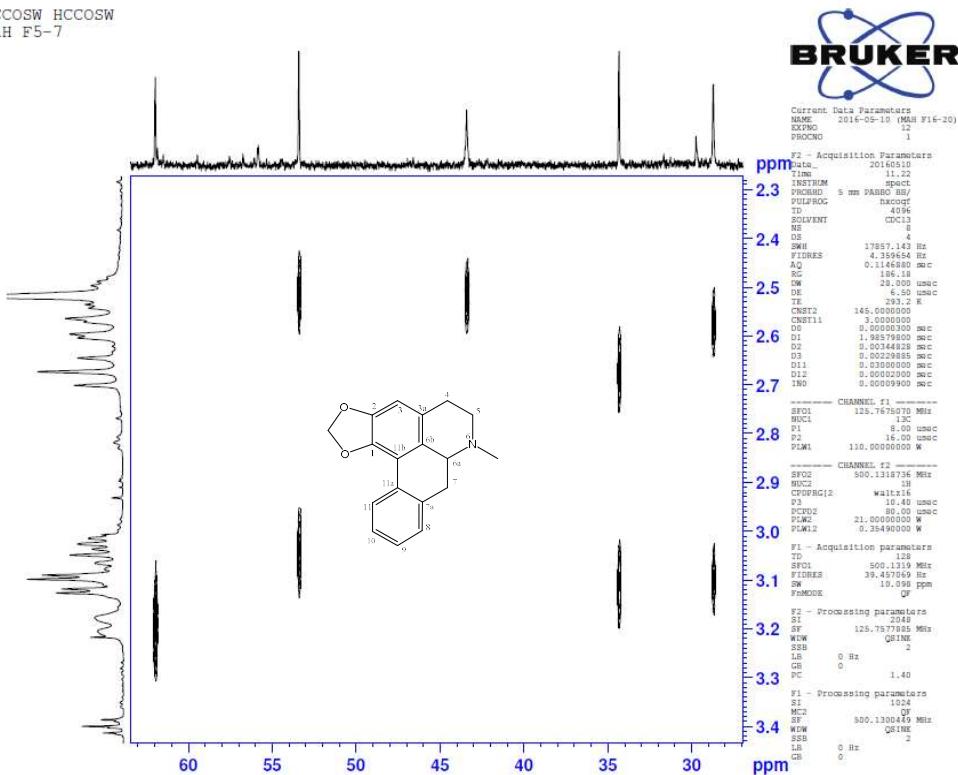
S36: Expansion of the HCCOW Spectrum of Compound 2 (reomerine)

HCCOSW HCCOSW  
MAH F5-7



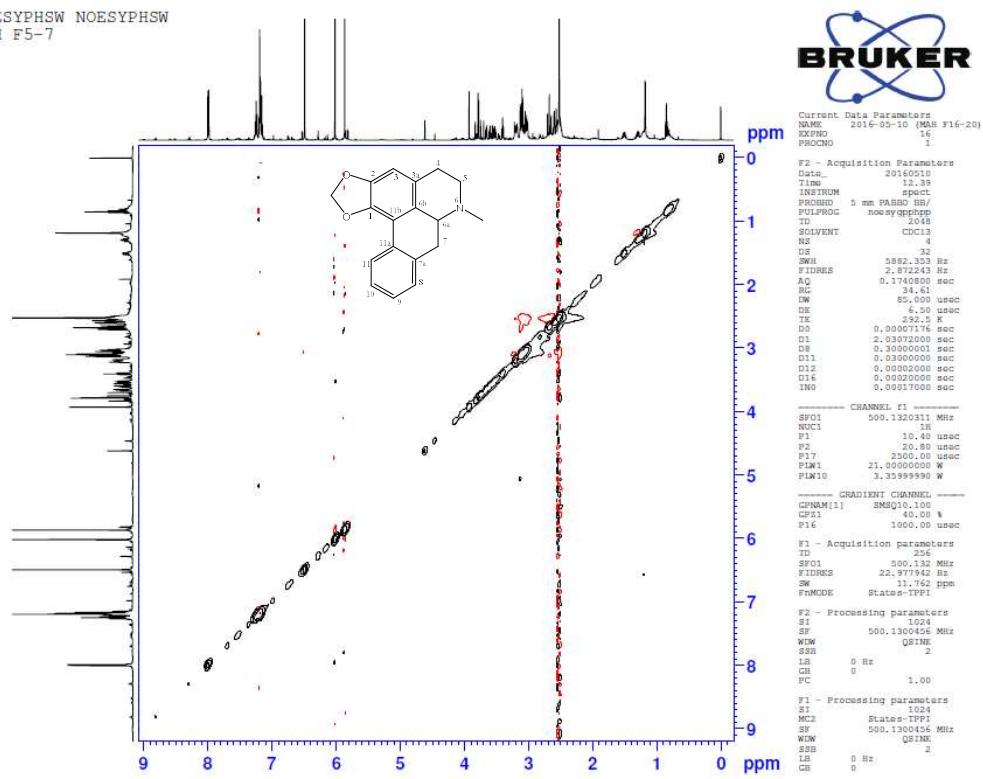
S37: Expansion of the HCCOW Spectrum of Compound 2 (reomerine)

HCCOSW HCCOSW  
MAH F5-7



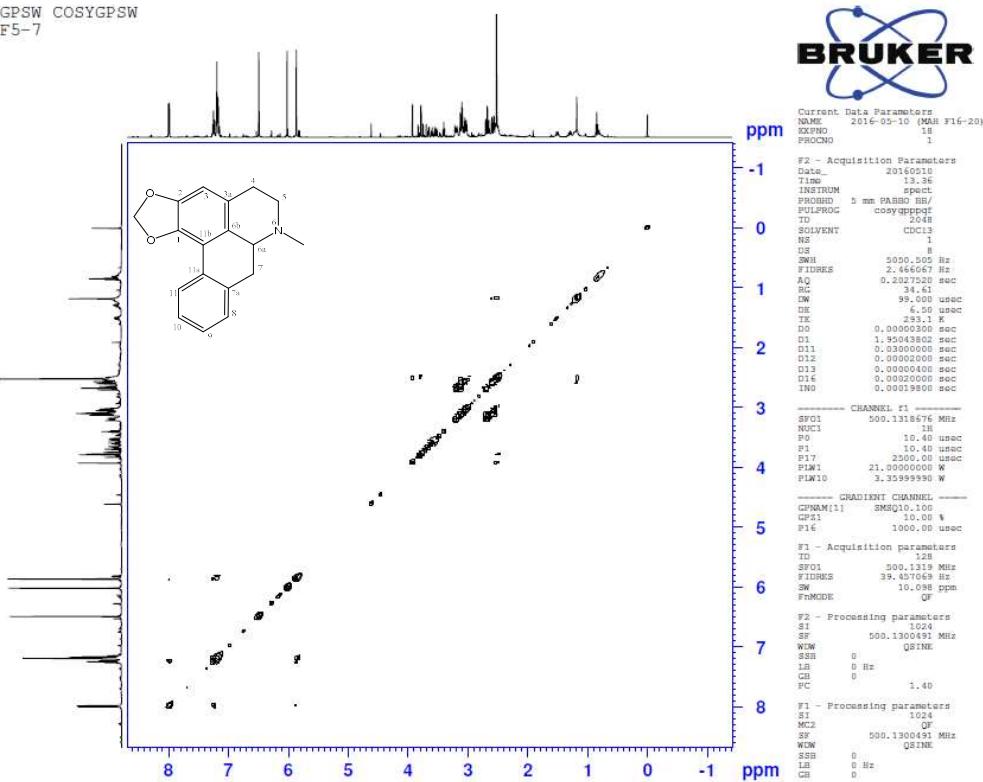
S38: Expansion of the HCCOW Spectrum of Compound 2 (reomerine)

NOESYPSW NOESYPSW  
MAH F5-7

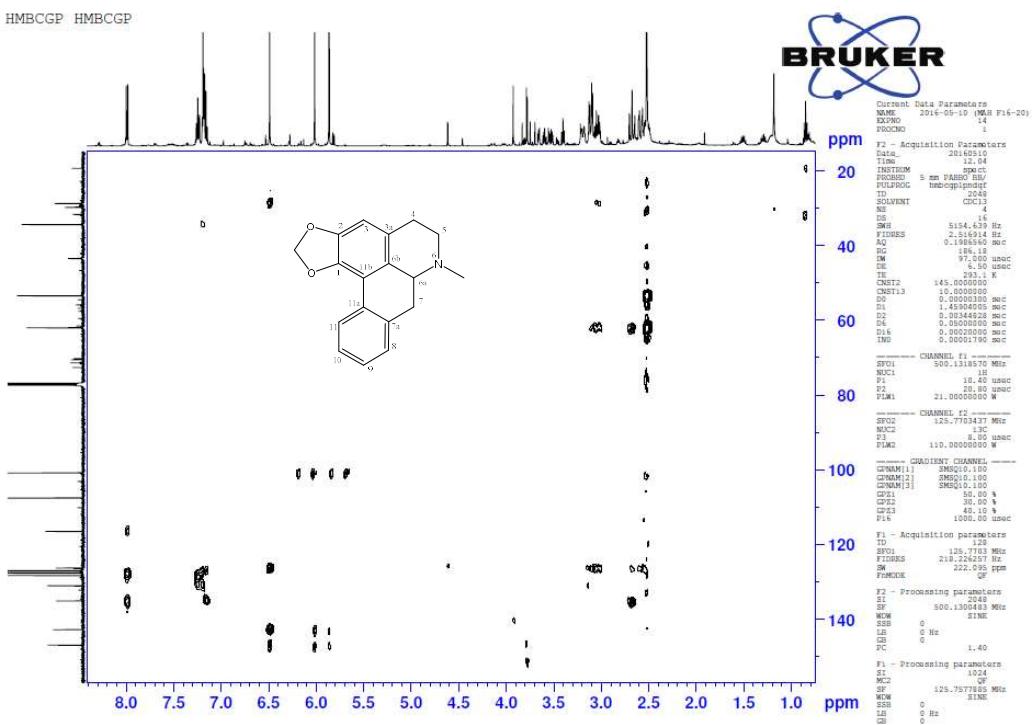


S39: NOSY (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)

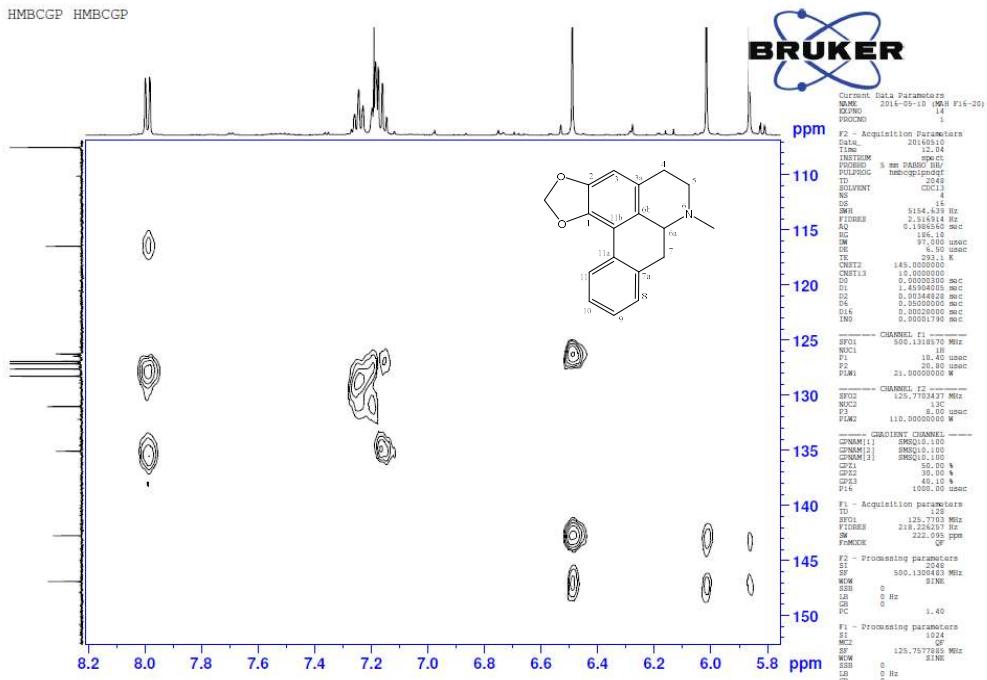
COSYGPSW COSYGPSW  
MAH F5-7



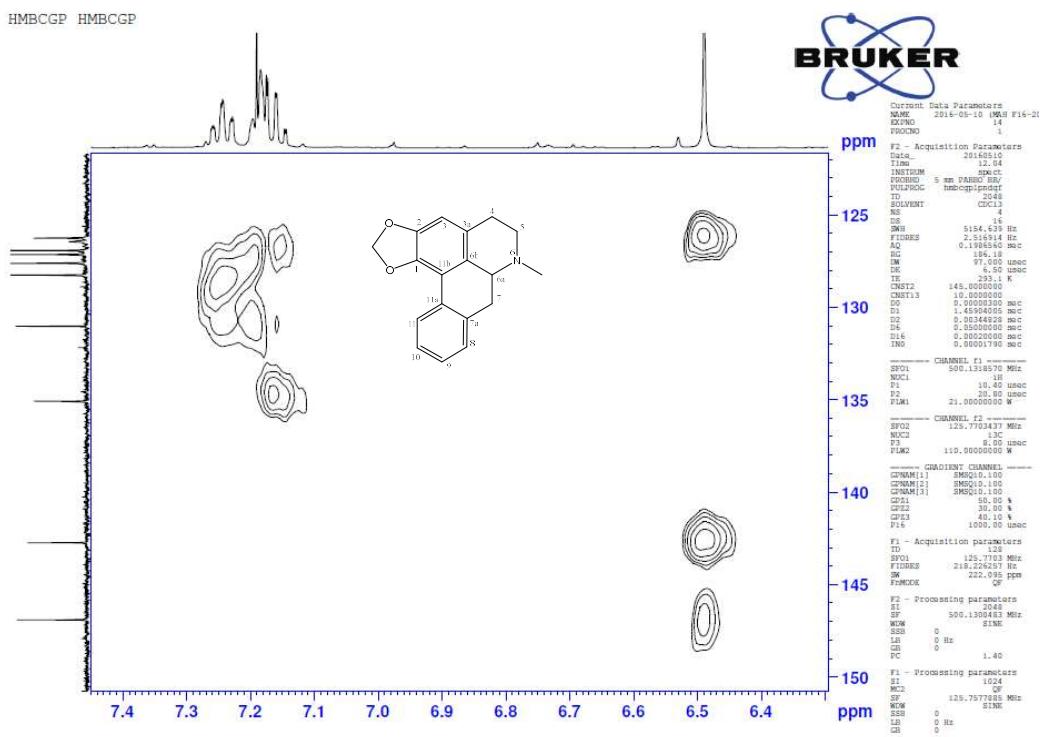
S40: COSY (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)



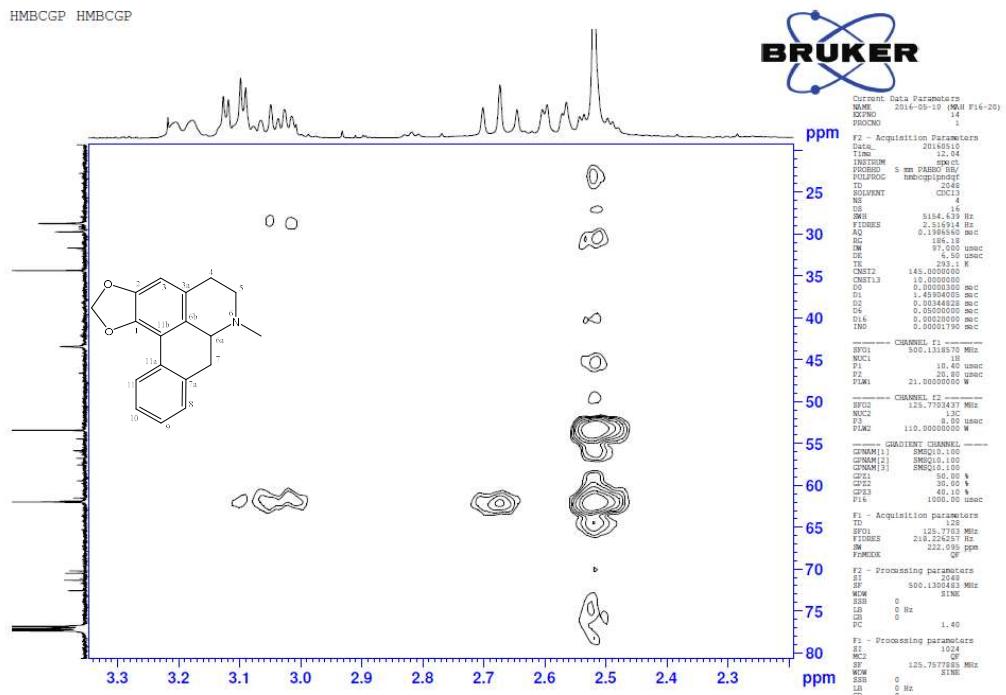
S41: HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)



S42: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)

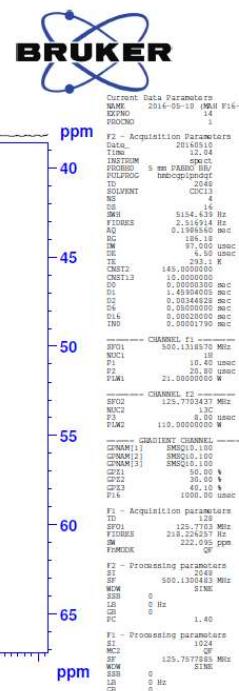


S43: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)

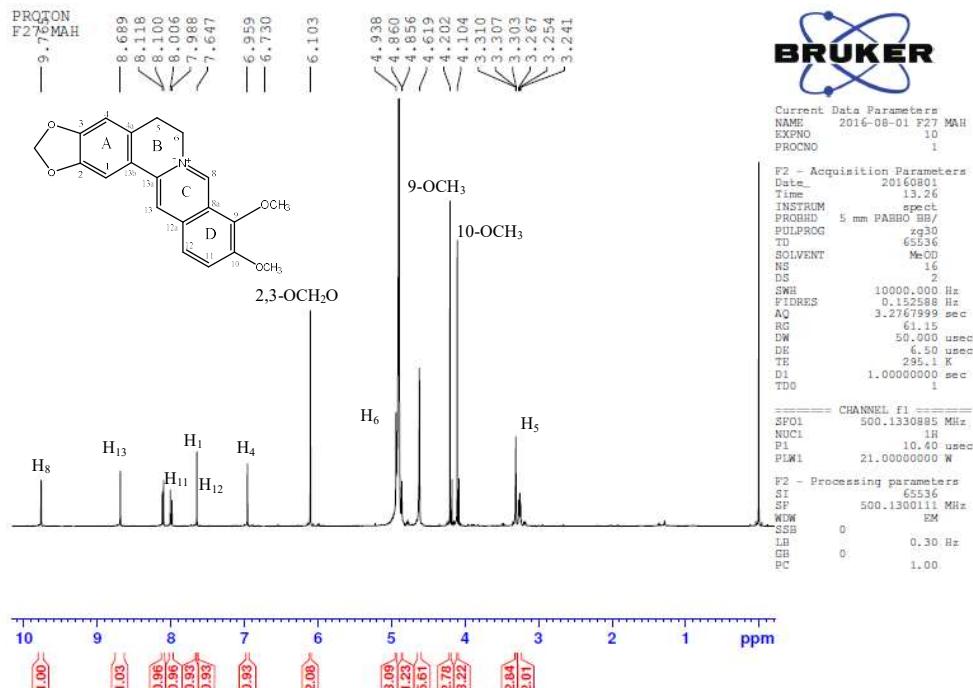


S44: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)

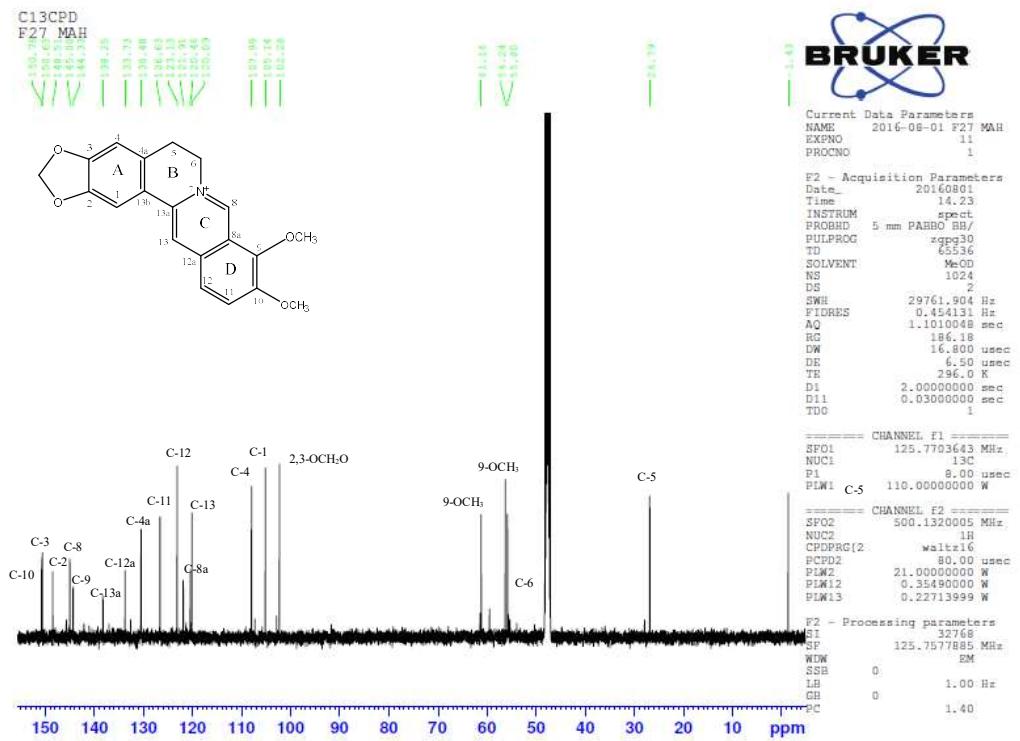
HMBCGP HMBCGP



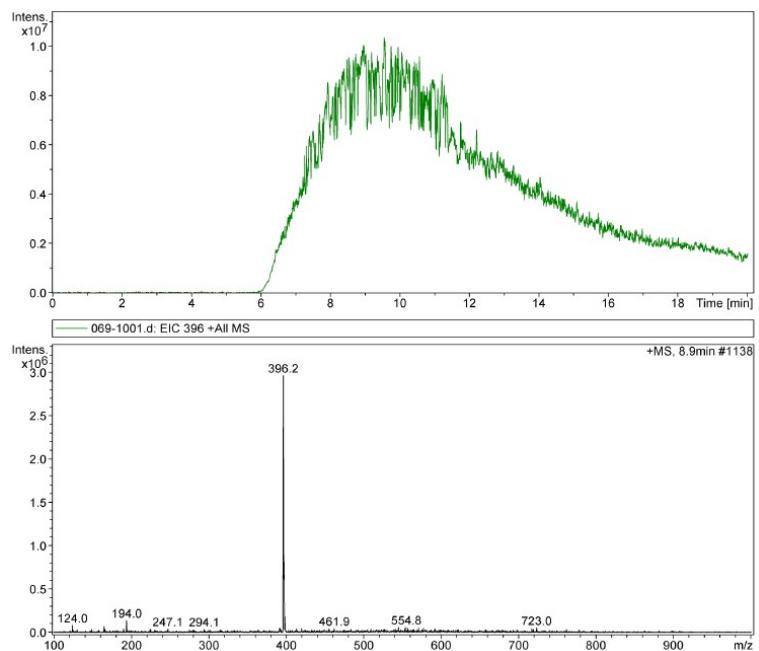
S45: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 2 (reomerine)



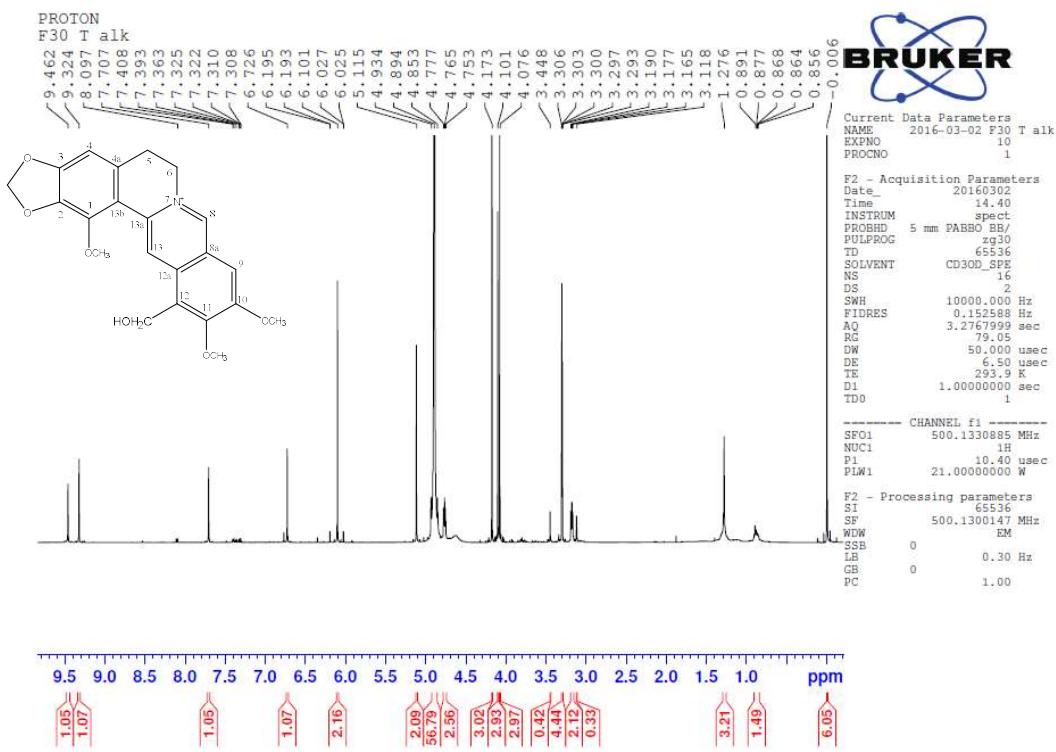
S46: <sup>1</sup>H-NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 3 (berberine)



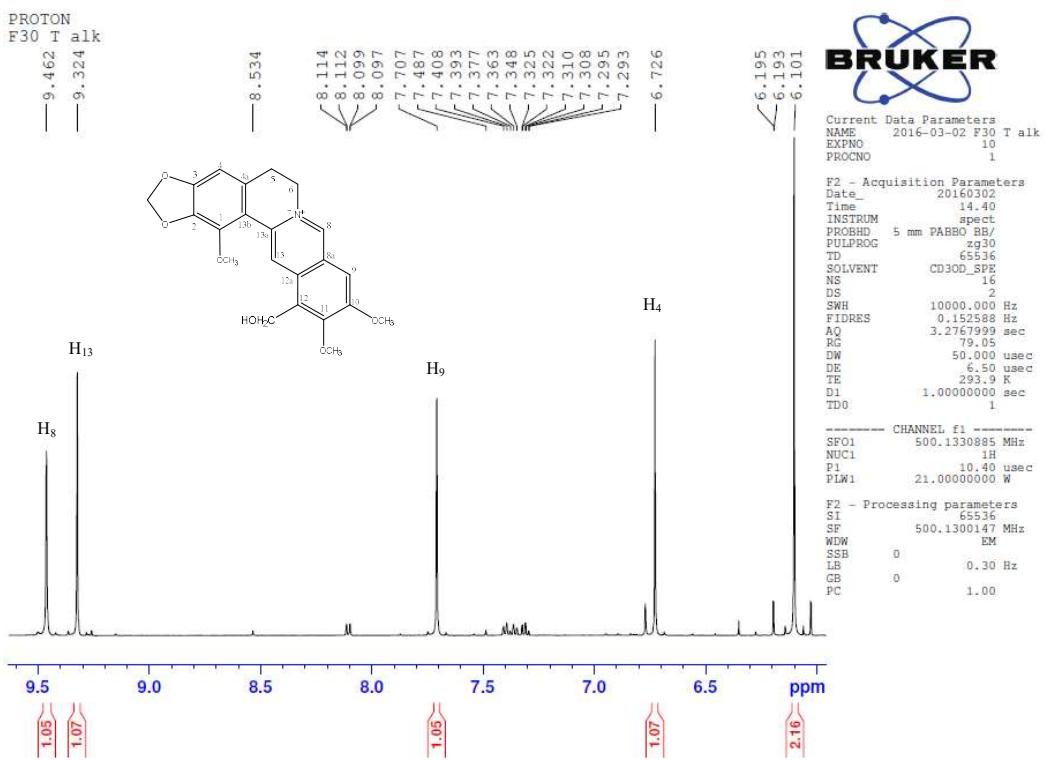
S47:  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 3 (berberine)



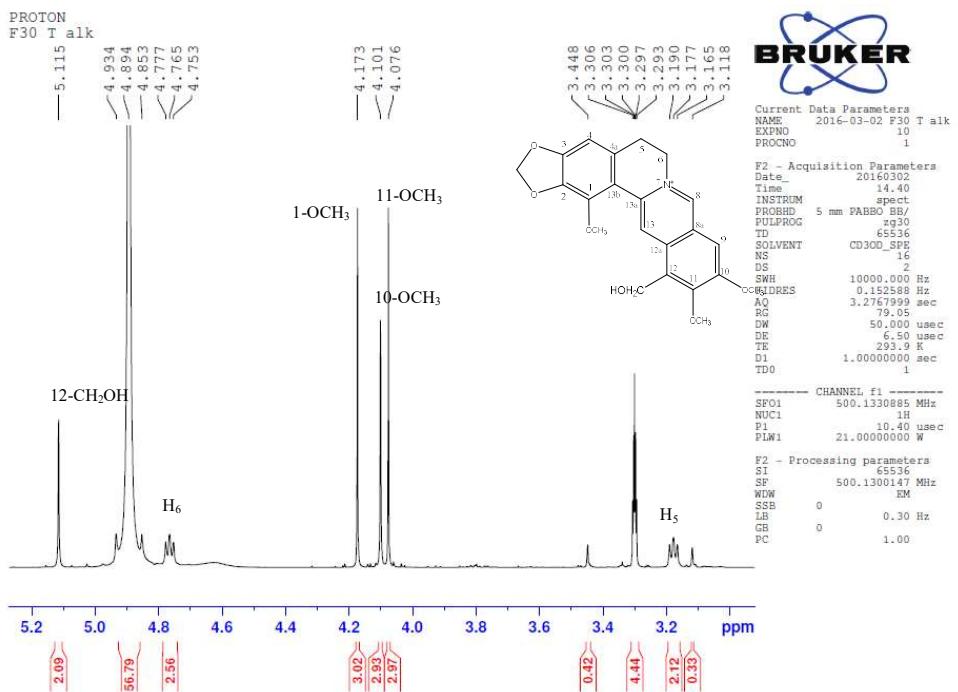
S48: LC-MS Spectrum of Compound 4 (alborine)



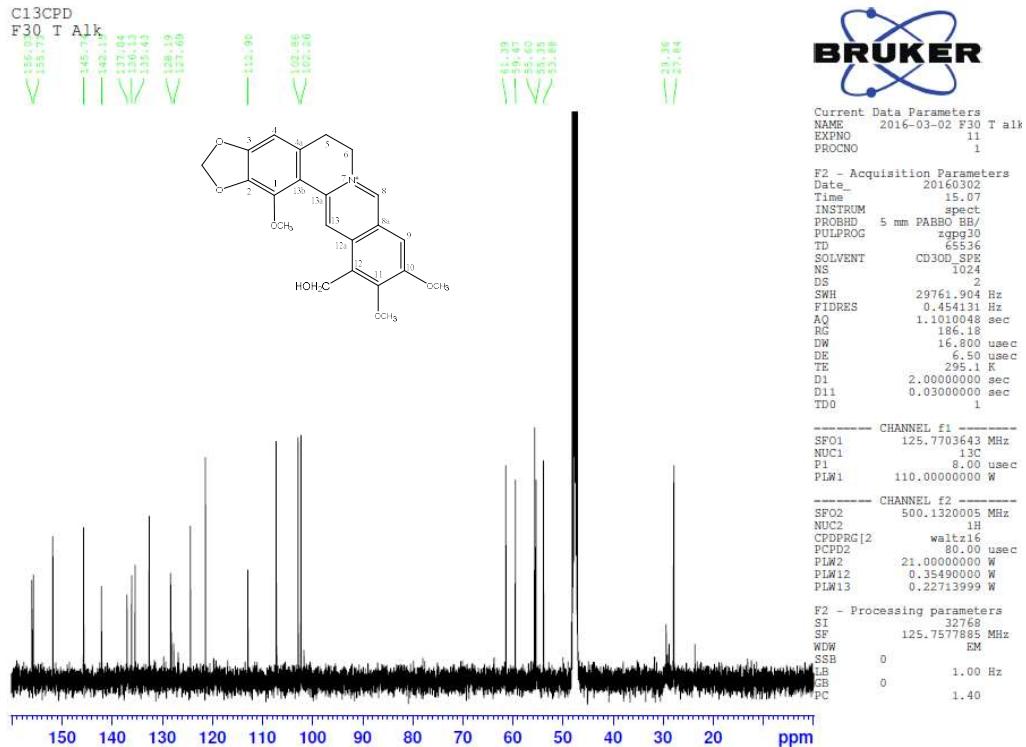
**S49:**  $^1\text{H}$ -NMR (500 MHz, CD<sub>3</sub>OD) Spectrum of Compound 4 (alborine)



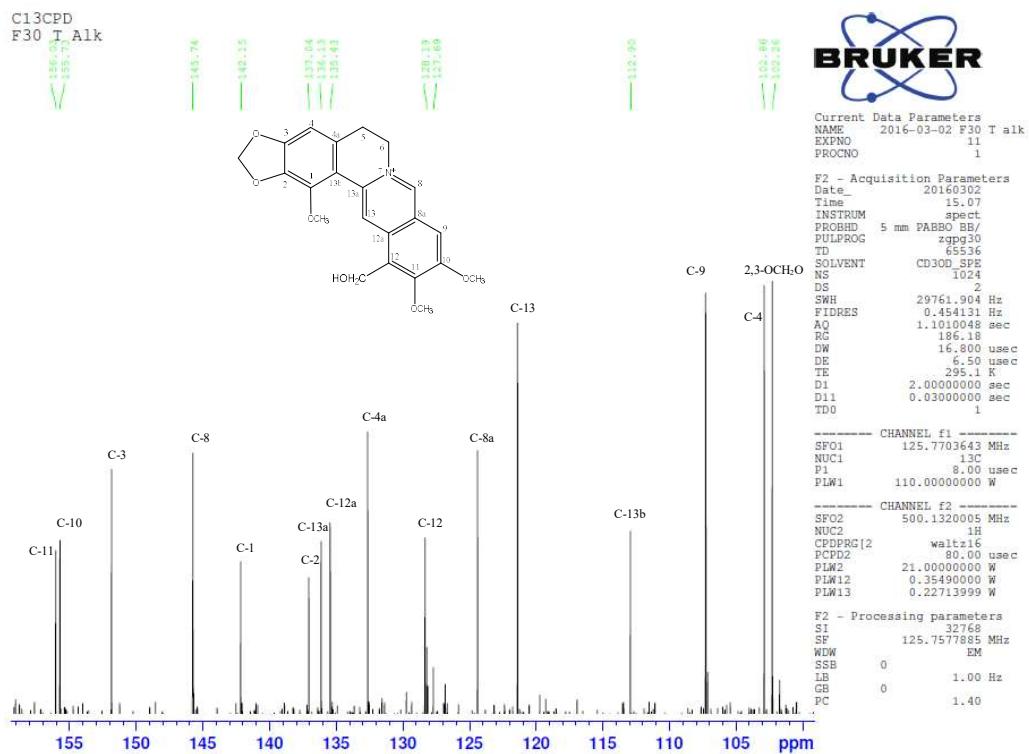
**S50:** Expansion of the  $^1\text{H}$ -NMR (500 MHz,  $\text{CD}_3\text{OD}$ ) Spectrum of Compound 4 (alborine)



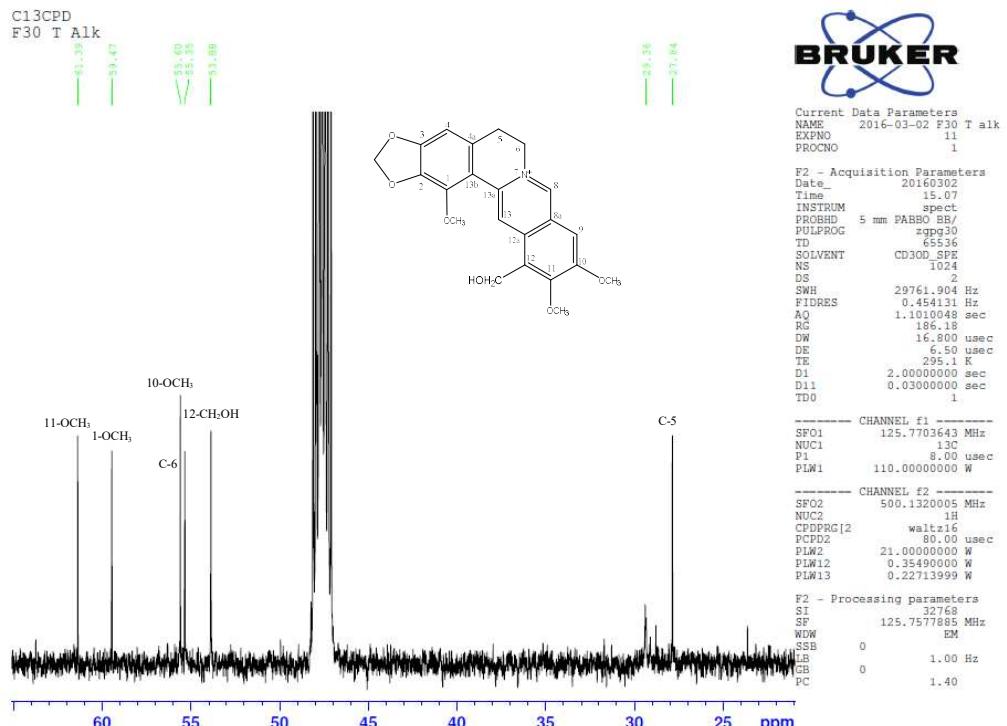
**S51:** Expansion of the  $^1\text{H}$ -NMR (500 MHz,  $\text{CD}_3\text{OD}$ ) Spectrum of Compound 4 (alborine)



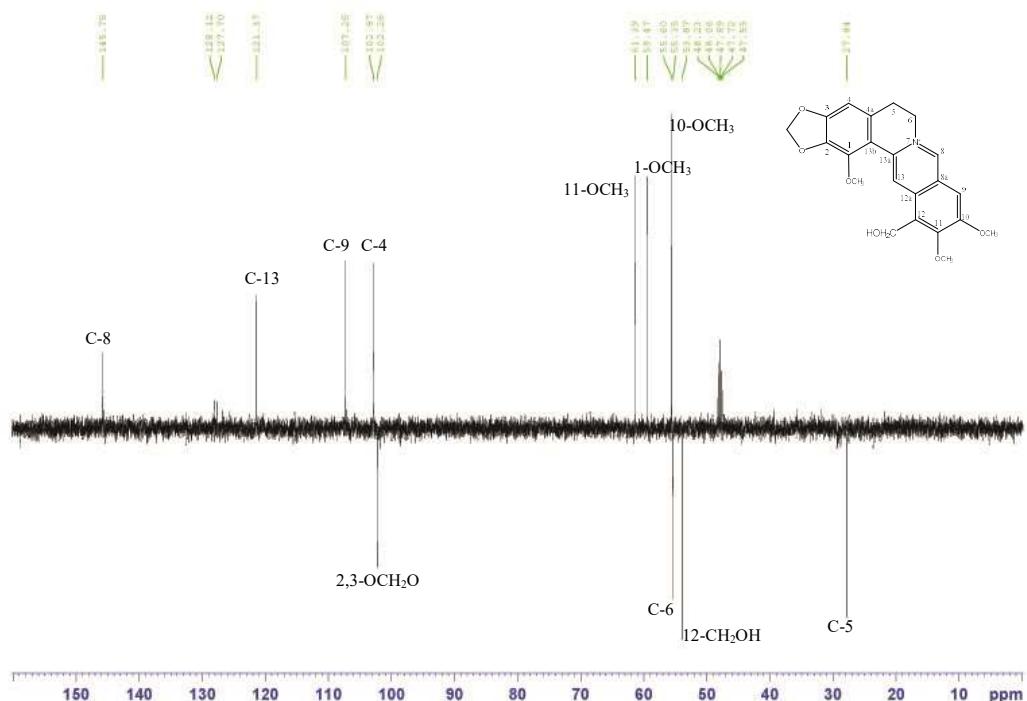
**S52:**  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 4 (alborine)



S53: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 4 (alborine)

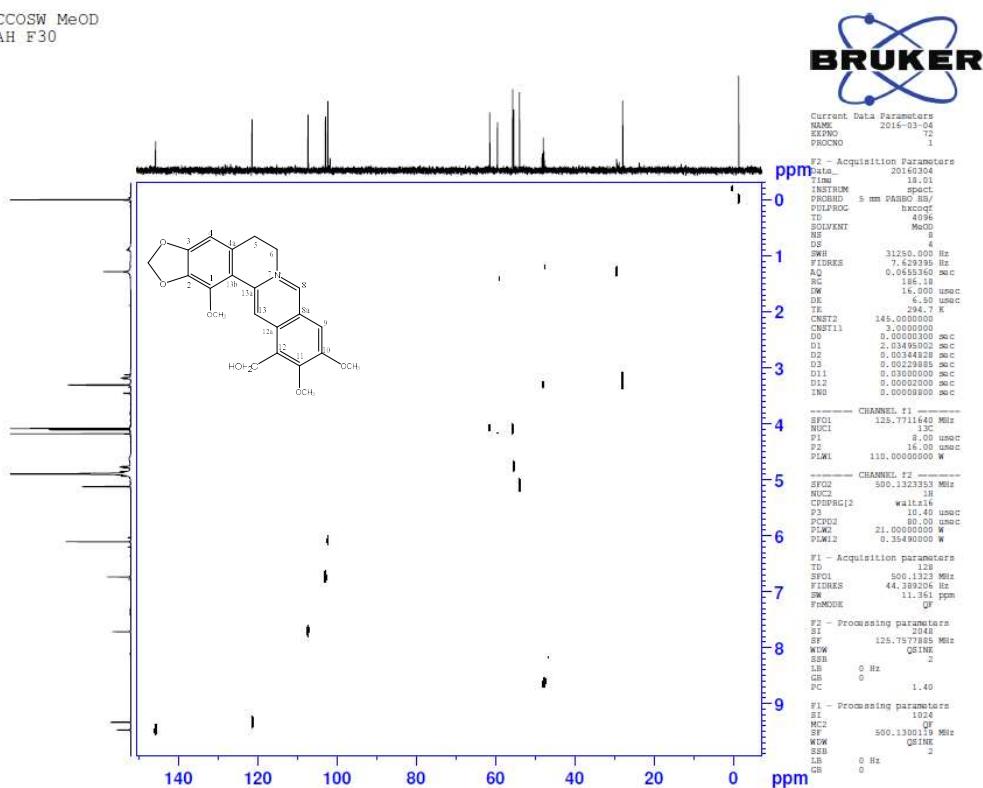


S54: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 4 (alborine)



### S55: DEPT (500 MHz) Spectrum of Compound 4 (alborine)

HCCOSW MeOD  
MAH F30



### S56: HCCOW Spectrum of Compound 4 (alborine)

HCCOSW MeOD  
MAH F30



Current Data Parameters  
NAME: 2016-03-04  
EXPNO: 72  
PROCNO: 1  
  
F2 - Acquisition Parameters  
Date: 2016-03-04  
Time: 18:01  
INSTRUM: spect  
PROBHD: 5 mm PABBO BB/  
PULPROG: hardcp  
TD: 4096  
SOLVENT: MeOD  
NS: 4  
DS: 31250.000 Hz  
SW1: 7,629.995 Hz  
AQ: 0.0653360 sec  
RG: 1.00  
DW: 14.000 usec  
DE: 6.50 usec  
TE: 294.7 K  
CPSD: 394.7 K  
CNST1: 145.0000000  
CNST11: 0.000003000 sec  
D1: 0.000003000 sec  
P1: 2.00 usec  
D2: 0.00344628 sec  
D3: 0.00229885 sec  
D11: 0.00002000 sec  
D12: 0.00002000 sec  
IND: 0.00008000 sec  
  
CHANNEL f1 -----  
SF01: 125.7711640 MHz  
NUC1: 13C  
P1: 8.00 usec  
P2: 16.00 usec  
PLW1: 110.0000000 W  
  
CHANNEL f2 -----  
SF02: 500.1323300 MHz  
NUC2: 1H  
P1: 1.00 usec  
P2: 10.40 usec  
PCP02: 0.0000000 sec  
PLW2: 21.00000000 W  
PLW12: 0.35490000 W  
  
F1 - Acquisition parameters  
TD: 128  
SW: 400.1323300 Hz  
FIDRES: 44.389204 Hz  
SF: 11.361 ppm  
FMODE: QF  
  
F2 - Processing parameters  
SF: 125.7711640 MHz  
SW: 125.7577985 MHz  
WDD: QSINEK  
SSB: 2  
LB: 0 Hz  
GB: 0  
PC: 1.40  
  
F1 - Processing parameters  
TD: 1024  
SF: 500.1323300 Hz  
FIDRES: 44.389204 Hz  
SF: 11.361 ppm  
WDD: QSINEK  
SSB: 2  
LB: 0 Hz  
GB: 0  
  
F2 - Processing parameters  
TD: 1024  
SF: 125.7577985 MHz  
WDD: QSINEK  
SSB: 2  
LB: 0 Hz  
GB: 0

S57: Expansion of the HCCOW Spectrum of Compound 4 (alborine)

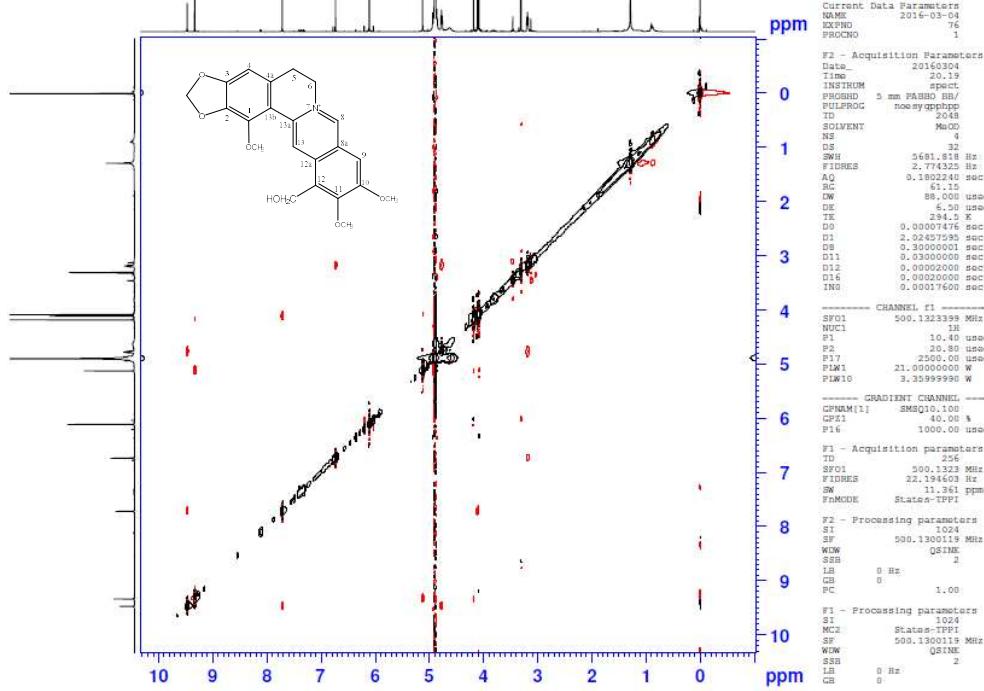
HCCOSW MeOD  
MAH F30



Current Data Parameters  
NAME: 2016-03-04  
EXPNO: 72  
PROCNO: 1  
  
F2 - Acquisition Parameters  
Date: 2016-03-04  
Time: 18:01  
INSTRUM: spect  
PROBHD: 5 mm PABBO BB/  
PULPROG: hardcp  
TD: 4096  
SOLVENT: MeOD  
NS: 4  
DS: 31250.000 Hz  
SW1: 7,629.995 Hz  
AQ: 0.0653360 sec  
RG: 186.18  
DW: 14.000 usec  
DE: 6.50 usec  
TE: 294.7 K  
CPSD: 394.7 K  
CNST2: 145.0000000  
CNST11: 3.0000000  
D1: 0.000003000 sec  
P1: 2.00 usec  
D2: 0.00344628 sec  
D3: 0.00229885 sec  
D11: 0.00002000 sec  
D12: 0.00002000 sec  
IND: 0.00008000 sec  
  
CHANNEL f1 -----  
SF01: 125.7711640 MHz  
NUC1: 13C  
P1: 8.00 usec  
P2: 16.00 usec  
PLW1: 110.0000000 W  
  
CHANNEL f2 -----  
SF02: 500.1323300 MHz  
NUC2: 1H  
P1: 1.00 usec  
P2: 10.40 usec  
PCP02: 0.0000000 sec  
PLW2: 21.00000000 W  
PLW12: 0.35490000 W  
  
F1 - Acquisition parameters  
TD: 128  
SF: 400.1323300 Hz  
FIDRES: 44.389204 Hz  
SF: 11.361 ppm  
FMODE: QF  
  
F2 - Processing parameters  
SF: 125.7711640 MHz  
SW: 125.7577985 MHz  
WDD: QSINEK  
SSB: 2  
LB: 0 Hz  
GB: 0  
PC: 1.40  
  
F1 - Processing parameters  
TD: 1024  
SF: 500.1323300 Hz  
FIDRES: 44.389204 Hz  
SF: 11.361 ppm  
WDD: QSINEK  
SSB: 2  
LB: 0 Hz  
GB: 0

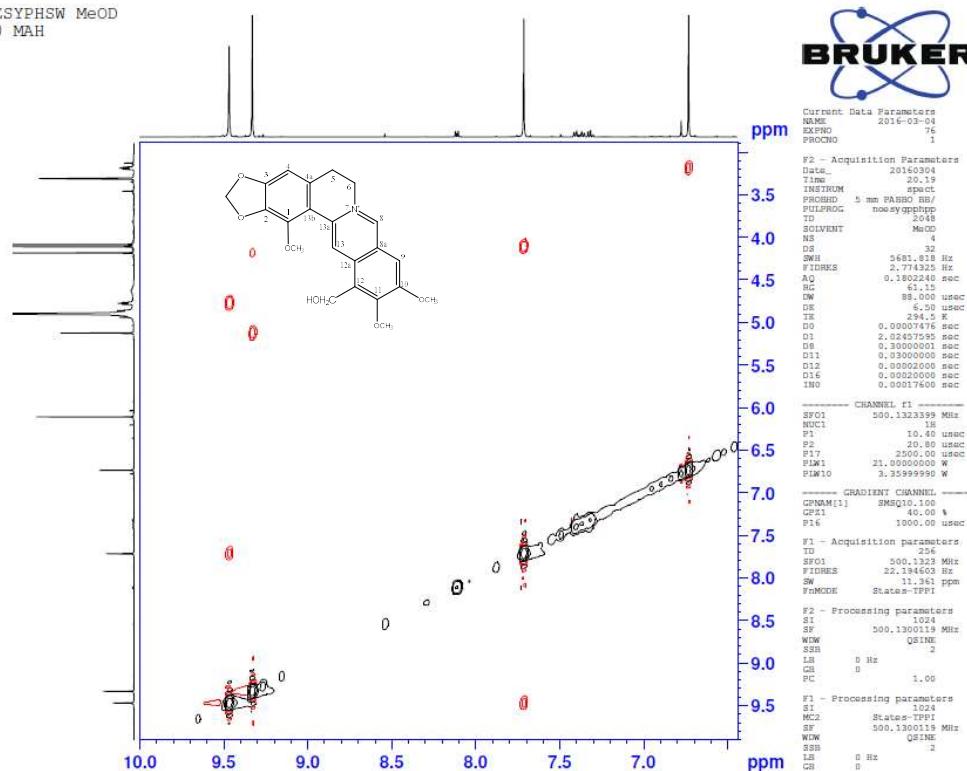
S58: Expansion of the HCCOW Spectrum of Compound 4 (alborine)

NOESYPHSW MeOD  
F30 MAH



**S59:** NOSY (500 MHz) Spectrum of Compound 4 (alborine)

NOESYPHSW MeOD  
F30 MAH

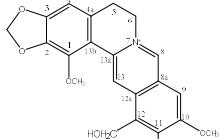


**S60:** Expansion of the NOSY (500 MHz) Spectrum of Compound 4 (alborine)

ESYPHSW MeOD  
0 MAH



Current Data Parameters  
NAME 2016-03-04  
EXPNO 76  
PROCNO 1  
  
Data - Acquisition Parameters  
Data 20160304  
Time 20.19  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG nosypphp  
TD 2048  
SOLVENT MeOD  
NS 4  
DS 32  
SWH 5691.818 Hz  
FIDRES 2.77425 Hz  
AQ 0.1802240 sec  
RG 61.15  
DW 88.00 usec  
DE 4.50 usec  
TE 294.5 K  
D0 0.30007176 sec  
D1 2.0245755 sec  
D11 0.03000001 sec  
D12 0.03000000 sec  
D14 0.00020000 sec  
D16 0.00020000 sec  
IMG 0.00017600 sec  
  
CHANNEL f1  
SF01 500.1323399 MHz  
NUC1 1H  
P1 10.00 usec  
P2 20.00 usec  
P17 2500.00 usec  
PLW1 21.0000000 W  
PLW10 3.35999990 W  
  
GRADIENT CHANNEL  
GRADAM[1] SWSQ10.100  
CPDZ1 40.00 °  
P16 1000.00 usec  
  
F1 - Acquisition parameters  
TD 256  
SF01 500.1323399 MHz  
FIDRES 22.194603 Hz  
SW 11.381 ppm  
FrMOD State-TPPI  
  
F1 - Processing parameters  
SI 1024  
SF 500.1300119 MHz  
WOW QSINE  
SSB 2  
LB 0 Hz  
GB 0  
PC 1.00  
  
F1 - Processing parameters  
SI 1024  
MC2 1  
MCZ 1  
SF 500.1300119 MHz  
WOW QSINE  
SSB 2  
LB 0 Hz  
GB 0

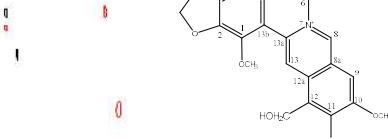


S61: Expansion of the NOSY (500 MHz) Spectrum of Compound 4 (alborine)

ESYPHSW MeOD  
0 MAH



Current Data Parameters  
NAME 2016-03-04  
EXPNO 76  
PROCNO 1  
  
F2 - Acquisition Parameters  
Data 20160304  
Time 20.19  
INSTRUM spect  
PROBHD 5 mm PABBO BB/  
PULPROG nosypphp  
TD 2048  
SOLVENT MeOD  
NS 4  
DS 32  
SWH 5691.818 Hz  
FIDRES 2.77425 Hz  
AQ 0.1802240 sec  
RG 61.15  
DW 88.000 usec  
DE 6.50 usec  
TE 294.5 K  
D0 0.00007476 sec  
D1 2.0245755 sec  
D11 0.03000000 sec  
D12 0.00020000 sec  
D14 0.00020000 sec  
D16 0.00017600 sec  
  
CHANNEL f1  
SF01 500.1323399 MHz  
NUC1 1H  
P1 10.00 usec  
P2 20.00 usec  
P17 2500.00 usec  
PLW1 21.0000000 W  
PLW10 3.35999990 W  
  
GRADIENT CHANNEL  
GRADAM[1] SWSQ10.100  
CPDZ1 40.00 °  
P16 1000.00 usec  
  
F1 - Acquisition parameters  
TD 256  
SF01 500.1323399 MHz  
FIDRES 22.194603 Hz  
SW 11.381 ppm  
FrMOD State-TPPI  
  
F1 - Processing parameters  
SI 1024  
SF 500.1300119 MHz  
WOW QSINE  
SSB 2  
LB 0 Hz  
GB 0  
PC 1.00  
  
F1 - Processing parameters  
SI 1024  
MC2 1  
MCZ 1  
SF 500.1300119 MHz  
WOW QSINE  
SSB 2  
LB 0 Hz  
GB 0



S62: Expansion of the NOSY (500 MHz) Spectrum of Compound 4 (alborine)

COSYGPSW MeOD  
F30 MAH



Current Data Parameters  
NAME: 2016-03-74  
EXPNO: 1  
PROCNO: 1

F2 - Acquisition Parameters  
Date: 2016-03-09  
Time: 14:38  
INSTRUM: spect  
PROBHD: 5 mm PABBO BB  
GRADPROB: cosygpsw  
TD: 2048  
SOLVENT: MeOD  
NS: 1  
DS: 8  
SWH: 5681.818 Hz  
FIDRES: 2.19811 Hz  
AQ: 0.1802240 sec  
RG: 61.15  
DM: 88.00 usec  
TE: 2.945 K  
D: 0.0001000 sec  
DW: 1.9726596 sec  
D1: 0.0300000 sec  
D12: 0.0002000 sec  
D13: 0.0001000 sec  
D14: 0.0002000 sec  
D16: 0.0002000 sec  
IM: 0.00017600 sec

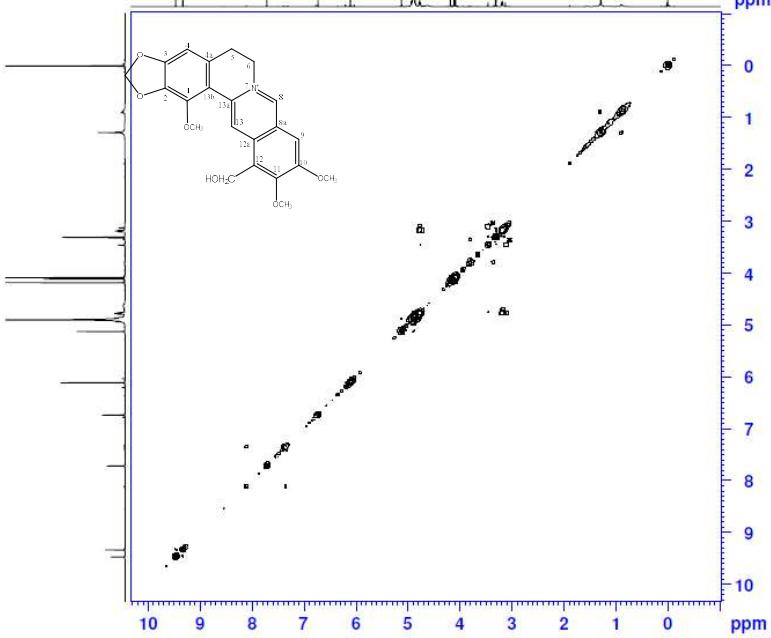
CHANNEL f1 ----  
SF01: 500.1323399 MHz  
FO: 10.40 usec  
P1: 10.40 usec  
T1: 250.00 usec  
P1M1: 21.0000000 W  
P1M10: 3.3599999 W

GRADIENT CHANNEL ----  
GP0NAM[1]: SWSG10\_100  
CP21: 10.00 %  
P16: 1000.00 usec

F1 - Acquisition parameters  
Date: 2016-03-09  
Time: 14:38  
INSTRUM: spect  
PROBHD: 5 mm PABBO BB  
GRADPROB: cosygpsw  
TD: 2048  
SOLVENT: MeOD  
NS: 1  
DS: 8  
SWH: 500.1323 MHz  
FIDRES: 44.36926 Hz  
AQ: 0.1300000 sec  
RG: 11.381 ppm  
TE: 2.945 K  
D: 0.0001000 sec  
DW: 1.9726596 sec  
D1: 0.0300000 sec  
D12: 0.0002000 sec  
D13: 0.0001000 sec  
D14: 0.0002000 sec  
D16: 0.0002000 sec  
IM: 0.00017600 sec

F2 - Processing parameters  
SI: 32768  
SF: 500.1300119 MHz  
SW: 500.1300119 MHz  
QSBINE  
SSB: 0 Hz  
LB: 0 Hz  
GB: 0  
PC: 1.40

F1 - Processing parameters  
SI: 32768  
SF: 500.1300119 MHz  
SW: 500.1300119 MHz  
QSBINE  
SSB: 0 Hz  
LB: 0 Hz  
GB: 0



S63: COSY (500 MHz) Spectrum of Compound 4 (alborine)

HMBCGP  
F30 HMBC MAH



Cur  
BPPRO  
EXPNO:  
PROCNO:

NAME: 2016-03-74  
TIME: 14:38  
INSTRUM: 5 mm PABBO BB/  
GRADPROB: cosygpsw  
TD: 2048  
SOLVENT: MeOD  
NS: 1  
DS: 8  
SWH: 5681.818 Hz  
FIDRES: 2.77432 Hz  
AQ: 0.1802240 sec  
RG: 188.16  
DM: 88.00 usec  
TE: 2.945 K  
D: 0.0001000 sec  
DW: 1.9726596 sec  
D1: 0.0300000 sec  
D12: 0.0002000 sec  
D13: 0.0001000 sec  
D14: 0.0002000 sec  
D16: 0.0002000 sec  
IM: 0.00017600 sec

CHANNEL f1 ----  
SF01: 500.1323399 MHz  
FO: 10.40 usec  
P1: 10.40 usec  
T1: 250.00 usec  
P1M1: 21.0000000 W

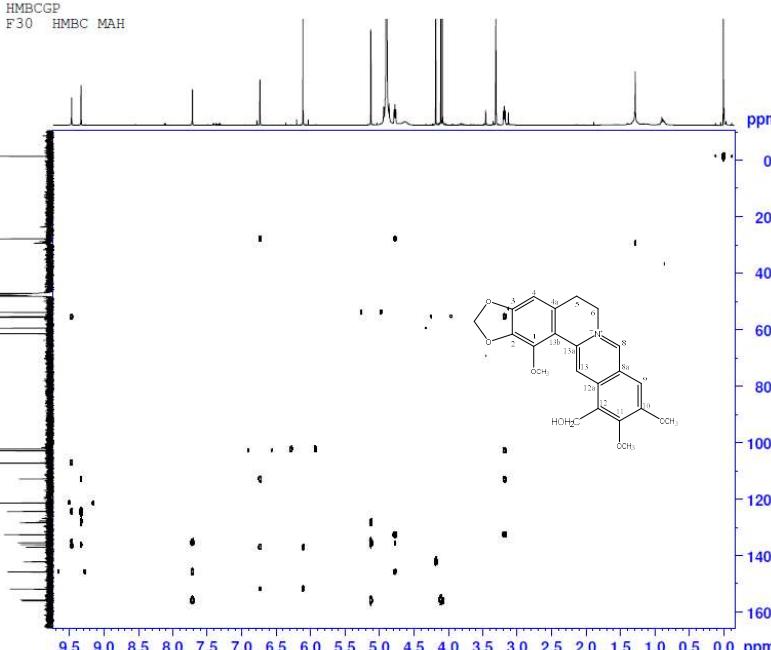
CHANNEL C2 ----  
SF02: 125.757104271 MHz  
FO: 10.00 usec  
P1: 10.00 usec  
T1: 21.0000000 W

GRADIENT CHANNEL ----  
GP0NAM[1]: SWSG10\_100  
GP0NAM[2]: SWSG10\_100  
GP0NAM[3]: SWSG10\_100  
CP21: 10.00 %  
CP22: 10.00 %  
CP23: 10.00 %  
P16: 1000.00 usec

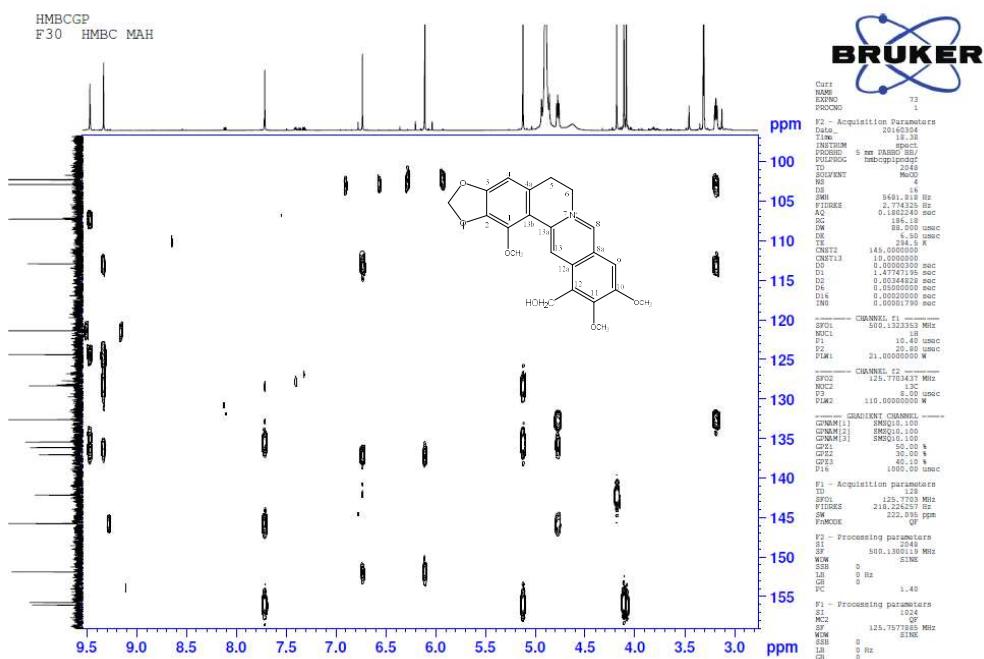
F1 - Acquisition parameters  
SI: 32768  
SF: 125.757104271 MHz  
SW: 122.091 ppm  
TE: 2.945 K  
D: 0.0001000 sec  
DW: 1.9726596 sec  
D1: 0.0300000 sec  
D12: 0.0002000 sec  
D13: 0.0001000 sec  
D14: 0.0002000 sec  
D16: 0.0002000 sec  
IM: 0.00017600 sec

F2 - Processing parameters  
SI: 32768  
SF: 500.1300119 MHz  
SW: 500.1300119 MHz  
QSBINE  
SSB: 0 Hz  
LB: 0 Hz  
GB: 0  
PC: 1.40

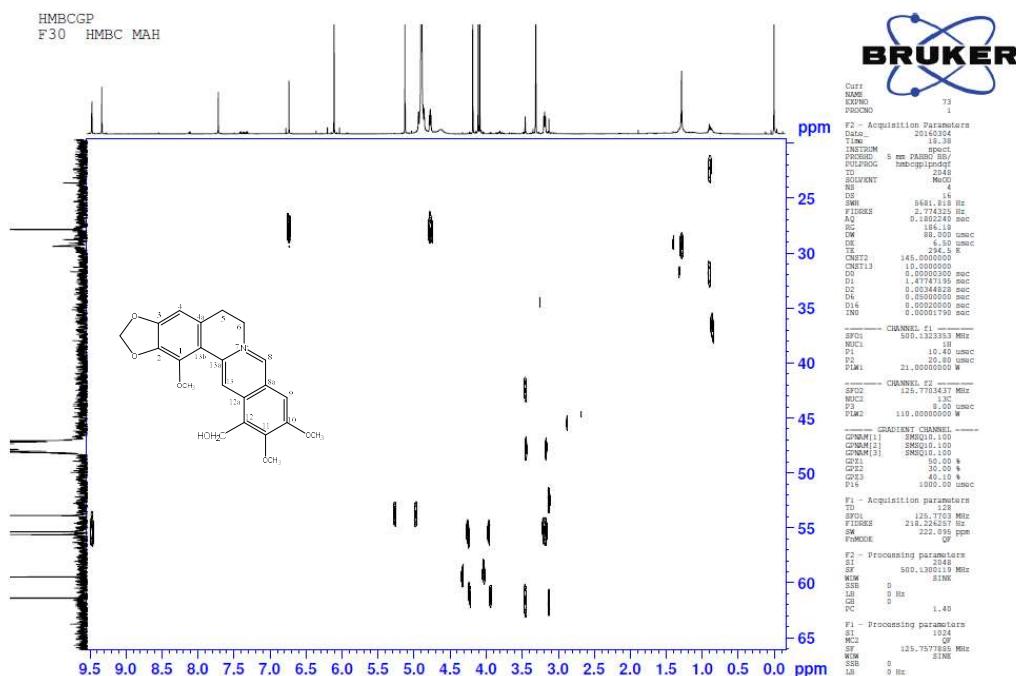
F1 - Processing parameters  
SI: 32768  
SF: 125.757104271 MHz  
SW: 122.091 ppm  
TE: 2.945 K  
D: 0.0001000 sec  
DW: 1.9726596 sec  
D1: 0.0300000 sec  
D12: 0.0002000 sec  
D13: 0.0001000 sec  
D14: 0.0002000 sec  
D16: 0.0002000 sec  
IM: 0.00017600 sec



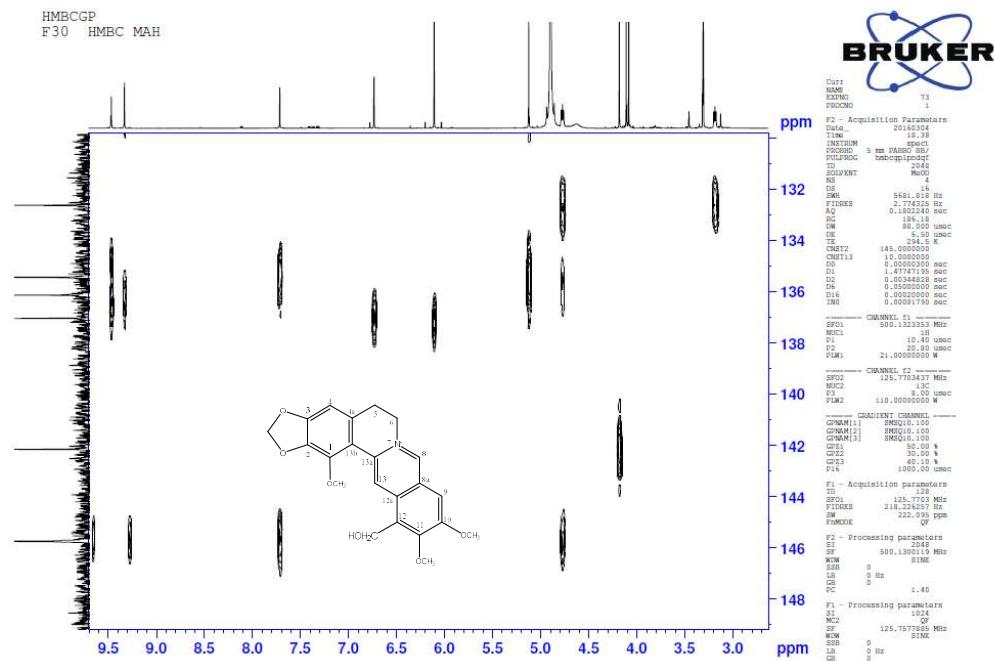
S64: HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



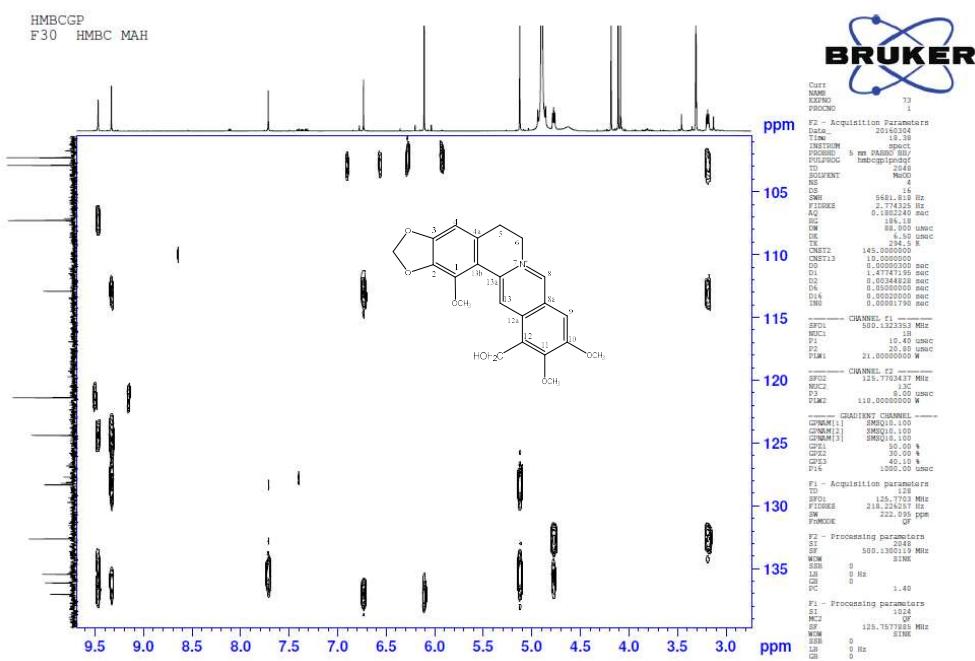
S65: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



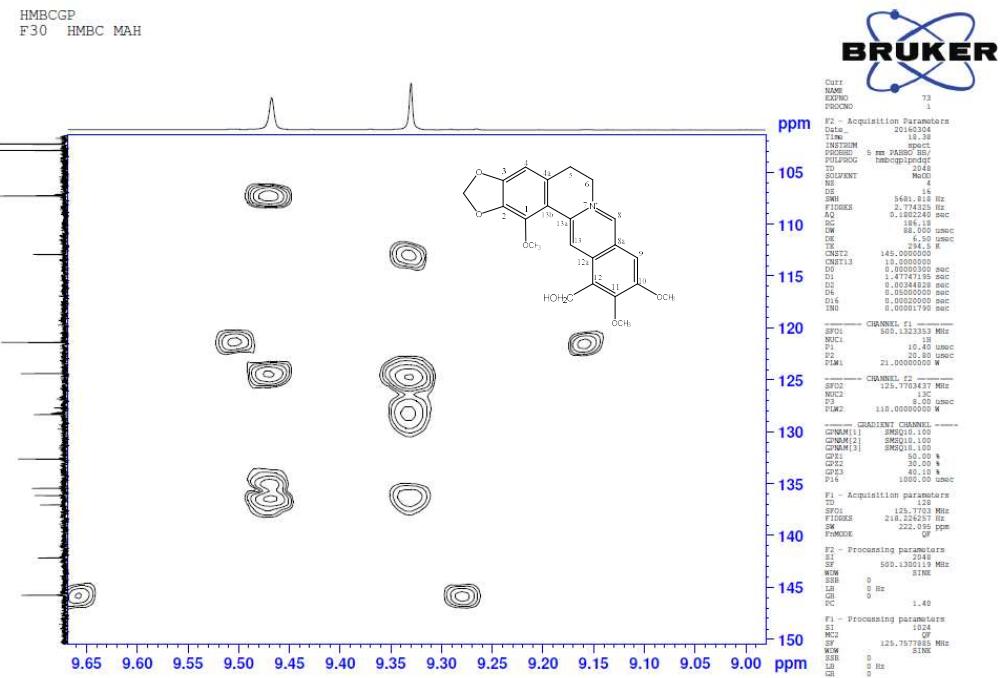
S66: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



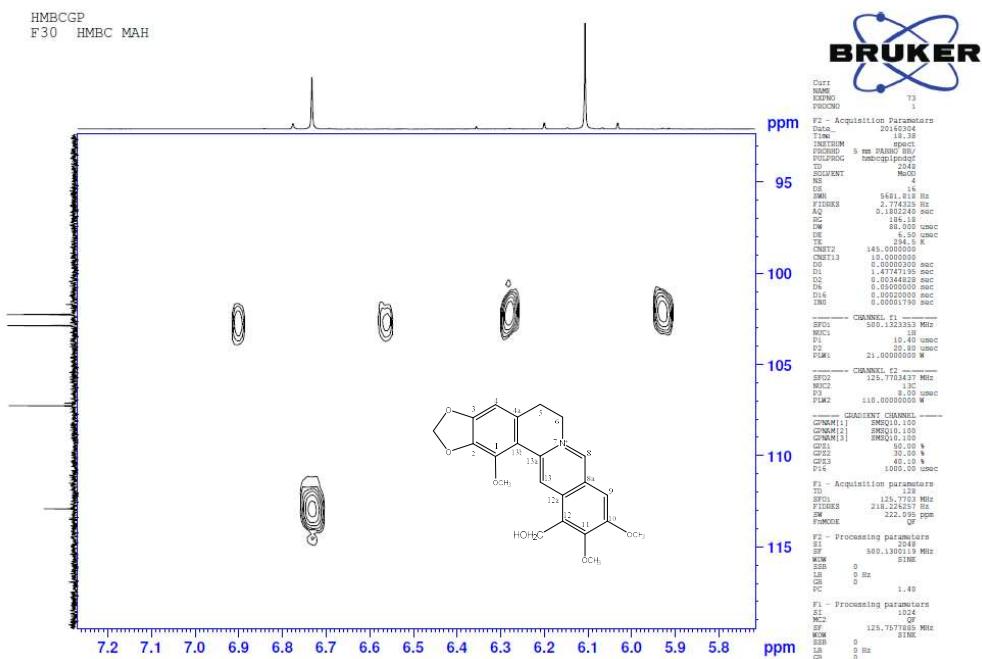
**S67:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



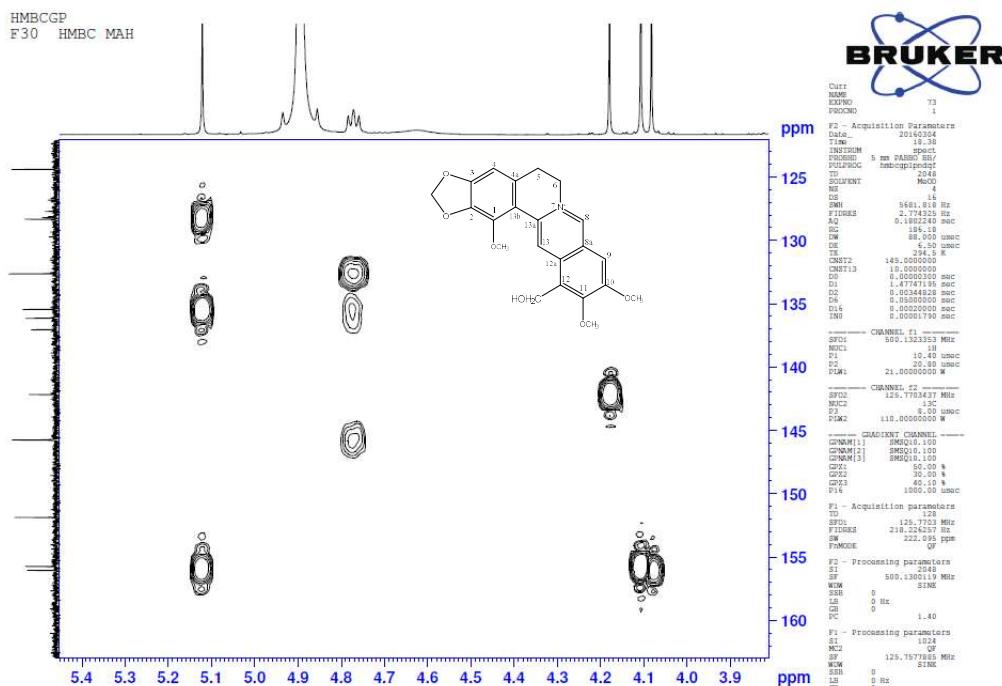
**S68:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



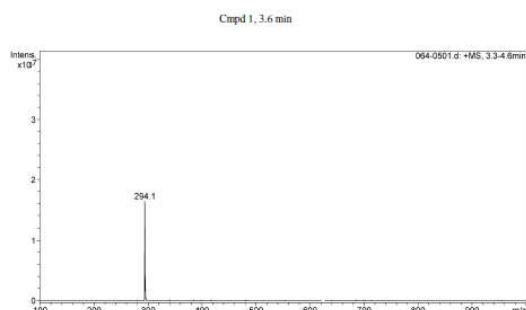
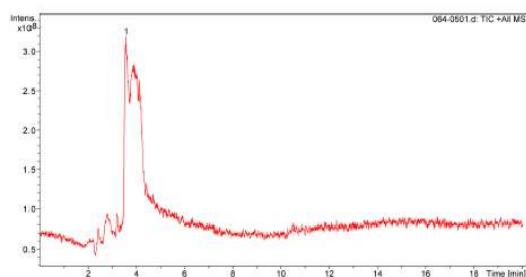
**S69:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



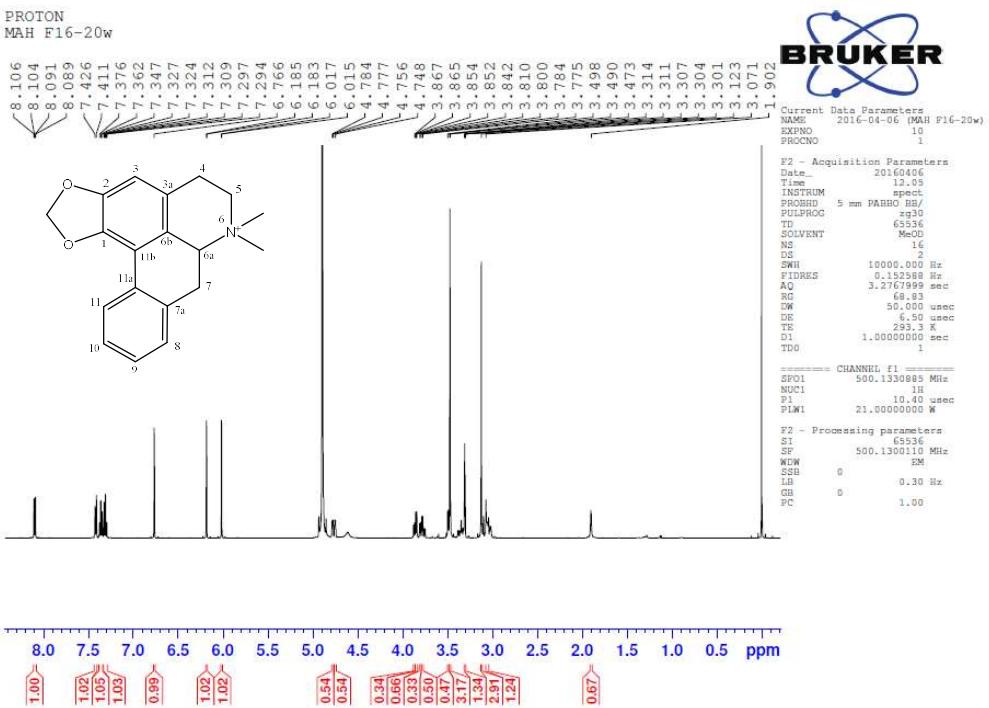
**S70:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



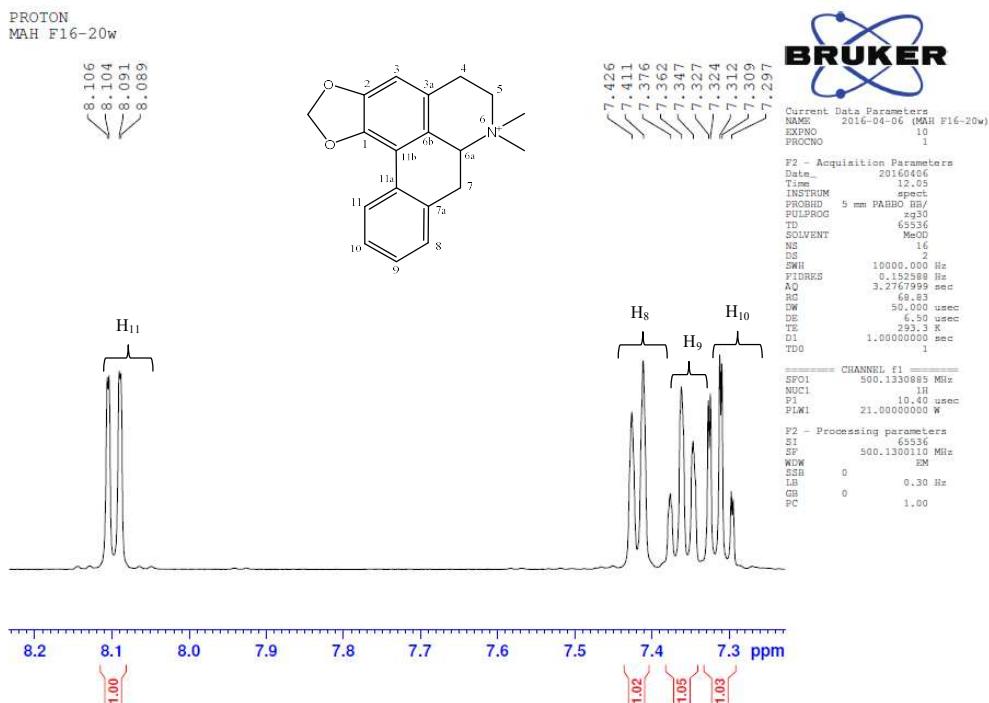
S71: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 4 (alborine)



S72: LC-MS Spectrum of Compound 5 (remrefidine)

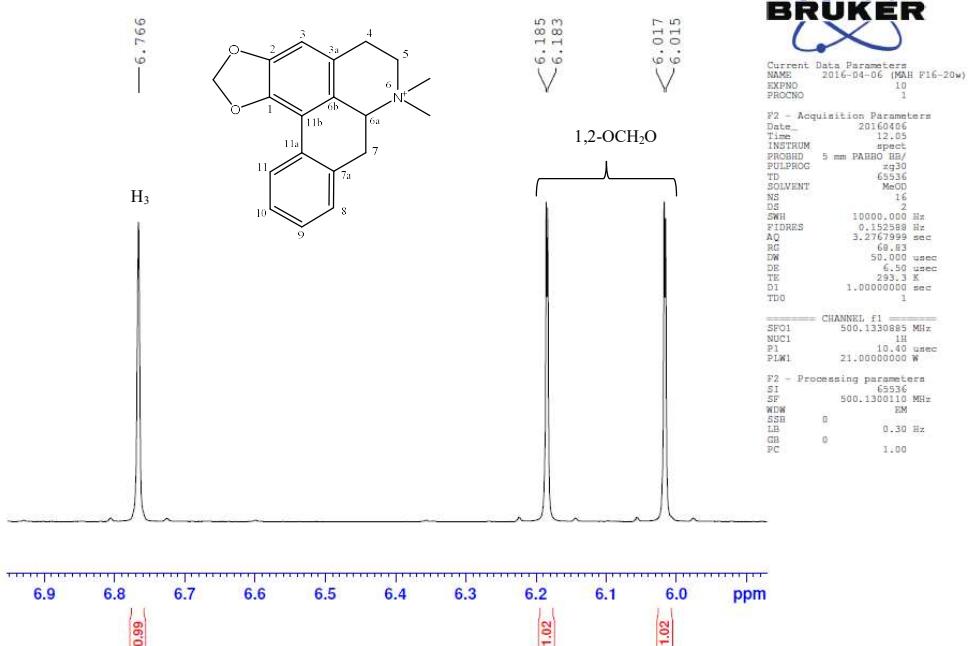


**S73:**  $^1\text{H}$ -NMR (500 MHz, CD<sub>3</sub>OD) Spectrum of Compound 5 (remrefidine)



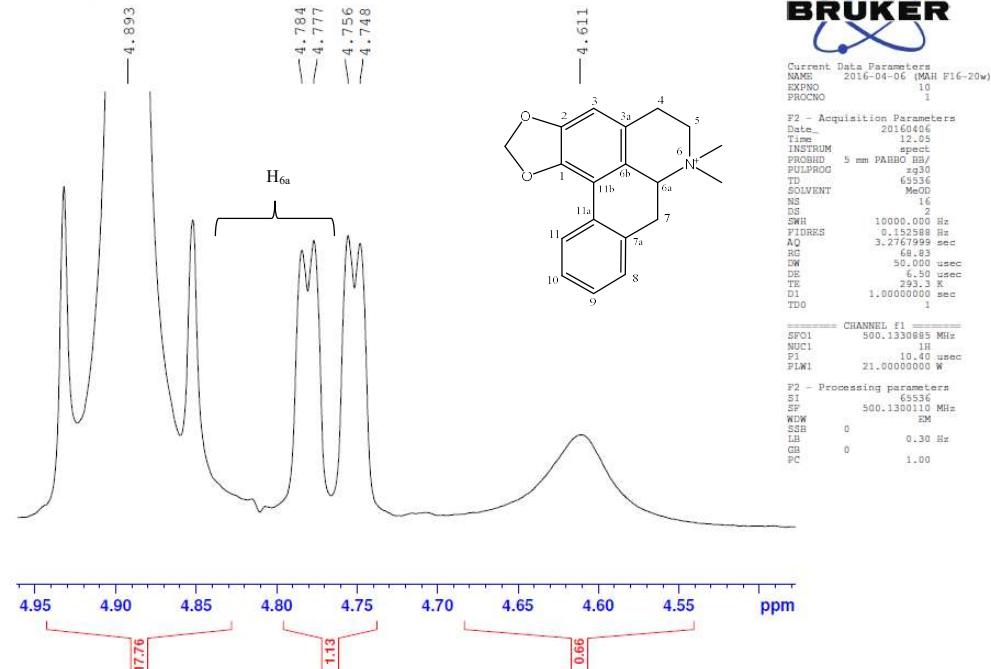
**S74:** Expansion of the  $^1\text{H}$ -NMR (500 MHz) Spectrum of Compound 5 (remrefidine)

PROTON  
MAH F16-20w

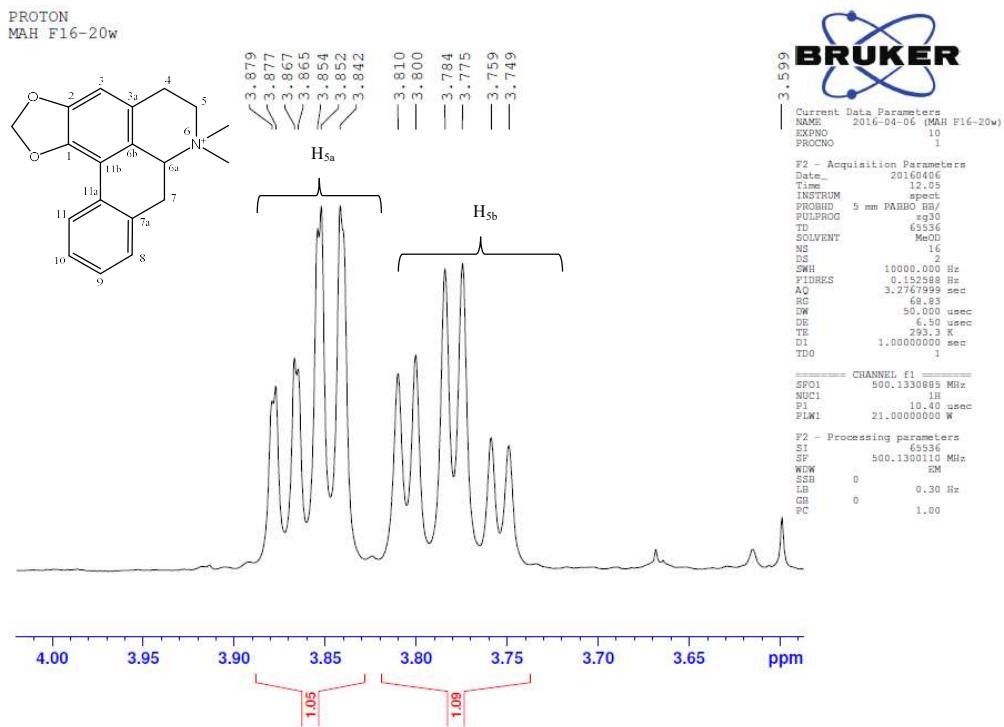


**S75:** Expansion of the <sup>1</sup>H-NMR (500 MHz) Spectrum of Compound 5 (remrefidine)

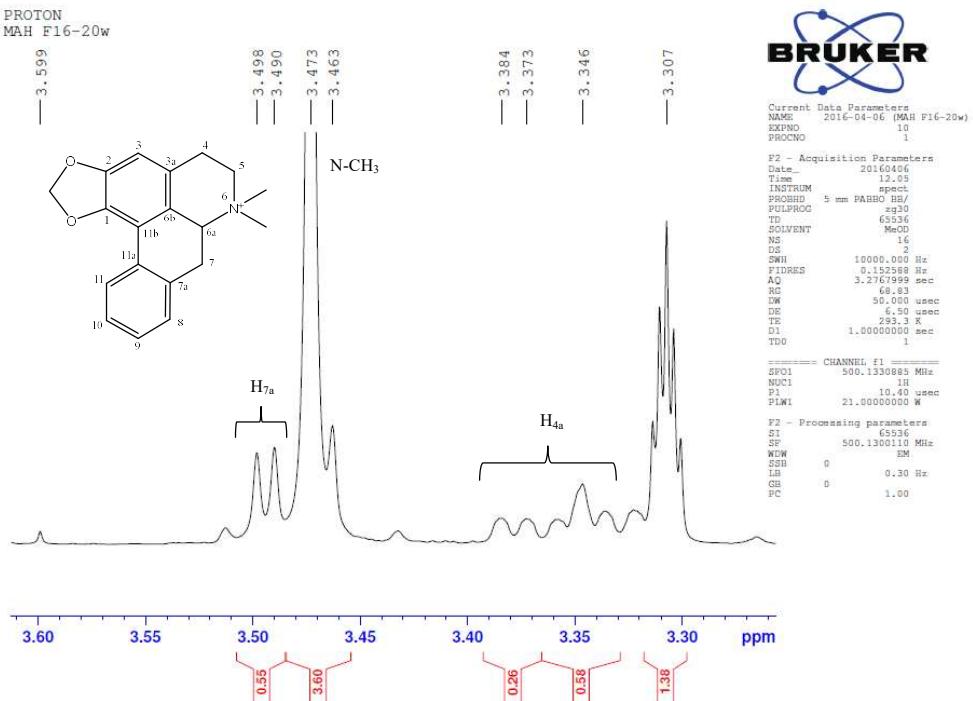
PROTON  
MAH F16-20w



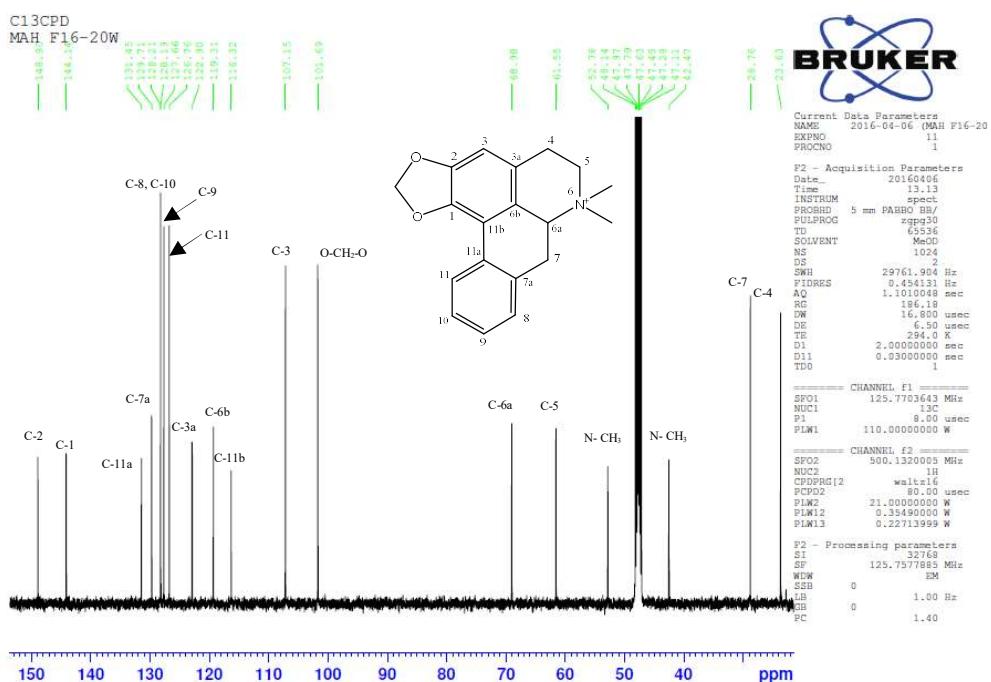
**S76:** Expansion of the <sup>1</sup>H-NMR (500 MHz) Spectrum of Compound 5 (remrefidine)



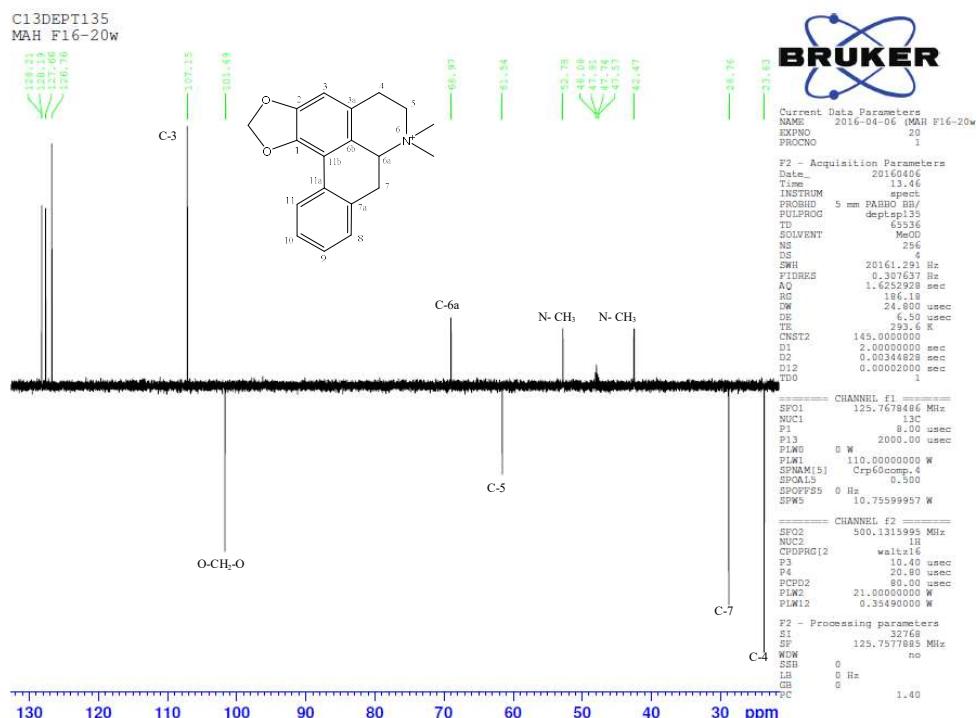
S77: Expansion of the  $^1\text{H}$ -NMR (500 MHz) Spectrum of Compound 5 (remrefidine)



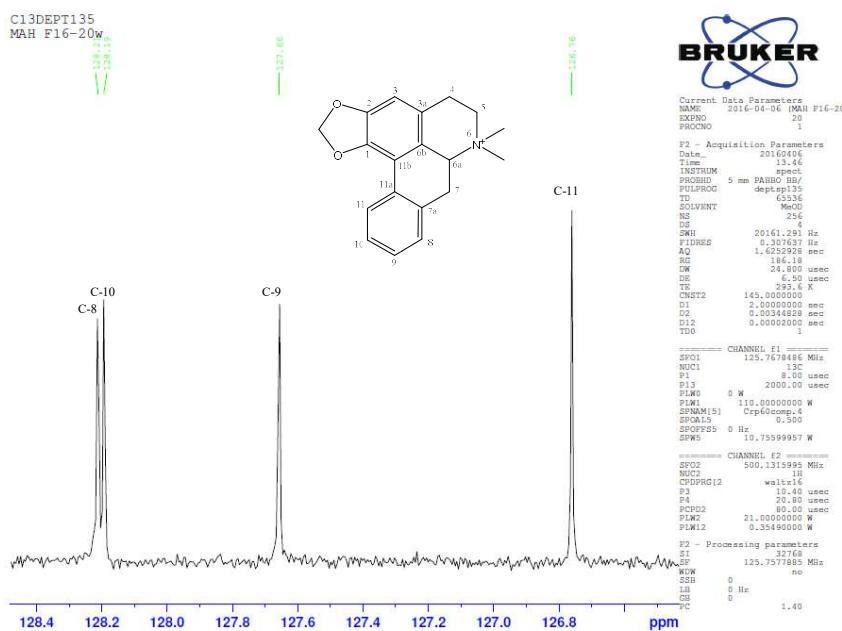
S78: Expansion of the  $^1\text{H}$ -NMR (500 MHz) Spectrum of Compound 5 (remrefidine)



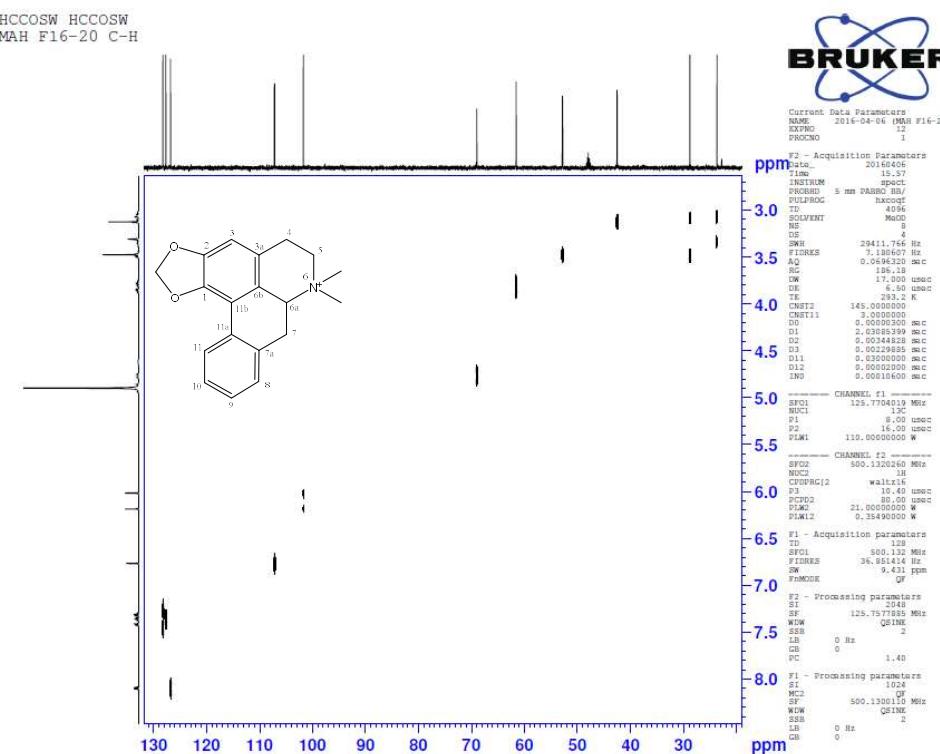
S79:  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 5 (remrefidine)



S80: DEPT (500 MHz) Spectrum of Compound 5 (remrefidine)

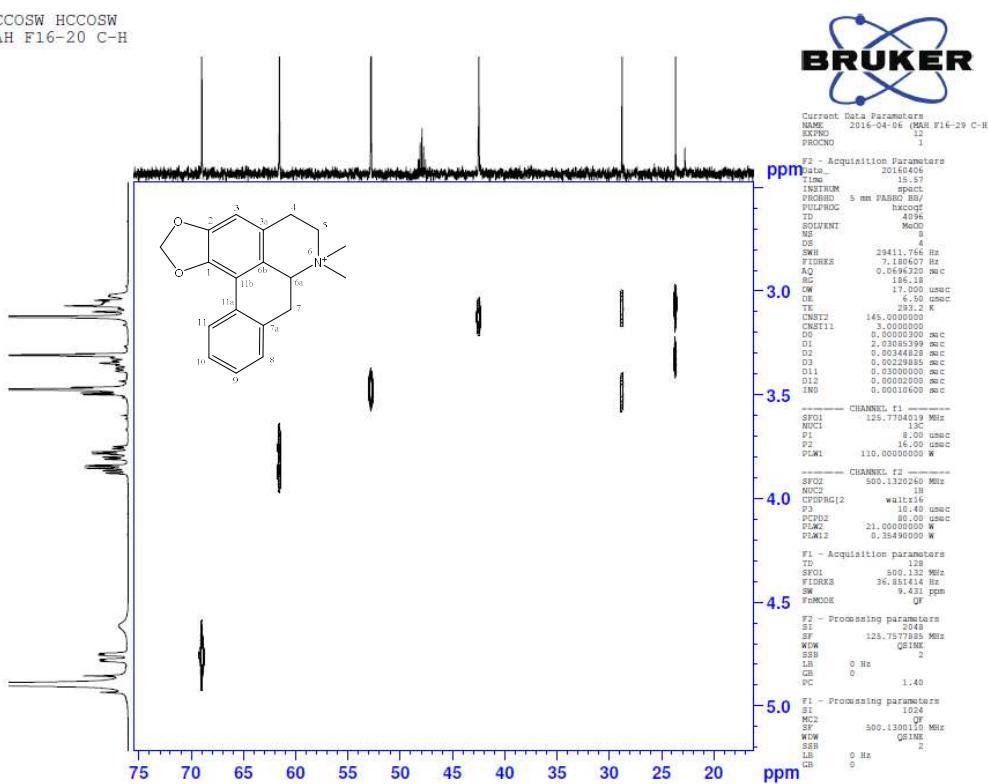


**S81:** Expansion of the DEPT (500 MHz) Spectrum of Compound 5 (remrefidine)



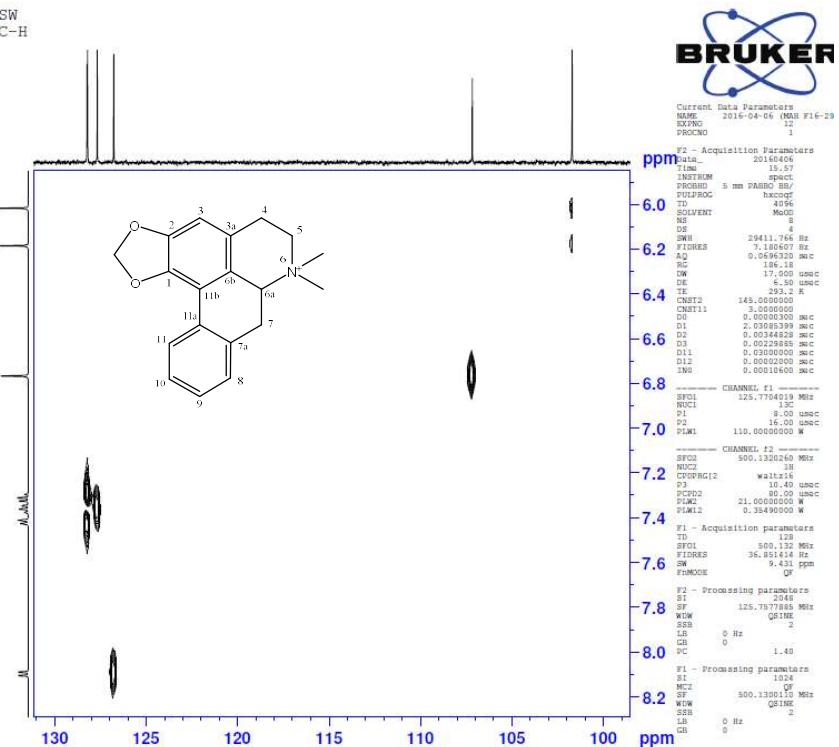
### S82: HCCOW Spectrum of Compound 5 (remrefidine)

HCCOSW HCCOSW  
MAH F16-20 C-H



S83: Expansion of the HCCOW Spectrum of Compound 5 (remrefidine)

HCCOSW  
6-20 C-H



S84: Expansion of the HCCOW Spectrum of Compound 5 (remrefidine)

<sup>13</sup>C HCCOSW  
16–20 C-H

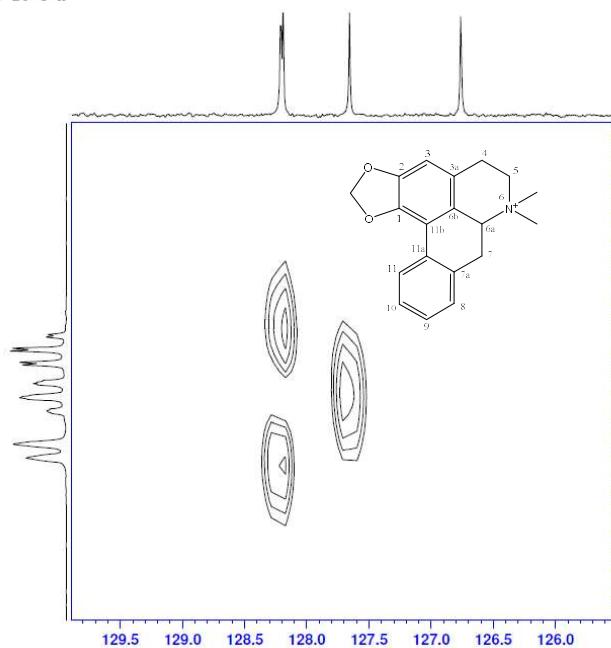


Current Data Parameters  
NAME: 2016-04-06 (MAH F16-29 C-H)

EXPNO: 11

PROCNO: 1

F1 - Acquisition Parameters  
Date: 2016-04-06 12:37:27  
INSTRUM: spect  
PROBPC: 5 mm PABBO BB  
PULPROG: hxcopf  
TD: 4096  
SOLVENT: MeOD  
NS: 6  
SWH: 29411.760 Hz  
ETR: 1.000000  
TDZ: 0.059320 sec  
AQ: 1.00 sec  
RG: 175.10  
DW: 8.50 usec  
DE: 3.00 usec  
TE: 7.90 sec  
TM: 145.000000  
D1: 0.0000000 sec  
D2: 0.0000000 sec  
D3: 0.0000000 sec  
D11: 0.0000000 sec  
D12: 0.0000000 sec  
DW1: 0.0000000 sec  
  
CHANNEL F1  
SF01: 125.770410 MHz  
NUC1: 13C  
P1: 10.00 usec  
P2: 14.00 usec  
PLW1: 110.000000 W  
  
CHANNEL F2  
SF02: 300.1320240 MHz  
NUC1: 1H  
P1: 1.00 sec  
P2: 10.40 usec  
PLW1: 36.000000 W  
PLW2: 21.0000000 W  
PLW3: 0.33400000 W  
  
F1 - Acquisition parameters  
TD: 4096  
SW: 600.132 MHz  
ETR: 1.000000  
AQ: 9.431 ppm  
PR1: 1.00 sec  
  
F2 - Processing parameters  
SI: 32768  
SF: 125.7707800 MHz  
SSB: QSI1ME  
WDW: 2  
GB: 0 Hz  
TC: 1.40 sec  
  
F1 - Processing parameters  
SI: 1024  
SF: 300.1320240 MHz  
SSB: QSI1ME  
WDW: 2  
GB: 0 Hz  
TC: 1.40 sec



S85: Expansion of the HCCOW Spectrum of Compound 5 (remrefidine)

OESYPHSW NOESYPHSW  
16–20W MAH

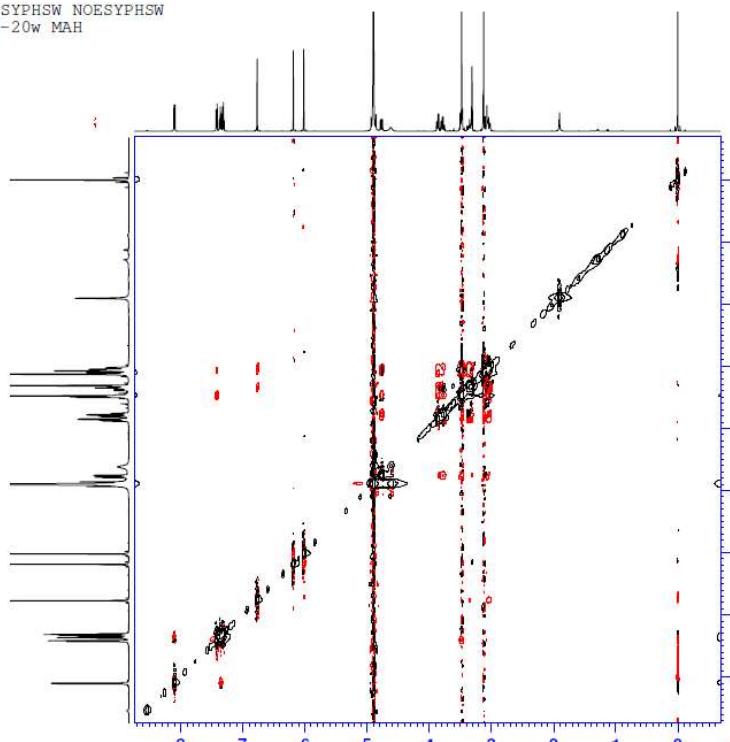


Current Data Parameters  
NAME: 2016-04-06 (F16-20w NO)

EXPNO: 11

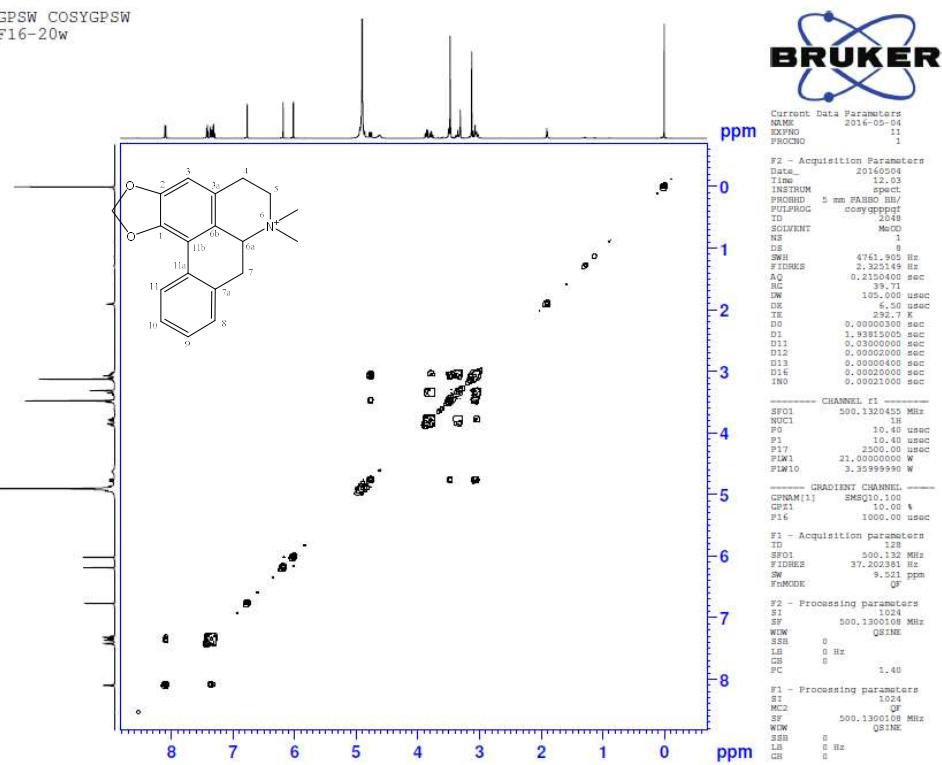
PROCNO: 1

F1 - Acquisition Parameters  
Date: 2016-04-06  
Time: 14:08  
INSTRUM: spect  
PROBPC: 5 mm PABBO BB  
PULPROG: noeypypppp  
TD: 2048  
SOLVENT: MeOD  
NS: 6  
SW: 4716.942 Hz  
ETR: 2.303213 Hz  
AQ: 0.2170880 sec  
RG: 1.00  
DW: 106.000 usec  
DE: 6.50 usec  
TE: 2.50 sec  
D1: 0.00009276 sec  
D11: 1.98771203 sec  
D12: 0.0000000 sec  
D13: 0.0000000 sec  
D14: 0.00002000 sec  
D15: 0.0000000 sec  
D16: 0.0000000 sec  
  
CHANNEL F1  
SF01: 500.1320251 MHz  
NUC1: 1H  
P1: 10.40 usec  
P2: 10.40 usec  
P17: 2500.00 usec  
P1M1: 21.0000000 W  
P1M10: 3.35399990 W  
  
GRADIENT CHANNEL  
GRAD1M1: 3MQU1L  
GRAD1: 40.00 %  
P16: 1000.00 usec  
  
F1 - Acquisition parameters  
TD: 256  
SW: 500.1300110 MHz  
ETR: 18.425107 Hz  
AQ: 9.431 ppm  
PR1: Status=TPPI  
  
F2 - Processing parameters  
SI: 1024  
SF: 500.1300110 MHz  
SSB: QSI1ME  
WDW: 2  
GB: 0 Hz  
TC: 1.00 sec  
  
F1 - Processing parameters  
SI: 1024  
SF: 500.1300110 MHz  
SSB: QSI1ME  
WDW: 2  
GB: 0 Hz



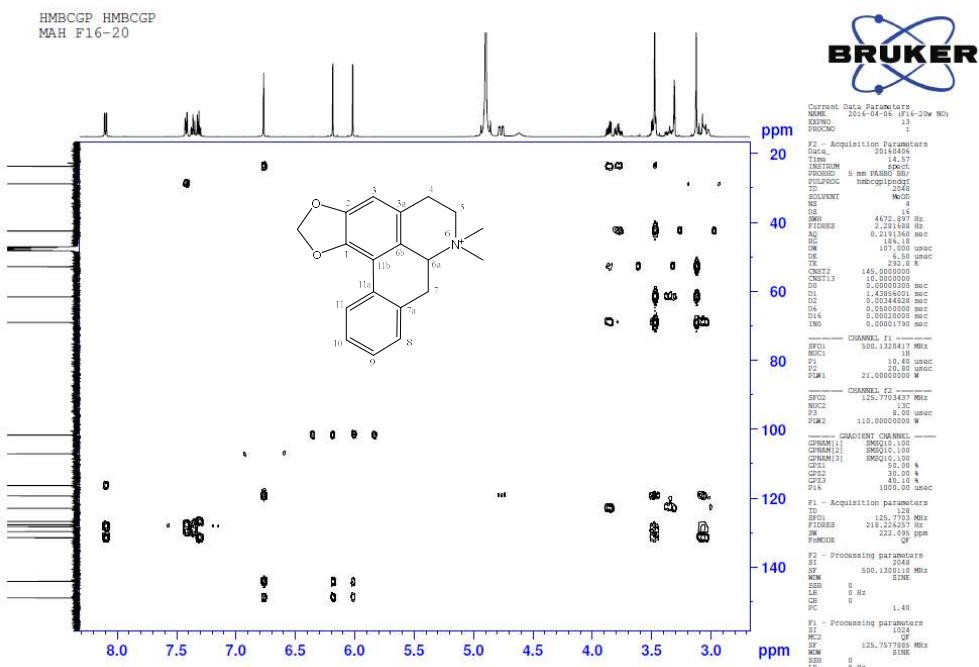
S86: NOSY (500 MHz) Spectrum of Compound 5 (remrefidine)

COSYGPSW COSYGPSW  
MAH F16-20w



S87: COSY (500 MHz) Spectrum of Compound 5 (remrefidine)

HMBCGP HMBCGP  
MAH F16-20

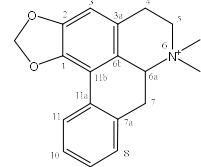


S88: HMBC (500 MHz, CDCl3) Spectrum of Compound 5 (remrefidine)

HMBCGP HMBCGP  
MAH F16-20



Current Data Parameters  
NAME: 2016-04-01\_12-20w ND  
EXPNO: 1  
PROCNO: 1  
Date: 2016-04-01 12:20:00  
Time: 12:20:00  
INSTRUM: DRX-500  
PULPROG: hmbcgp.m  
TD: 65536  
SOLVENT: CDCl3  
NS: 32  
SW1: 472.07 Hz  
ETW: 250.000 sec  
AQ: 0.219340 sec  
RG: 128  
DW: 107.000 usec  
D1: 2.000 sec  
TE: 293.0 K  
C1: 145.000000 sec  
C1NU1: 10.000000 sec  
C1NU2: 1.000000 sec  
C1NU3: 0.3000300 sec  
C1NU4: 0.1000100 sec  
D2: 0.0334482 sec  
D3: 0.0050000 sec  
D1S: 0.0002000 sec  
D2S: 0.0002000 sec  
D3S: 0.0001790 sec  
INO: 21.000000 sec  
  
F1 - Acquisition parameters  
Data: 2016-04-01\_12-20w ND  
INSTRUM: DRX-500  
PULPROG: hmbcgp.m  
TD: 65536  
SOLVENT: CDCl3  
NS: 32  
SW1: 472.07 Hz  
ETW: 250.000 sec  
AQ: 0.219340 sec  
RG: 128  
DW: 107.000 usec  
D1: 2.000 sec  
TE: 293.0 K  
C1: 145.000000 sec  
C1NU1: 10.000000 sec  
C1NU2: 1.000000 sec  
C1NU3: 0.3000300 sec  
C1NU4: 0.1000100 sec  
D2: 0.0334482 sec  
D3: 0.0050000 sec  
D1S: 0.0002000 sec  
D2S: 0.0002000 sec  
D3S: 0.0001790 sec  
  
F2 - Acquisition parameters  
Data: 2016-04-01\_12-20w ND  
INSTRUM: DRX-500  
PULPROG: hmbcgp.m  
TD: 65536  
SOLVENT: CDCl3  
NS: 32  
SW1: 472.07 Hz  
ETW: 250.000 sec  
AQ: 0.219340 sec  
RG: 128  
DW: 107.000 usec  
D1: 2.000 sec  
TE: 293.0 K  
C1: 145.000000 sec  
C1NU1: 10.000000 sec  
C1NU2: 1.000000 sec  
C1NU3: 0.3000300 sec  
C1NU4: 0.1000100 sec  
D2: 0.0334482 sec  
D3: 0.0050000 sec  
D1S: 0.0002000 sec  
D2S: 0.0002000 sec  
D3S: 0.0001790 sec  
  
F1 - Processing parameters  
SI: 1024  
SF: 125.7797850 MHz  
SW: SINE  
SSB: 0 Hz  
LB: 0 Hz  
  
F2 - Processing parameters  
SI: 1024  
SF: 125.7797850 MHz  
SW: SINE  
SSB: 0 Hz  
LB: 0 Hz

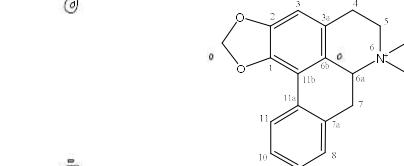


S89: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 5 (remrefidine)

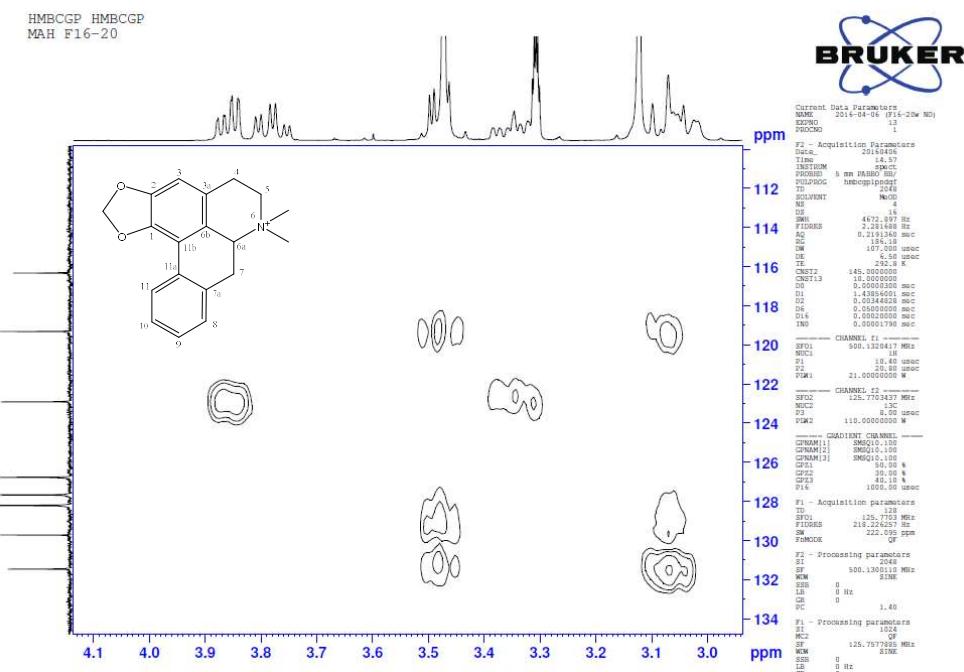
HMBCGP HMBCGP  
MAH F16-20



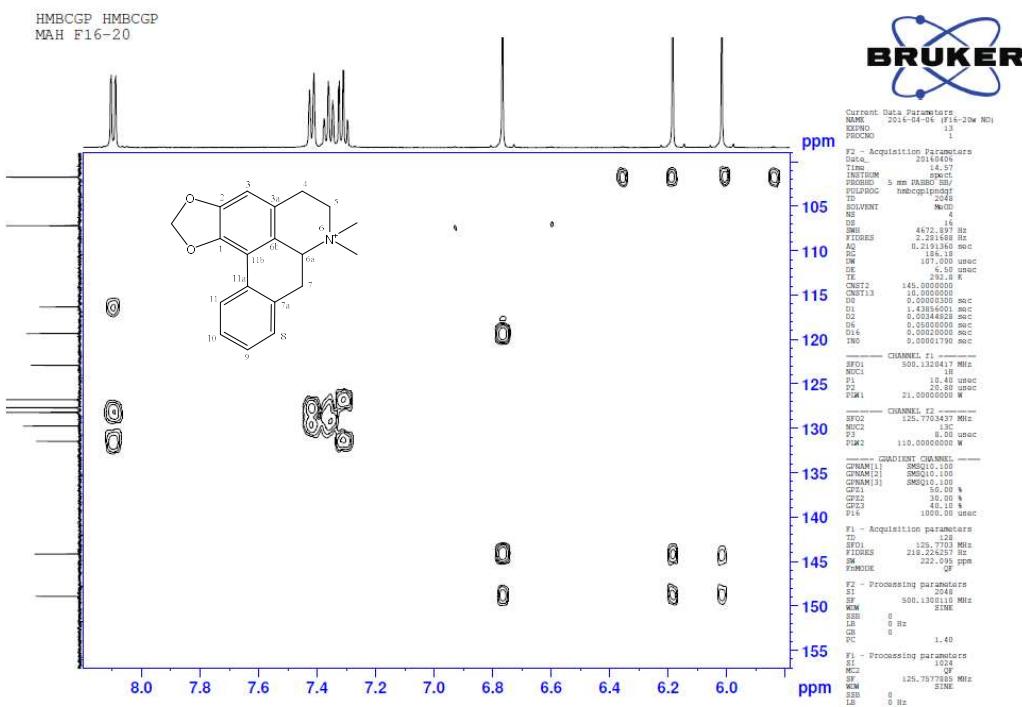
Current Data Parameters  
NAME: 2016-04-01\_12-20w ND  
EXPNO: 1  
PROCNO: 1  
Date: 2016-04-01 12:20:00  
Time: 12:20:00  
INSTRUM: DRX-500  
PULPROG: hmbcgp.m  
TD: 65536  
SOLVENT: CDCl3  
NS: 32  
SW1: 472.07 Hz  
ETW: 250.000 sec  
AQ: 0.219340 sec  
RG: 128  
DW: 107.000 usec  
D1: 2.000 sec  
TE: 293.0 K  
C1: 145.000000 sec  
C1NU1: 10.000000 sec  
C1NU2: 1.000000 sec  
C1NU3: 0.3000300 sec  
C1NU4: 0.1000100 sec  
D2: 0.0334482 sec  
D3: 0.0050000 sec  
D1S: 0.0002000 sec  
D2S: 0.0002000 sec  
D3S: 0.0001790 sec  
  
F1 - Acquisition parameters  
Data: 2016-04-01\_12-20w ND  
INSTRUM: DRX-500  
PULPROG: hmbcgp.m  
TD: 65536  
SOLVENT: CDCl3  
NS: 32  
SW1: 472.07 Hz  
ETW: 250.000 sec  
AQ: 0.219340 sec  
RG: 128  
DW: 107.000 usec  
D1: 2.000 sec  
TE: 293.0 K  
C1: 145.000000 sec  
C1NU1: 10.000000 sec  
C1NU2: 1.000000 sec  
C1NU3: 0.3000300 sec  
C1NU4: 0.1000100 sec  
D2: 0.0334482 sec  
D3: 0.0050000 sec  
D1S: 0.0002000 sec  
D2S: 0.0002000 sec  
D3S: 0.0001790 sec  
  
F2 - Acquisition parameters  
Data: 2016-04-01\_12-20w ND  
INSTRUM: DRX-500  
PULPROG: hmbcgp.m  
TD: 65536  
SOLVENT: CDCl3  
NS: 32  
SW1: 472.07 Hz  
ETW: 250.000 sec  
AQ: 0.219340 sec  
RG: 128  
DW: 107.000 usec  
D1: 2.000 sec  
TE: 293.0 K  
C1: 145.000000 sec  
C1NU1: 10.000000 sec  
C1NU2: 1.000000 sec  
C1NU3: 0.3000300 sec  
C1NU4: 0.1000100 sec  
D2: 0.0334482 sec  
D3: 0.0050000 sec  
D1S: 0.0002000 sec  
D2S: 0.0002000 sec  
D3S: 0.0001790 sec  
  
F1 - Processing parameters  
SI: 1024  
SF: 500.1300110 MHz  
SW: SINE  
SSB: 0 Hz  
LB: 0 Hz  
DP: 1.40  
  
F2 - Processing parameters  
SI: 1024  
SF: 125.7797850 MHz  
SW: SINE  
SSB: 0 Hz  
LB: 0 Hz



S90: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 5 (remrefidine)

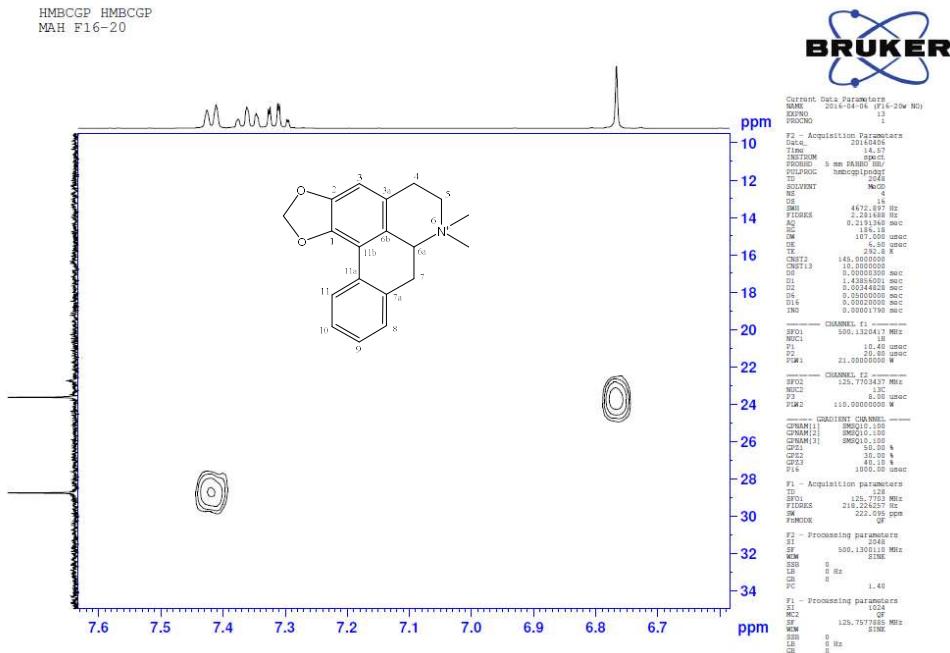


**S91:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 5 (remrefidine)



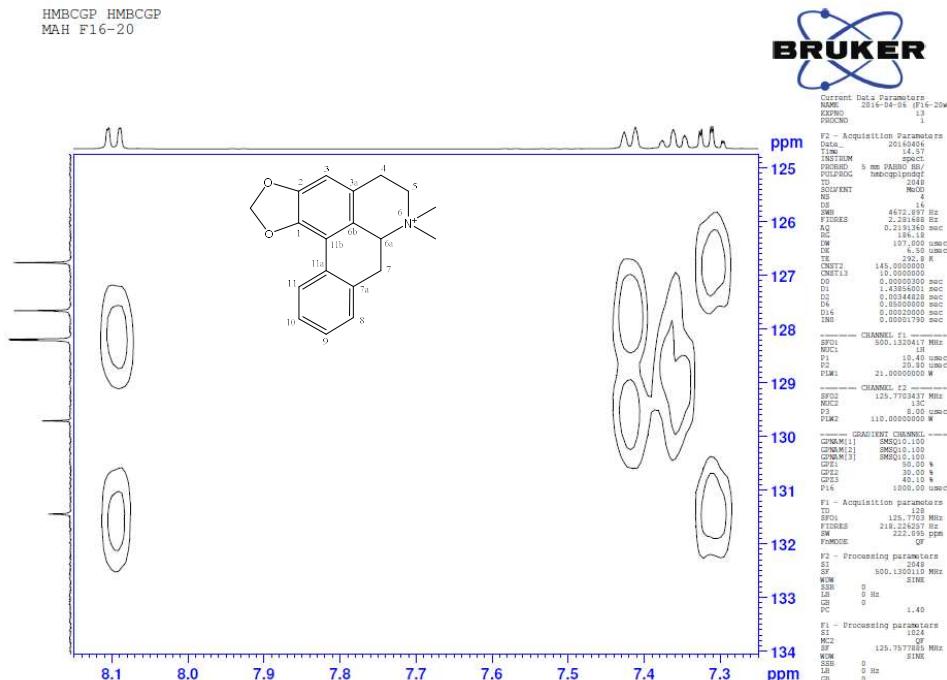
**S92:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 5 (remrefidine)

HMBCGP HMBCGP  
MAH F16-20

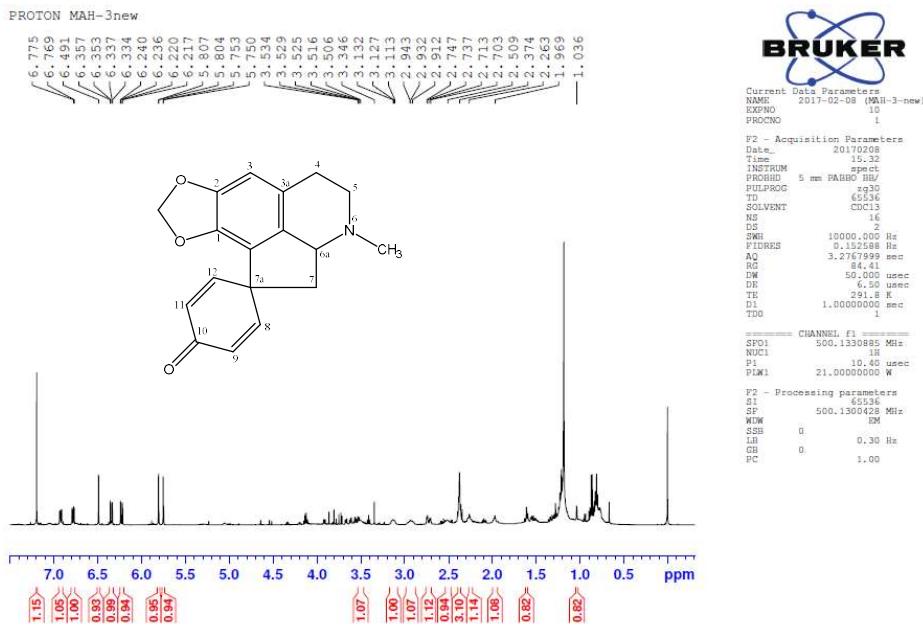


S93: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 5 (remrefidine)

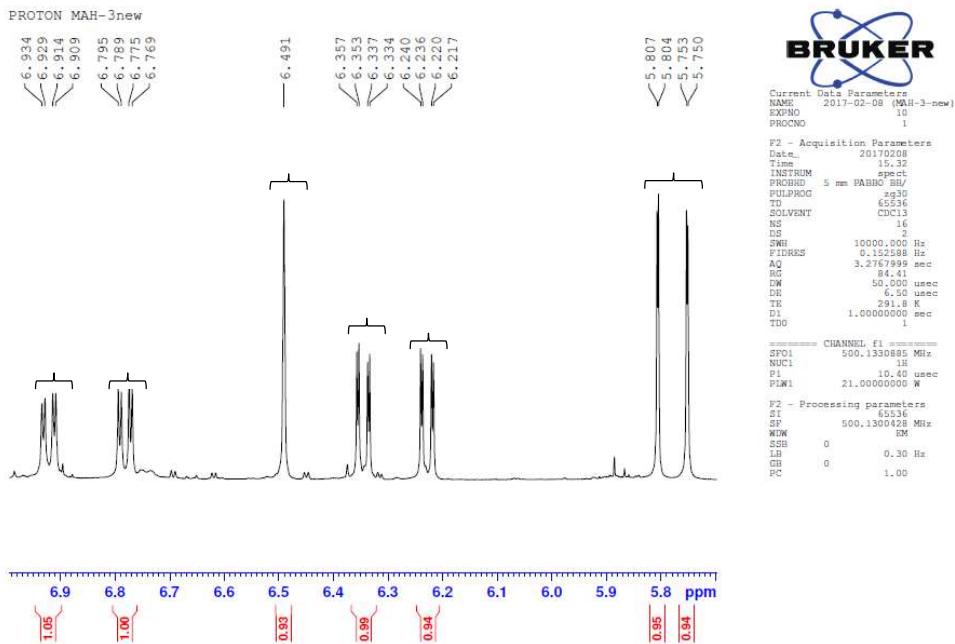
HMBCGP HMBCGP  
MAH F16-20



S94: Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound 5 (remrefidine)

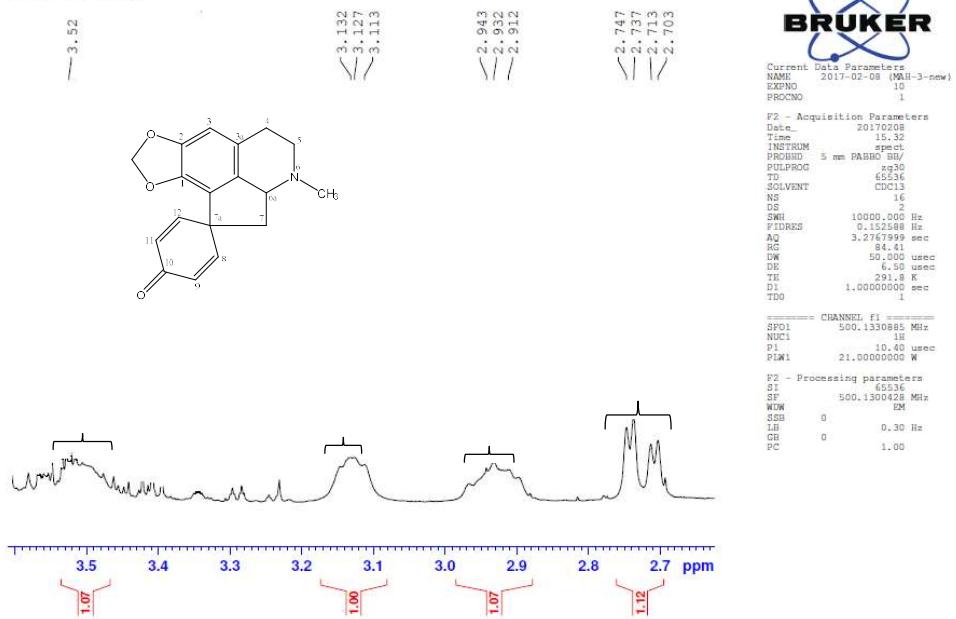


**S95:**  $^1\text{H}$ -NMR (500 MHz,  $\text{CD}_3\text{OD}$ ) Spectrum of Compound 6 (mecambrine)



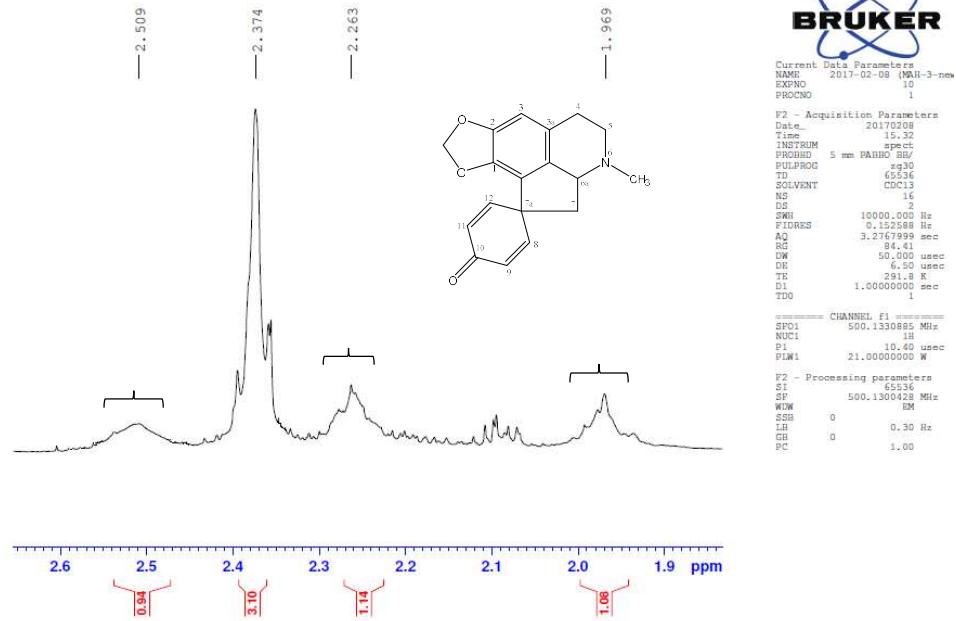
**S96:** Expansion of the  $^1\text{H}$ -NMR (500 MHz) Spectrum of Compound 6 (mecambrine)

PROTON MAH-3new

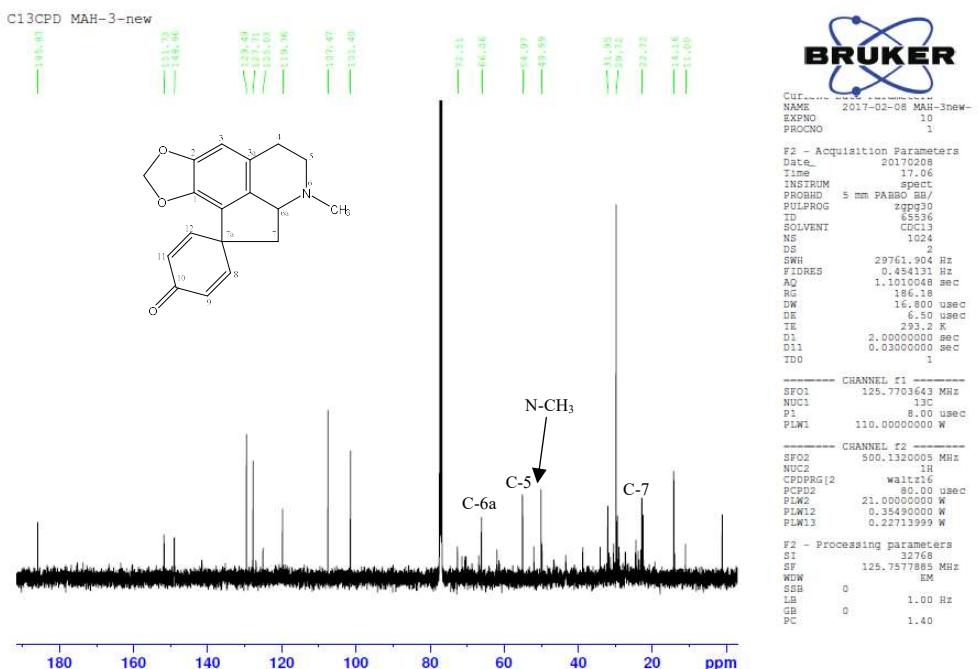


**S97:** Expansion of the <sup>1</sup>H-NMR (500 MHz) Spectrum of Compound 6 (mecambrine)

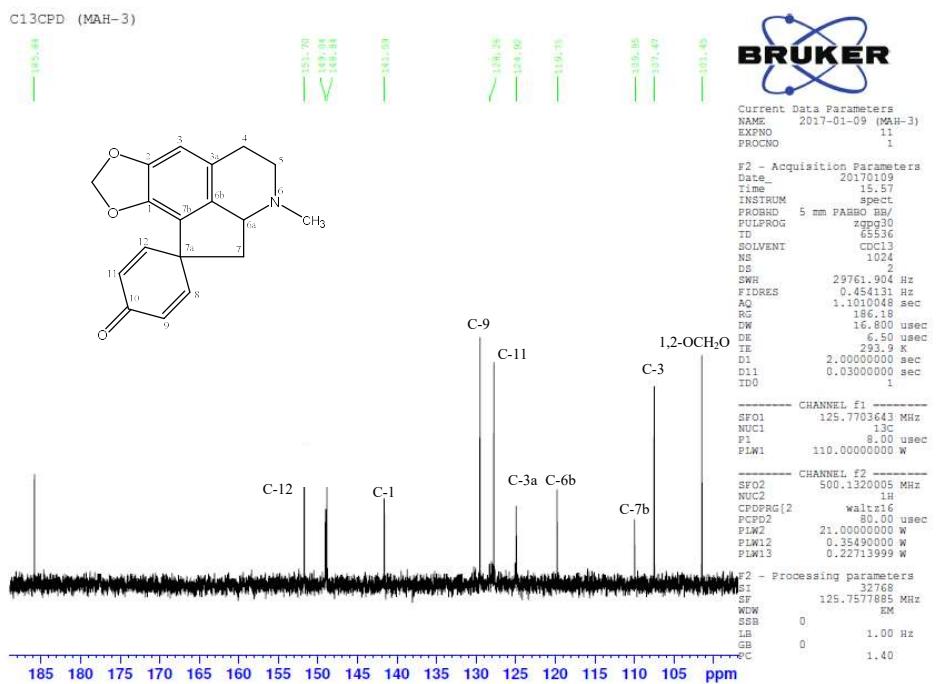
PROTON MAH-3new



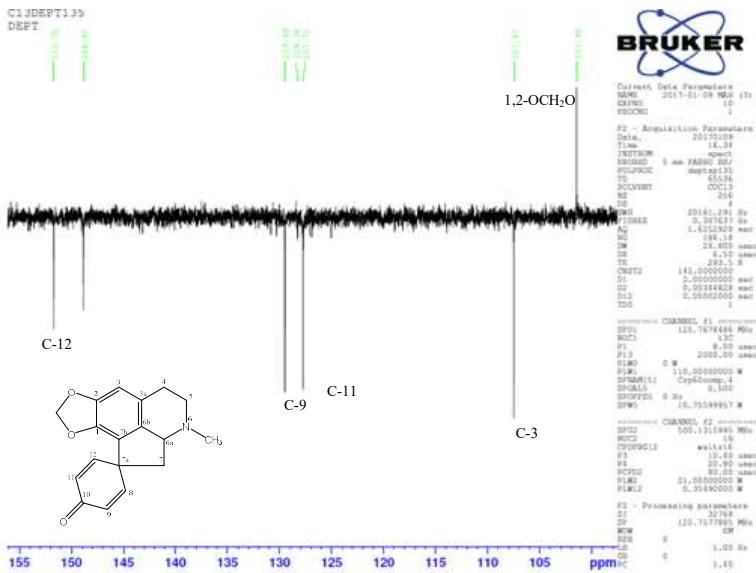
**S98:** Expansion of the <sup>1</sup>H-NMR (500 MHz) Spectrum of Compound 6 (mecambrine)



S99:  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 6 (mecambrine)

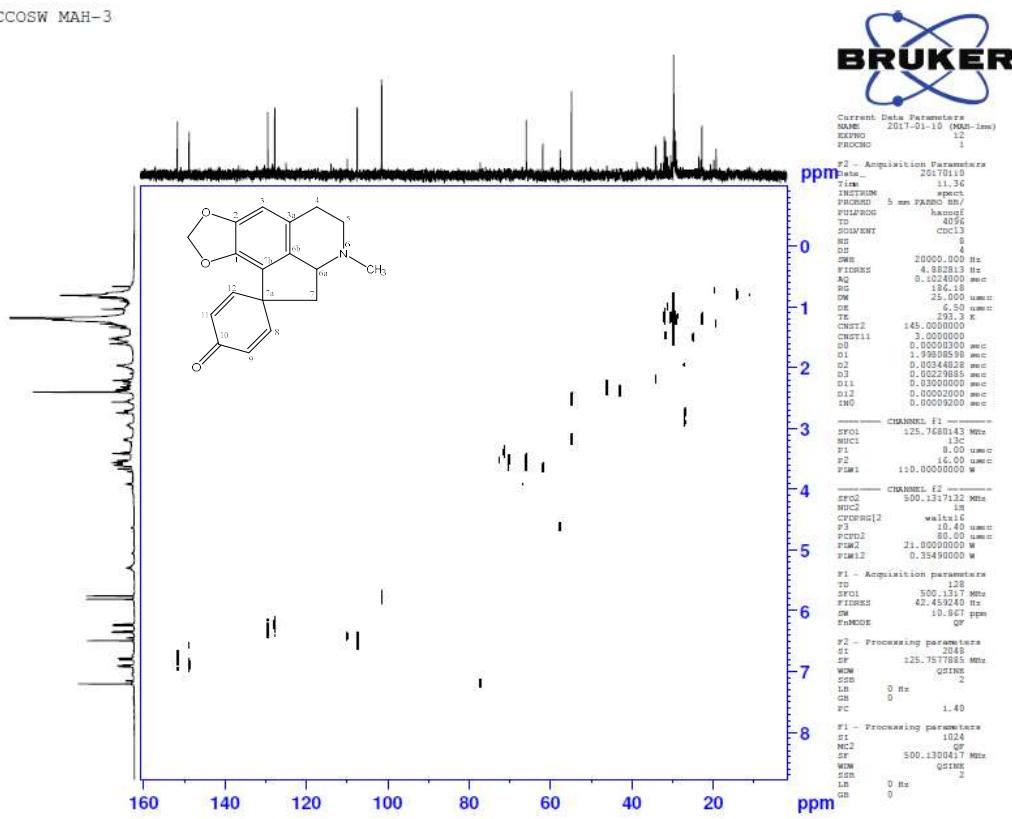


S100: Expansion of the  $^{13}\text{C}$ -NMR (500 MHz) Spectrum of Compound 6 (mecambrine)



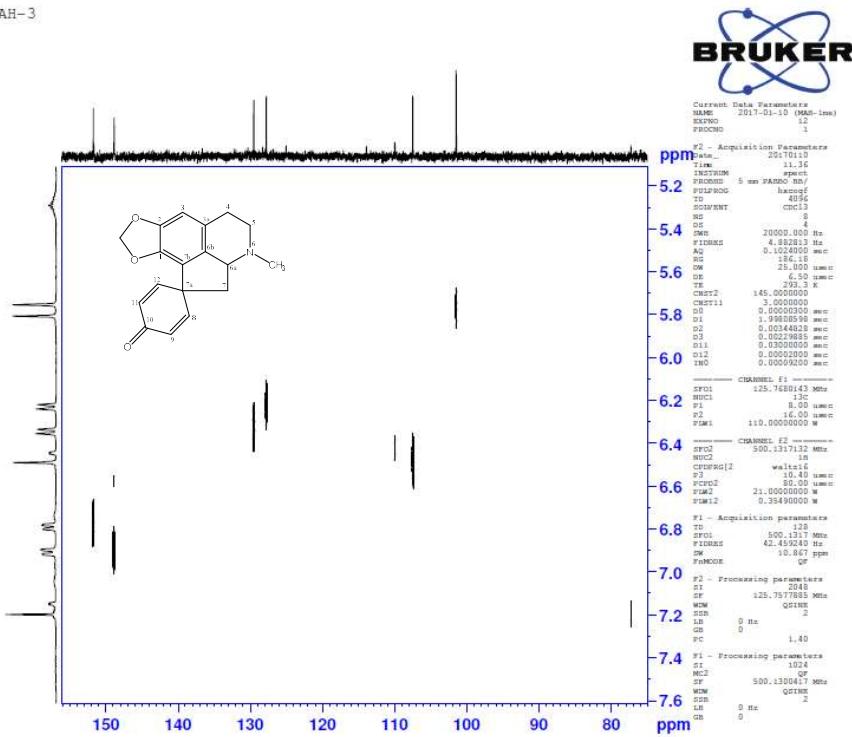
### S101: DEPT (500 MHz) Spectrum of Compound 6 (mecambrine)

HCCOSW MAH-3



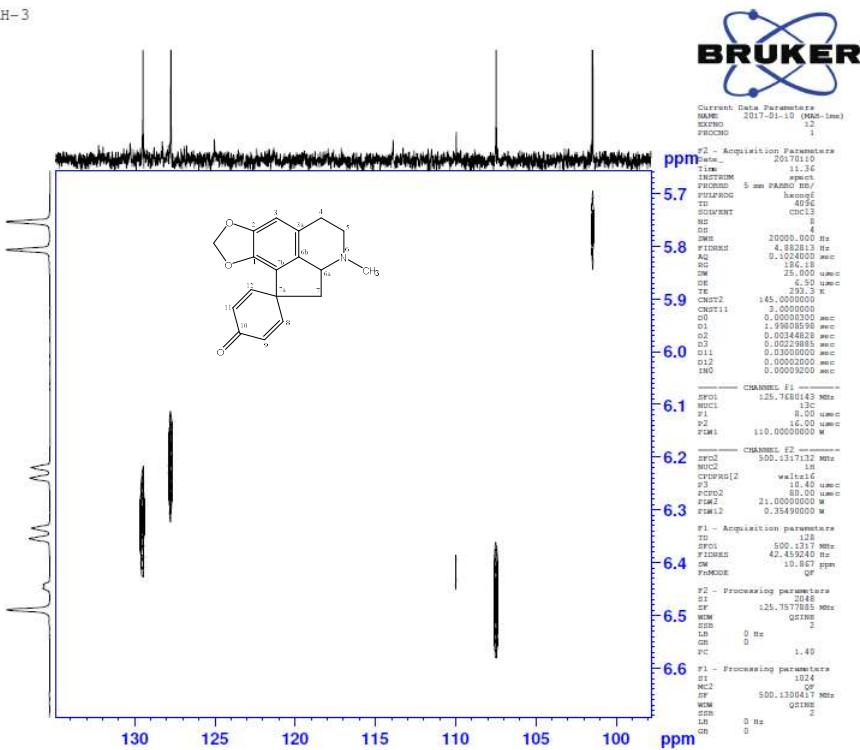
## S102: HCCOW Spectrum of Compound 6 (mecambrine)

HCCOSW MAH-3

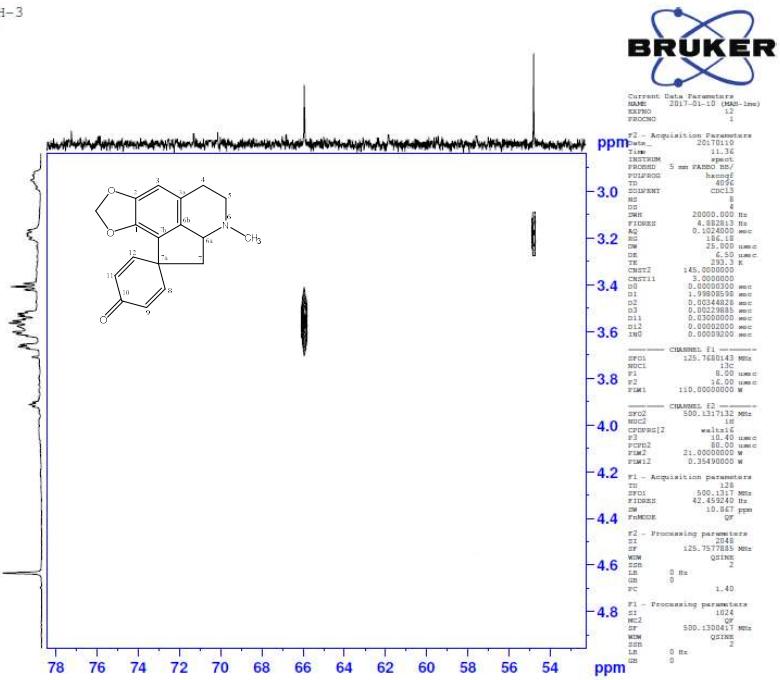


S103: Expansion of the HCCOW Spectrum of Compound 6 (mecambrine)

HCCOSW MAH-3

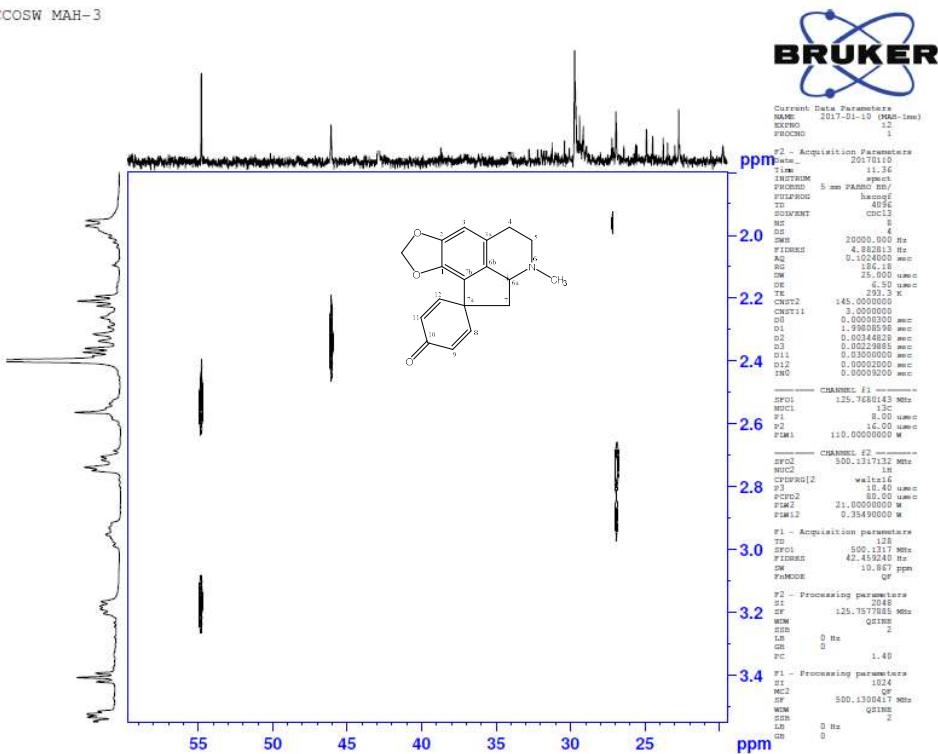


S104: Expansion of the HCCOW Spectrum of Compound 6 (mecambrine)



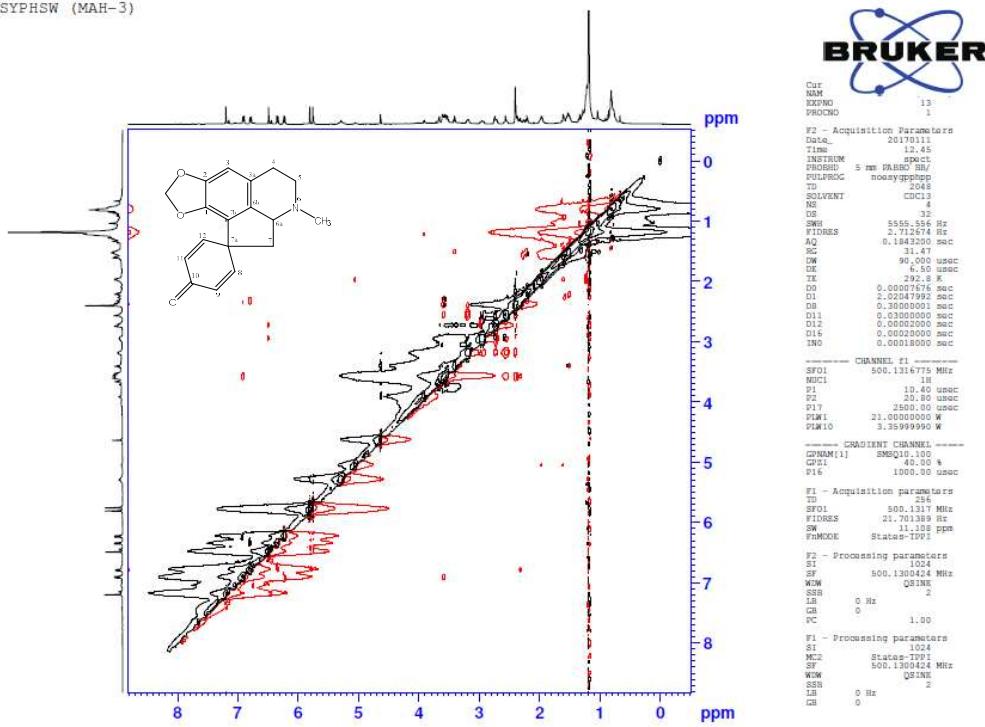
S105: Expansion of the HCCOW Spectrum of Compound 6 (mecambrine)

HCCOSW MAH-3



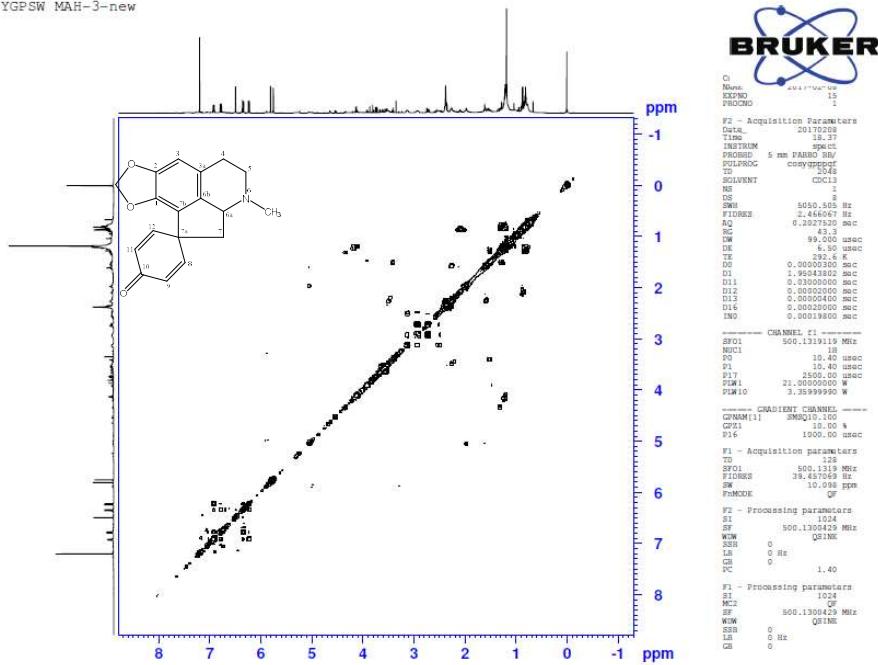
S106: Expansion of the HCCOW Spectrum of Compound 6 (mecambrine)

### NOESYPHSW (MAH-3)

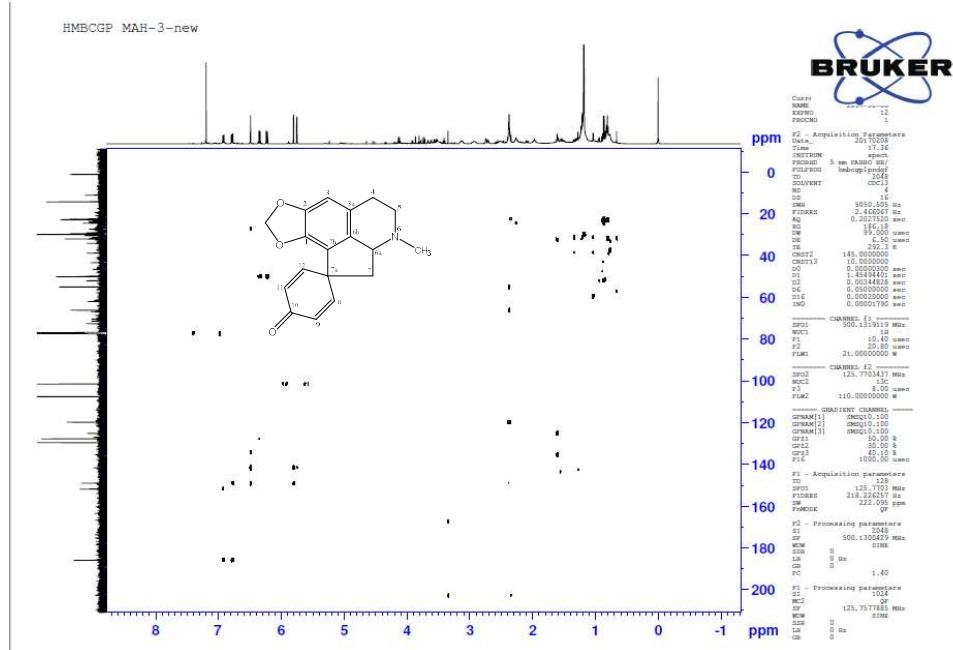


**S107:** NOSY (500 MHz) Spectrum of Compound **6** (mecambrine)

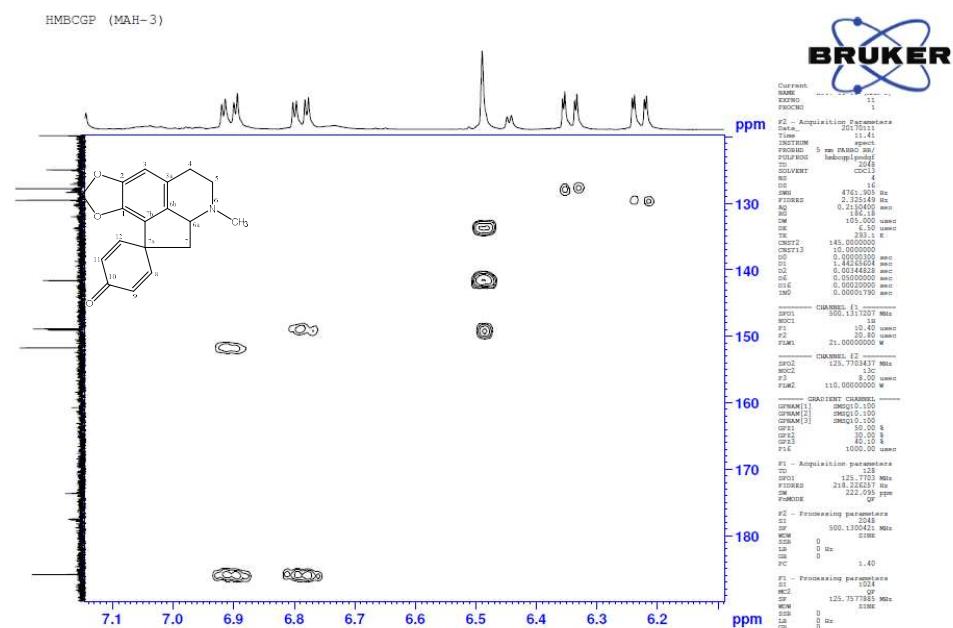
SYGPSW MAH-3-new



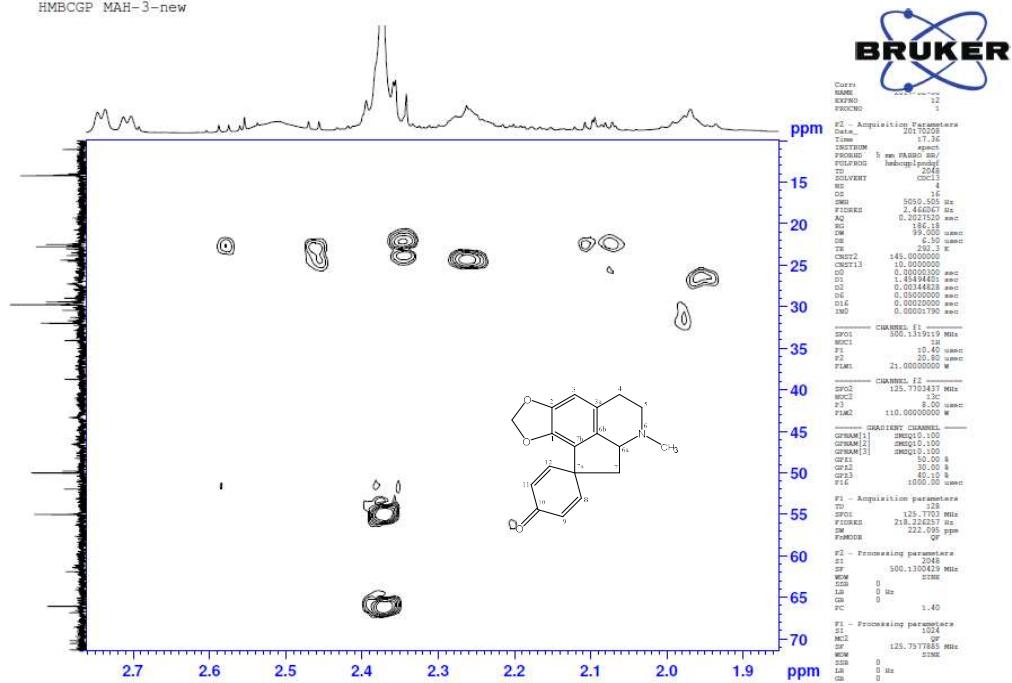
### S108: COSY (500 MHz) Spectrum of Compound 6 (mecambrine)



**S109:** HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound **6** (mecambrine)



**S110:** Expansion of the HMBC (500 MHz, CDCl<sub>3</sub>) Spectrum of Compound **6** (mecambrine)



**S112:**  $^1\text{H}$  NMR (500MHz) data of isolated compounds ( $\text{CDCl}_3$ ,  $\delta$  in ppm,  $J$  in Hz)

| Position (H)           | Dehydro-remerine         | Roemerine   | Alborine                | Remrefidine  | Mecambrine                                      |
|------------------------|--------------------------|---|-------------------------|--|---|
| 1-OCH <sub>3</sub>     | --                       | --  | 4.17 (3H, s)            | --   | --  |
| 1,2-OCH <sub>2</sub> O | 6.137 (2H, s)            | 6.01 (1H, d, $J=1$ )<br>5.864 (1H, d, $J=1$ )               | --                      | 6.18 (1H, d, $J=1$ )<br>6.01 (1H, d, $J=1$ )                               | 5.8 (1H, d, $J=1.5$ )<br>5.75 (1H, d, $J=1.5$ ) |
| 3                      | 6.86 (1H, s)             | 6.48 (1H, s)<br><br>~3.09 (1H, m)                           | --                      | 6.76 (1H, s)   | 6.49 (1H, s)<br><br>~2.9 (1H, m)                |
| 4                      | 3.16 (2H, t, $J=6$ )     | ~2.58 (1H, dd, $J=16, 3.5$ )                                | 6.72 (1H, s)            | ~3.34 (1H, m)<br><br>~3.05 (1H, m)   | ~2.7 (1H, dd, $J=17, 5$ )                       |
| 5                      | 3.28 (2H, t, $J=6$ )     | ~3.04 (1H, m)<br><br>~2.51 (1H, m)                          | 3.17 (2H, t, $J=6$ )    | ~3.86 (1H, ddd,<br>$J=12.5, 6, 1$ )<br><br>~3.78 (1H, dt,<br>$J=12.5, 5$ ) | ~2.5 (1H, m)<br><br>~3.12 (1H, m)               |
| 6                      | 3.01 (3H, s)             | 2.51 (3H,s)   | 4.76 (2H, t, $J=6$ )    | 3.47 (3H,s)<br><br>3.12 (3H, s)  | 2.37 (3H, s)                                    |
| 6a                     | --                       | 3.19 (1H, br.d,<br>$J=14$ )                                 | --                      | 4.76 (1H, dd, $J=14, 4$ )  | 3.52 (1H, m)                                    |
| 7                      | 6.49 (1H, s)             | ~3.10 (1H, dd, $J=18, 4.5$ )<br><br>~2.67 (1H, t, $J= 14$ ) | --                      | ~3.48 (1H, dd, $J=14, 4$ )<br><br>~3.06 (1H, m)                            | ~2.2 (1H, m)<br><br>~1.96 (1H, m)               |
| 8                      | 7.54 (1H, d, $J=8$ )     | 7.19 (1H, m)  | 9.46 (1H, s)            | 7.48 (1H, br.d, $J=7.5$ )  | 6.93 (1H, dd, $J=10, 2.5$ )                     |
| 9                      | 7.37 (1H, dt, $J=1, 7$ ) | 7.24 (1H, t, $J= 7$ )                                       | 7.7 (1H, d,<br>$J=15$ ) | 7.36 (1H, br.t, $J=7.5$ )  | 6.35 (1H, dd, $J=10, 2.5$ )                     |
| 10                     | 7.24 (1H, t, $J=7.5$ )   | 7.16 (1H, t, $J= 7$ )                                       | --                      | 7.31 (1H, dt, $J=7.5, 1.5$ )   | --  |
| 11                     | 8.82 (1H, d, $J=8.5$ )   | 7.99 (1H, d, $J= 7.5$ )                                     | --                      | 8.09 (1H, dd, $J=7.5, 1$ )   | 6.23 (1H, dd, $J=10, 3$ )                       |
| 12                     | --                       | --  | --                      | --   | 6.79 (1H, dd, $J=10, 3$ )                       |

|                        |    |    |              |    |    |
|------------------------|----|----|--------------|----|----|
| 10-OCH <sub>3</sub>    | -- | -- | 4.1 (3H, s)  | -- | -- |
| 11-OCH <sub>3</sub>    | -- | -- | 4.07 (3H, s) | -- | -- |
| 12-CH <sub>2</sub> OH  | -- | -- | 5.11 (2H, s) | -- | -- |
| 13                     | -- | -- | 9.32 (1H, s) | -- | -- |
| 2,3-OCH <sub>2</sub> O | -- | -- | 6.1 (2H, s)  | -- | -- |

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**S113:** <sup>13</sup>C NMR (500MHz) data of isolated compounds (CDCl<sub>3</sub>, δ in ppm)

| Position (C) | Dehydroremerine           | Roemerine                  | Alborine                 | Remrefidine  | Mecambrine                |
|--------------|---------------------------|----------------------------|--------------------------|--|---------------------------|
| 1            | 142.15 (C)                | 142.73 (C)                 | 142.15 (C)               | 144.14 (C)   | 141.59 (C)                |
| 1a           | --                        | --                         | --                       | --   | 109.9 (C)                 |
| 1b           | --                        | --                         | --                       | --   | 119.75 (C)                |
| 2            | 145.12 (C)                | 146.89 (C)                 | 137.04 (C)               | 148.9 (C)  | 149.05 (C)                |
| 3            | 107.43 (CH)               | 107.49 (CH)                | 151.94 (C)               | 107.15 (CH)  | 107.47 (CH)               |
| 3a           | 127.49 (C)                | 126.43 (C)                 | --                       | 122.9 (C)  | 124.9 (C)                 |
| 4            | 30.9 (CH <sub>2</sub> )   | 28.72 (CH)                 | 102.86 (CH)              | 23.63 (CH)   | 27.72 (CH)                |
| 4a           | --                        | --                         | 132.8 (C)                | --   | --                        |
| 5            | 50.42 (CH <sub>2</sub> )  | 53.41 (CH <sub>2</sub> )   | 27.84 (CH <sub>2</sub> ) | 61.54 (CH <sub>2</sub> )                                 | 54.8 (CH <sub>2</sub> )   |
| 6            | 40.4 (N-CH <sub>3</sub> ) | 43.42 (N-CH <sub>3</sub> ) | 55.35 (CH <sub>2</sub> ) | 52.78 (N-CH <sub>3</sub> )<br>42.77 (N-CH <sub>3</sub> ) | 49.9 (N-CH <sub>3</sub> ) |
| 6a           | 127.41 (C)                | 61.98 (CH)                 | --                       | 68.97 (CH)   | 65.9 (CH)                 |
| 6b           | 119.07 (C)                | 126.24 (C)                 | --                       | 119.3 (C)  |                           |
| 7            | 101.15 (CH)               | 34.34 (CH <sub>2</sub> )   | --                       | 28.76 (CH <sub>2</sub> )                                 | 22.7 (CH <sub>2</sub> )   |
| 7a           | 134.15 (C)                | 135.07 (C)                 | --                       | 129.7 (C)  | 46.1 (C)                  |
| 8            | 125.83 (CH)               | 128.24 (CH)                | 145.75 (CH)              | 128.19 (CH)  | 149.96 (CH)               |
| 8a           | --                        | --                         | 124.3 (C)                | --   | --                        |
| 9            | 126.98 (CH)               | 127.12 (CH)                | 107.25 (CH)              | 127.66 (CH)  | 129.6 (CH)                |
| 10           | 122.41 (CH)               | 127.59 (CH)                | 155.73 (C)               | 128.21 (CH)  | 185.8 (CO)                |
| 11           | 126.84 (CH)               | 126.91 (CH)                | 156.03 (C)               | 126.76 (CH)  | 128.26 (CH)               |
| 11a          | 124.02 (C)                | 131.01 (C)                 | --                       | 131.45 (C)   | --                        |
| 11b          | 117.33 (C)                | 116.46 (C)                 | --                       | 116.32 (C)   | --                        |
| 12           | --                        | --                         | 128.19 (C)               | --   | 151.73 (CH)               |

|                         |                           |                           |    |                           |                          |    |
|-------------------------|---------------------------|---------------------------|----|---------------------------|--------------------------|----|
|                         |                           |                           |    | 135.43 (C)                |                          |    |
| 12a                     | --                        | --                        | -- |                           | --                       | -- |
| 13                      | --                        | --                        | -- | 121.4 (CH)                | --                       | -- |
| 13a                     | --                        | --                        | -- | 136.13 (C)                | --                       | -- |
| 13b                     | --                        | --                        | -- | 112.9 (C)                 | --                       | -- |
| 1, 2-OCH <sub>2</sub> O | 100.98 (CH <sub>2</sub> ) | 101.81 (CH <sub>2</sub> ) | -- | 101.69 (CH <sub>2</sub> ) | 101.4 (CH <sub>2</sub> ) |    |
| 2, 3-OCH <sub>2</sub> O | --                        | --                        | -- | 102.26 (CH <sub>2</sub> ) | --                       | -- |
| 1-OCH <sub>3</sub>      | --                        | --                        | -- | 59.47 (C)                 | --                       | -- |
| 10-OCH <sub>3</sub>     | --                        | --                        | -- | 55.6 (C)                  | --                       | -- |
| 11-OCH <sub>3</sub>     | --                        | --                        | -- | 61.39 (C)                 | --                       | -- |
| 12-CH <sub>2</sub> OH   | --                        | --                        | -- | 53.88 (C)                 | --                       | -- |

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