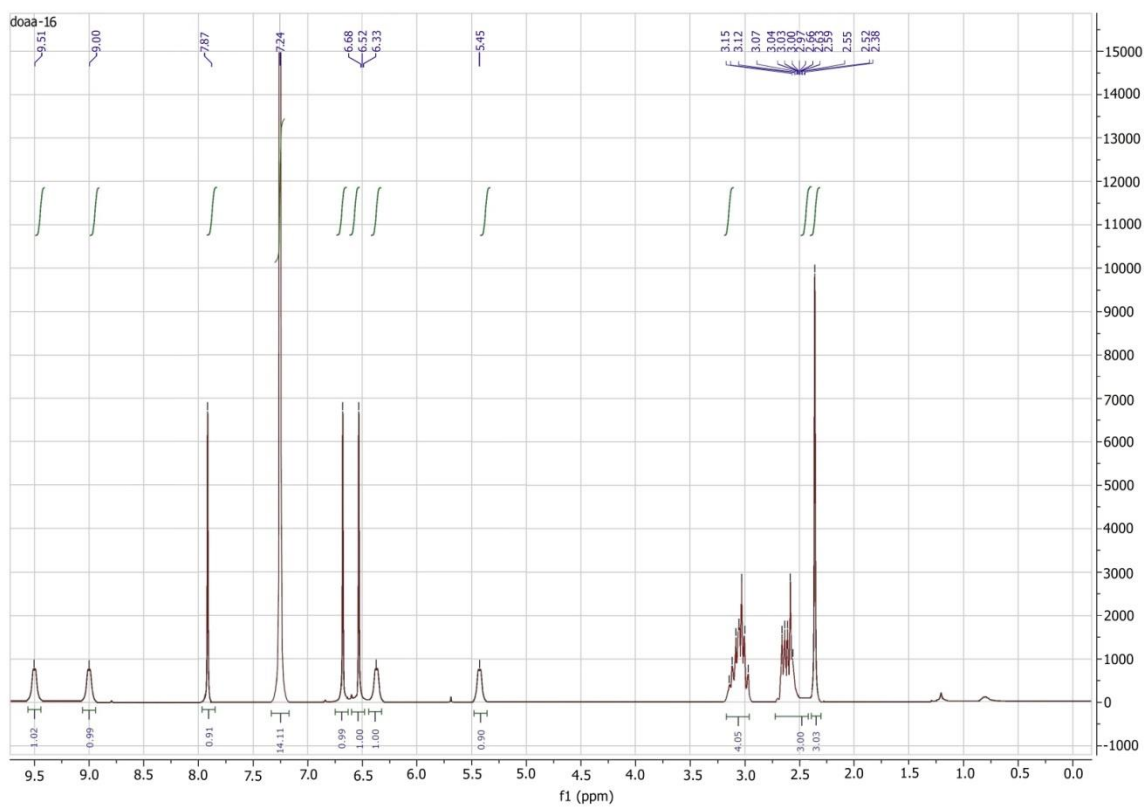
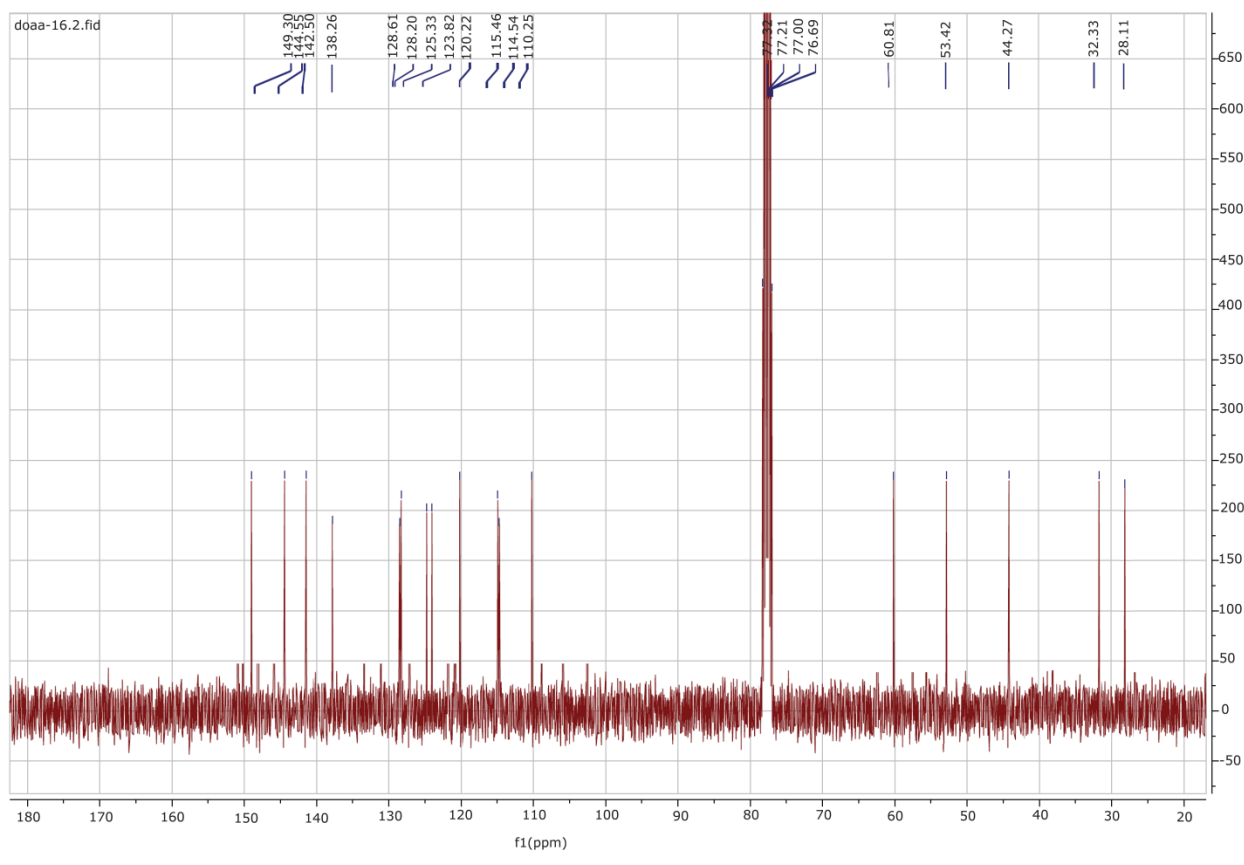


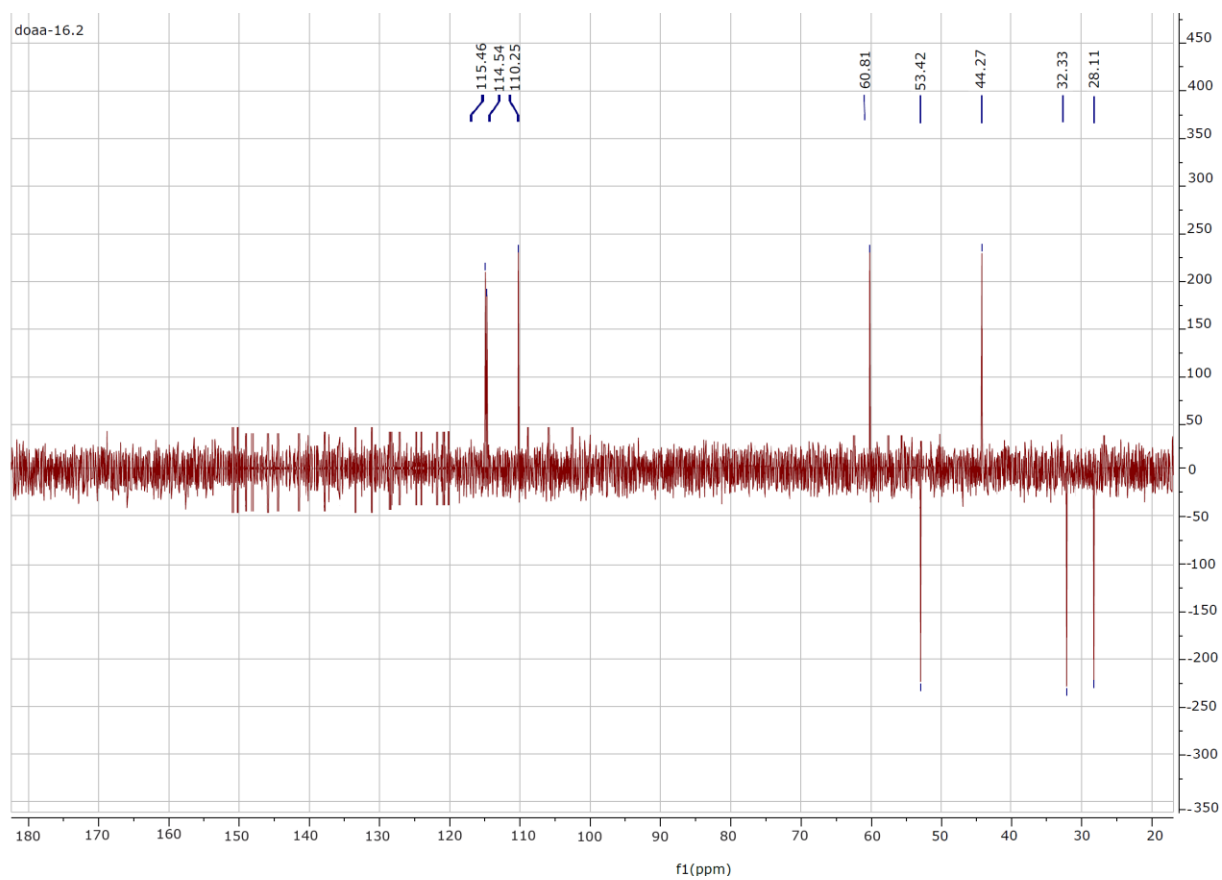
## Supporting information



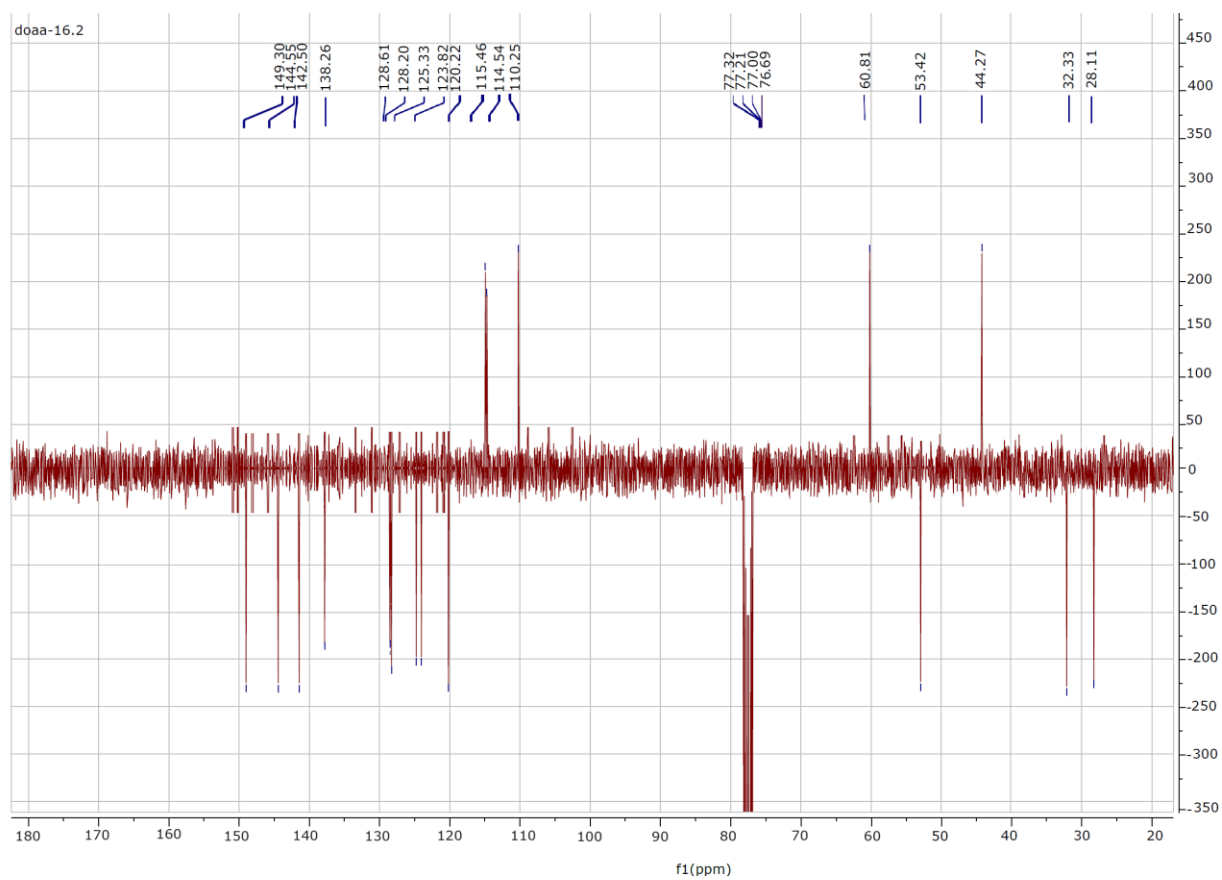
S1:  $^1\text{H}$  NMR spectrum of boldine metabolite-**1** (400 MHz,  $\text{CDCl}_3$ ).



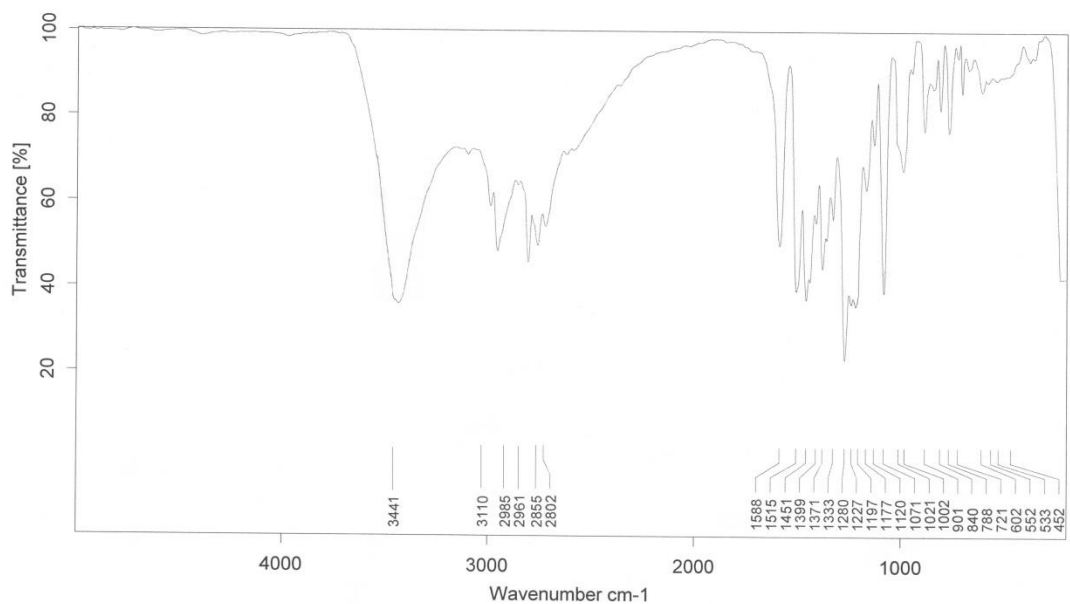
S2:  $^{13}\text{C}$  NMR spectrum of boldine metabolite-**1** (100 MHz,  $\text{CDCl}_3$ ).



S3: DEPT 135 spectrum of boldine metabolite-**1** (100 MHz,  $\text{CDCl}_3$ ).



S4: APT spectrum of boldine metabolite-1 (100 MHz, CDCl<sub>3</sub>).



C:\OPUS\_7.0.122\MEAS\SAMPLE\Dr.DAAA ELEWA 22-5-2017\16

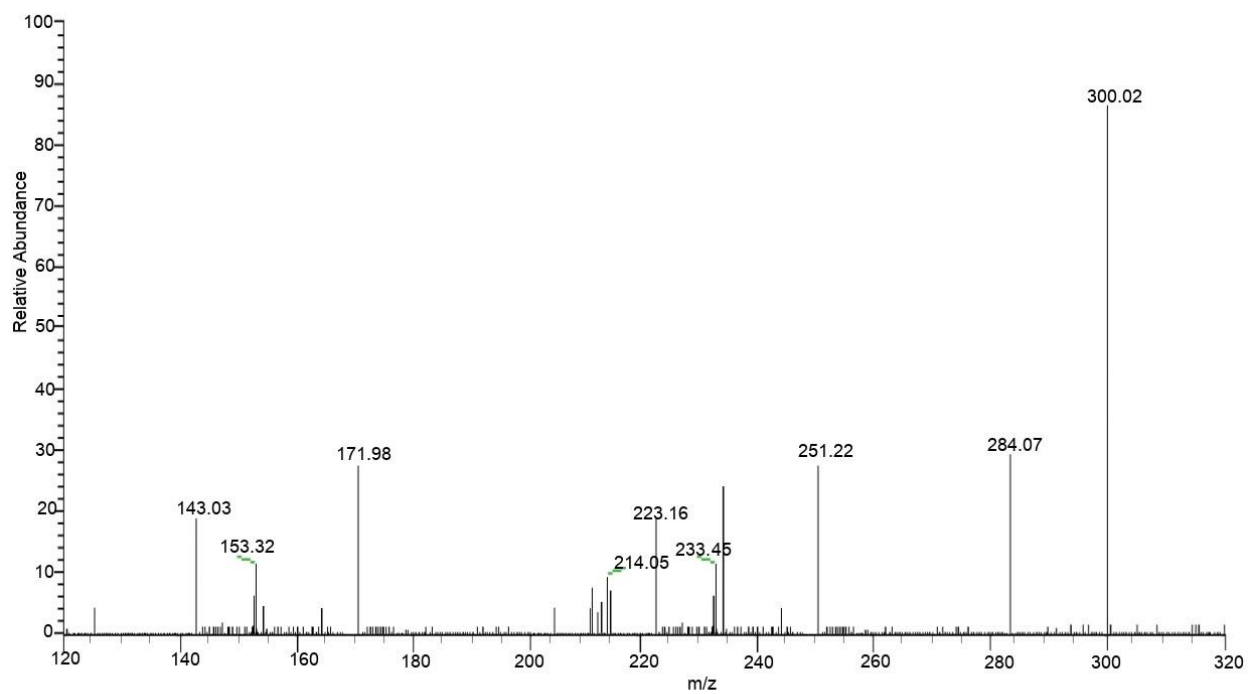
16

Instrument type and / or accessory

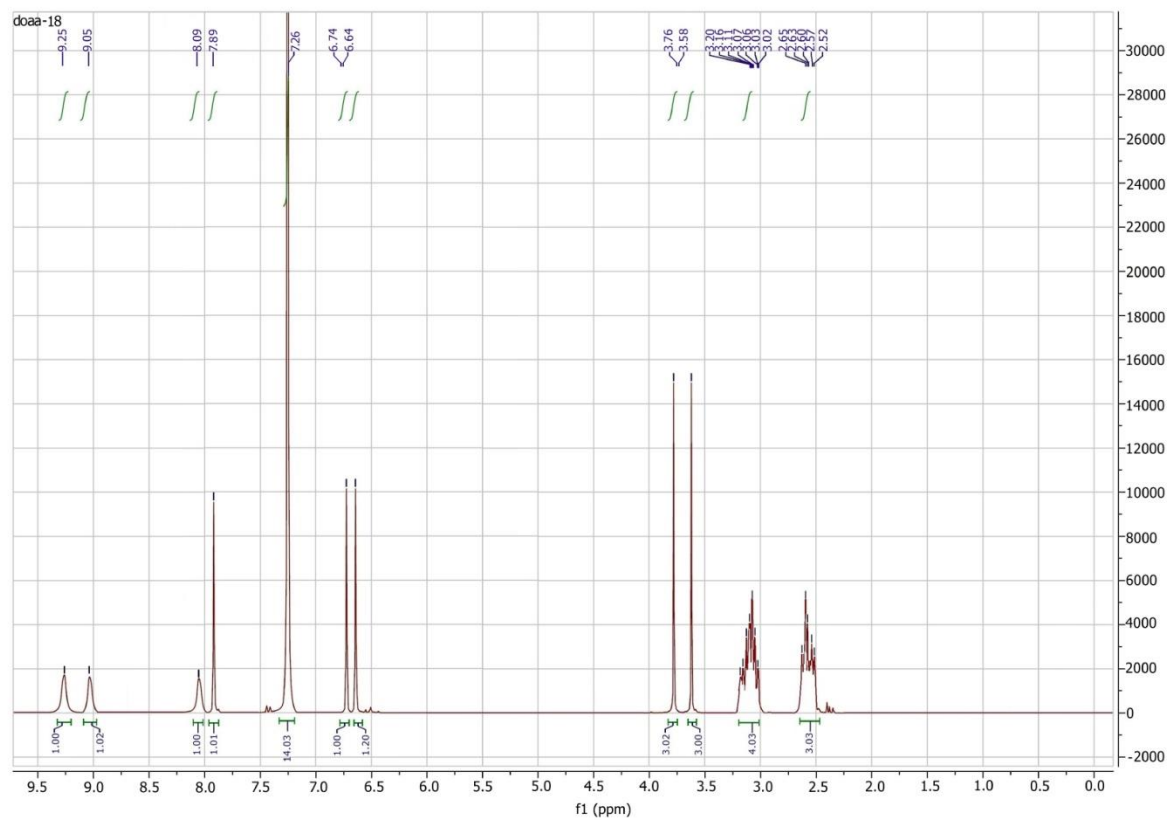
Signature:

S5: IR spectrum of boldine metabolite-1.

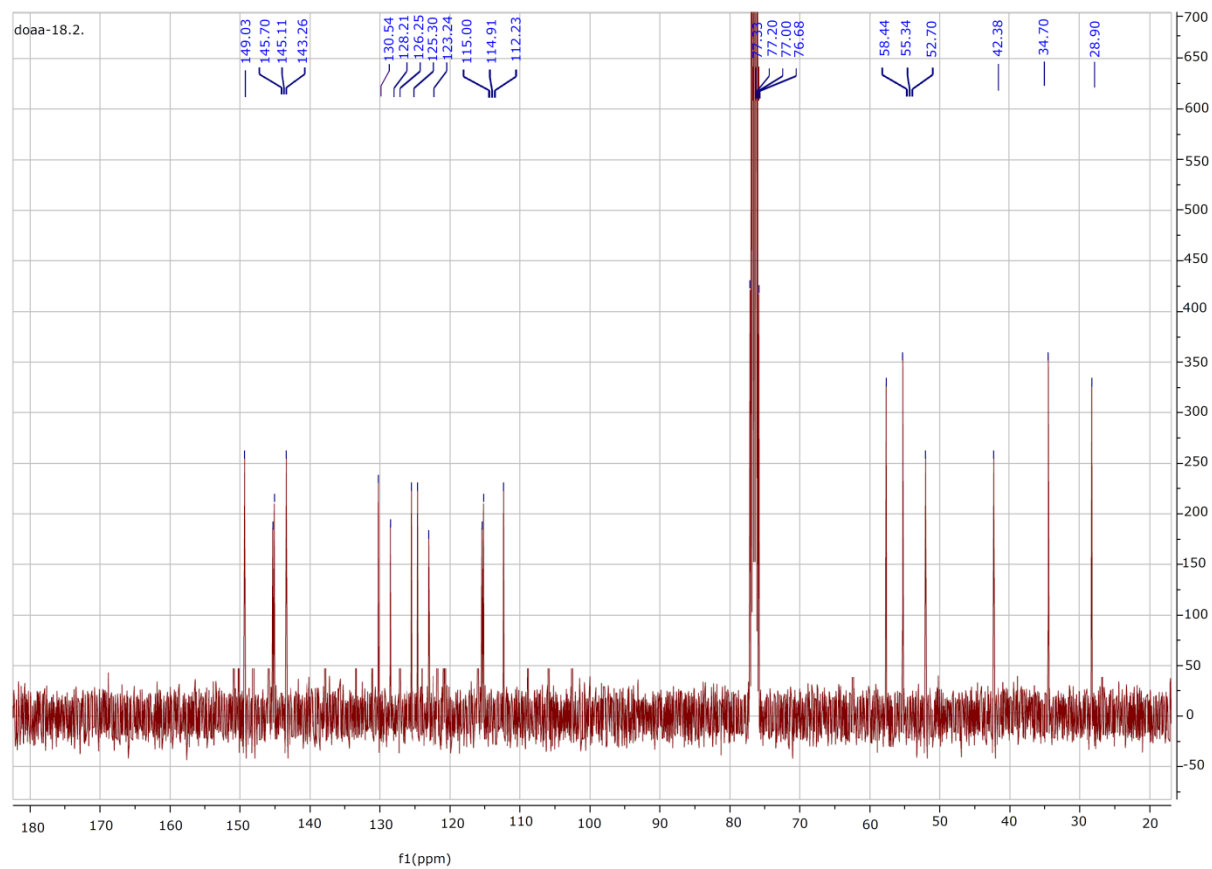
DRDU16 #33 RT: 0.42 AV: 1 NL: 0.31E1  
T: + c ESI Q1MS



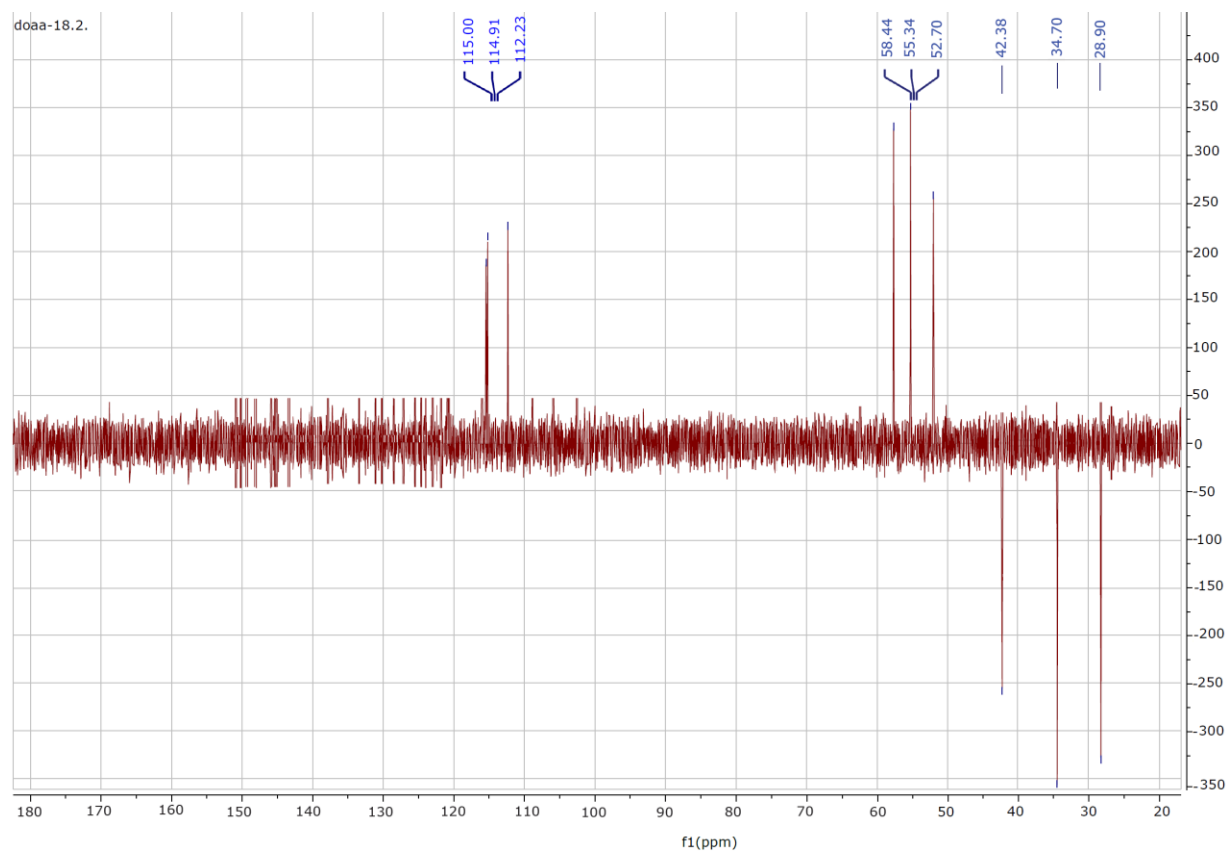
S6: (+) ESI-MS spectrum of boldine metabolite **1**.



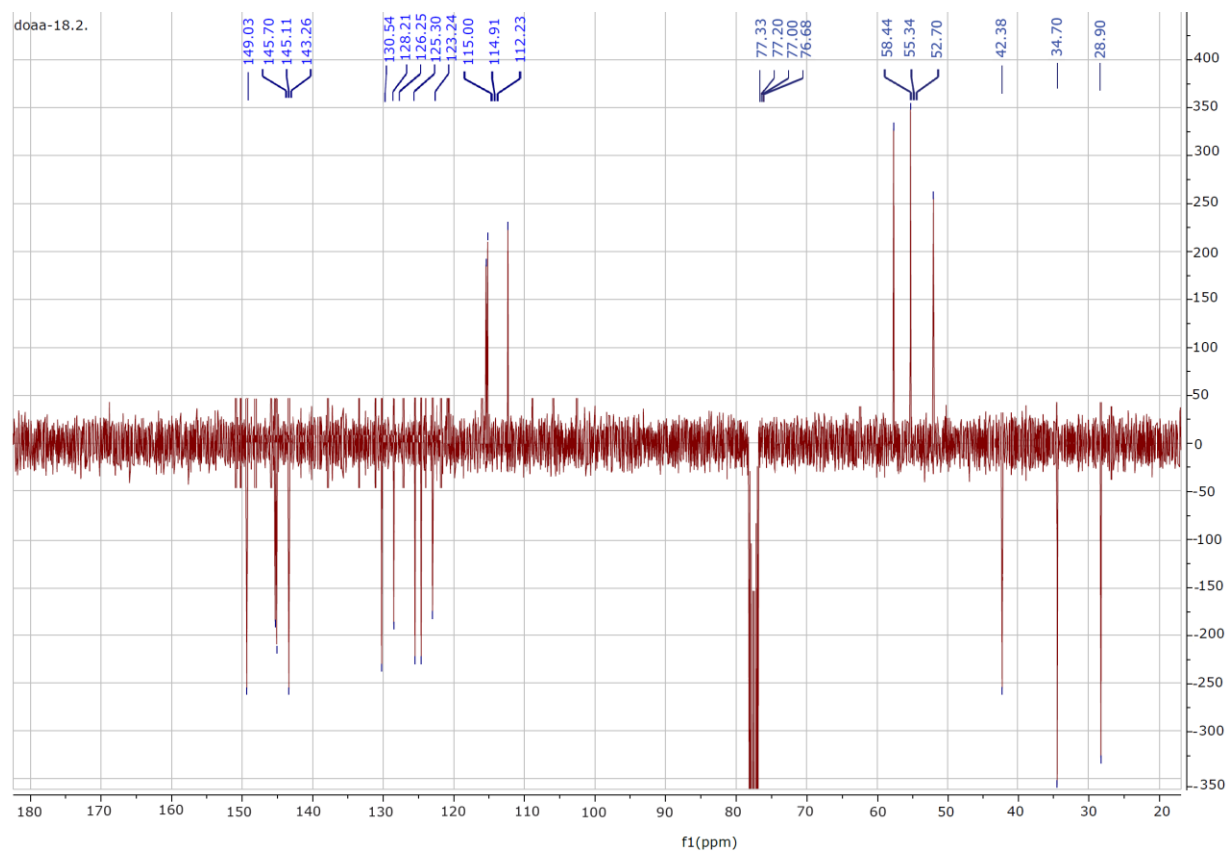
S7:  $^1\text{H}$  NMR spectrum of boldine metabolite-**2** (400 MHz,  $\text{CDCl}_3$ ).



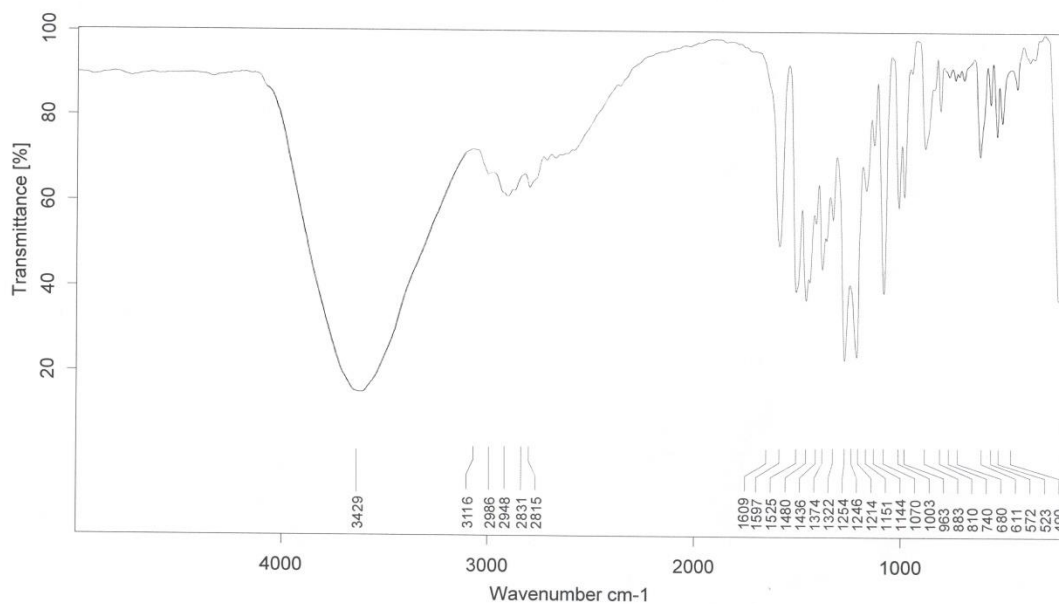
S8:  $^{13}\text{C}$  NMR spectrum of boldine metabolite-2 (100 MHz,  $\text{CDCl}_3$ ).



S9: DEPT 135 spectrum of boldine metabolite-**2** (100 MHz, CDCl<sub>3</sub>).



S10: APT spectrum of boldine metabolite-**2** (CDCl<sub>3</sub>).



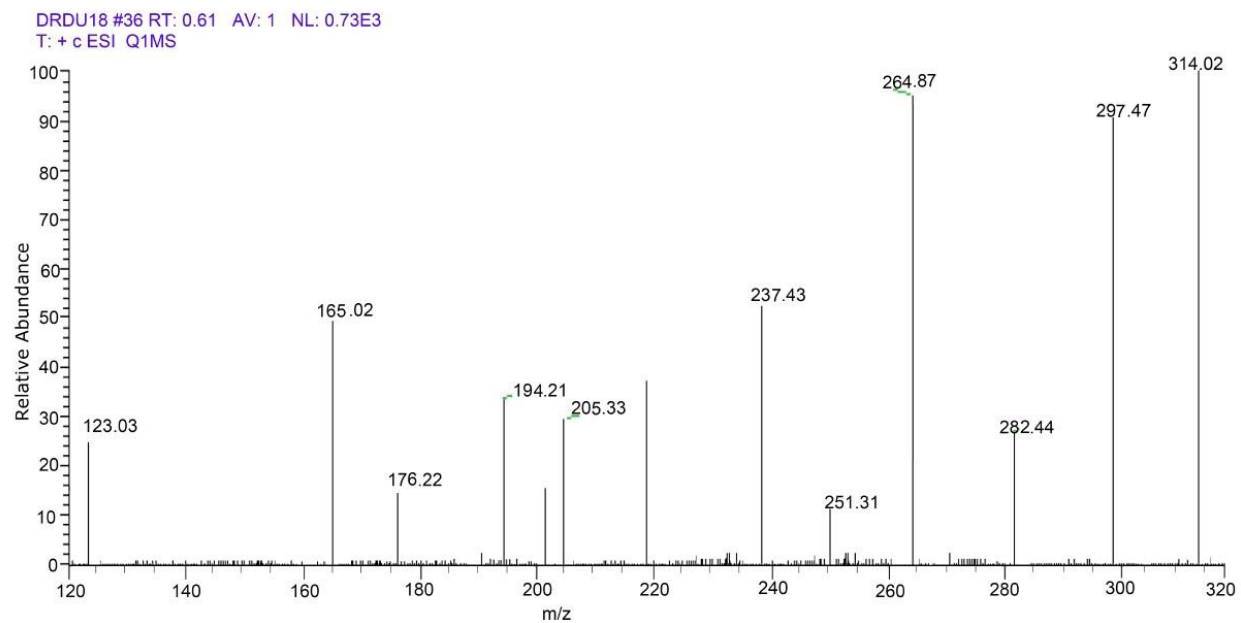
C:\OPUS\_7.0.122\MEAS\SAMPLE\Dr.DAAA ELEWA 22-5-2017\18

18

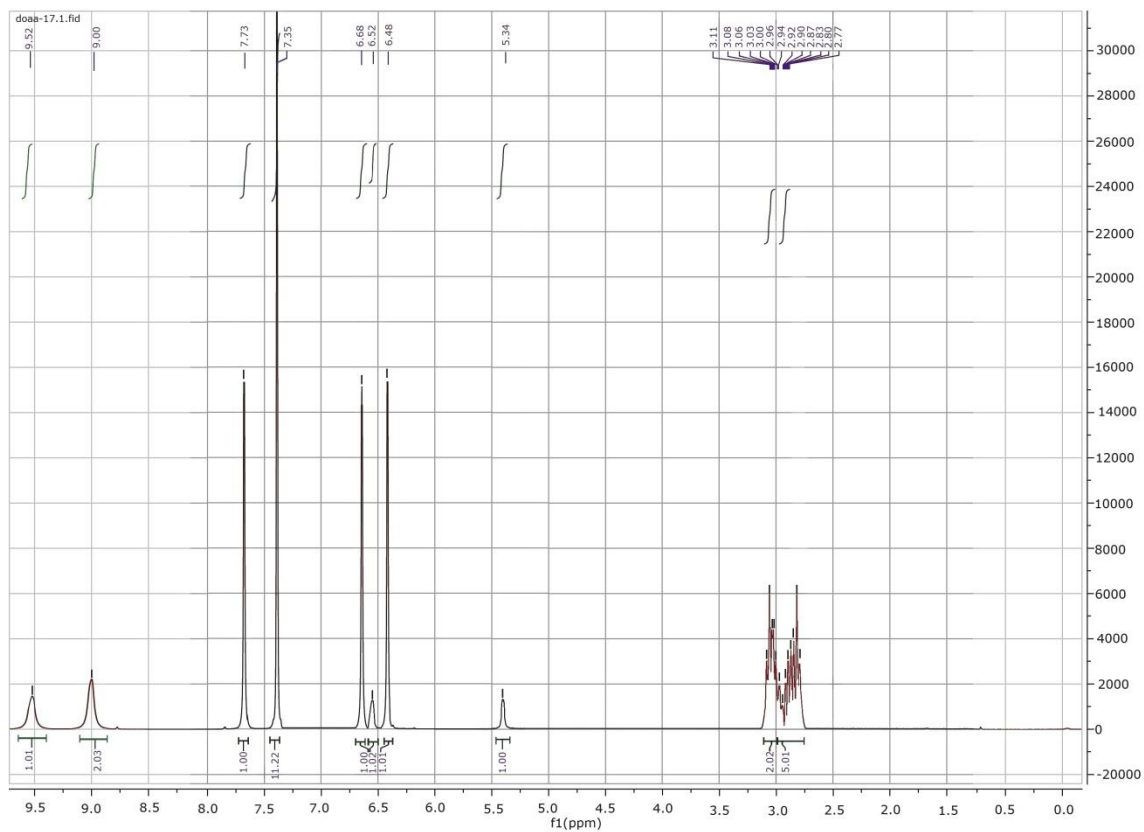
Instrument type and / or accessory

Signature:

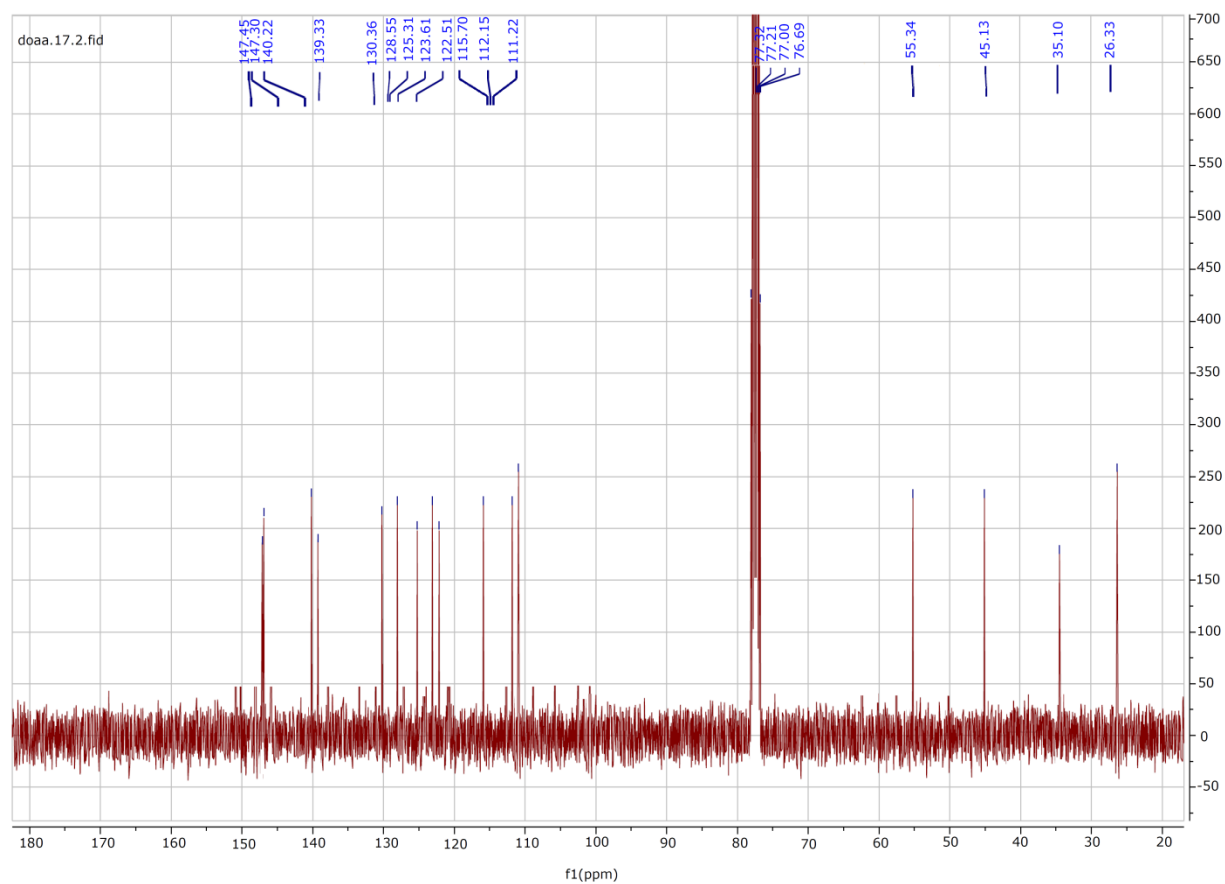
S11: IR spectrum of boldine metabolite **-2**.



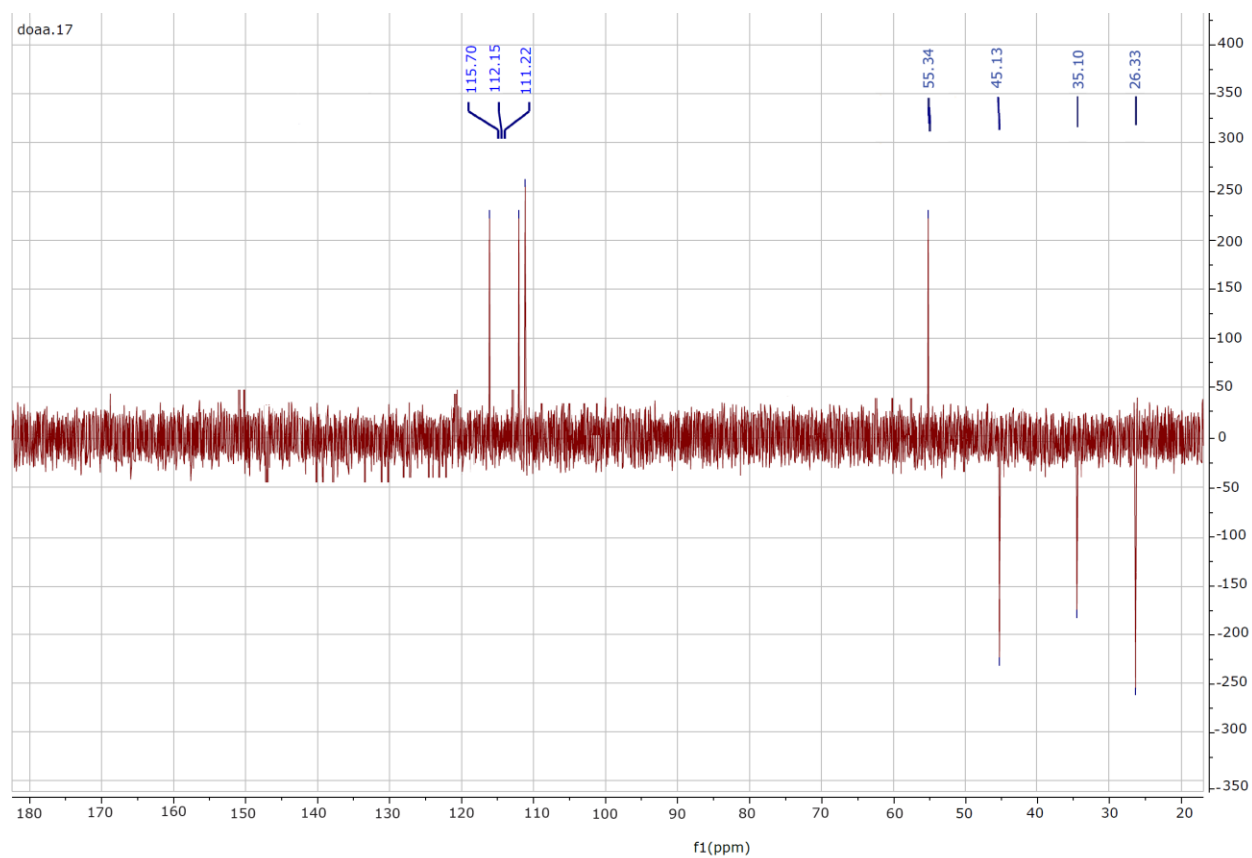
S12: (+) ESI- MS spectrum of boldine metabolite -2.



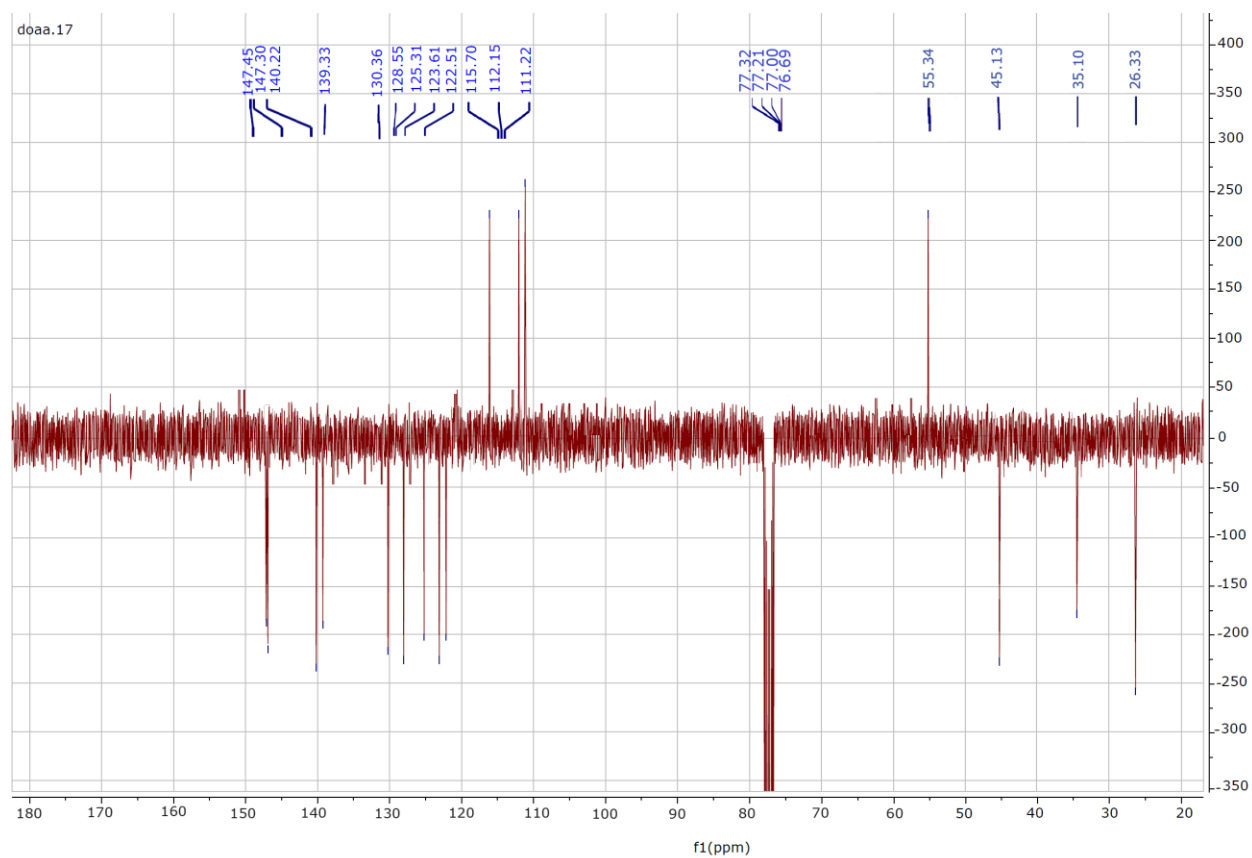
S13:  $^1\text{H}$  NMR spectrum of boldine metabolite-**3** (400 MHz,  $\text{CDCl}_3$ ).



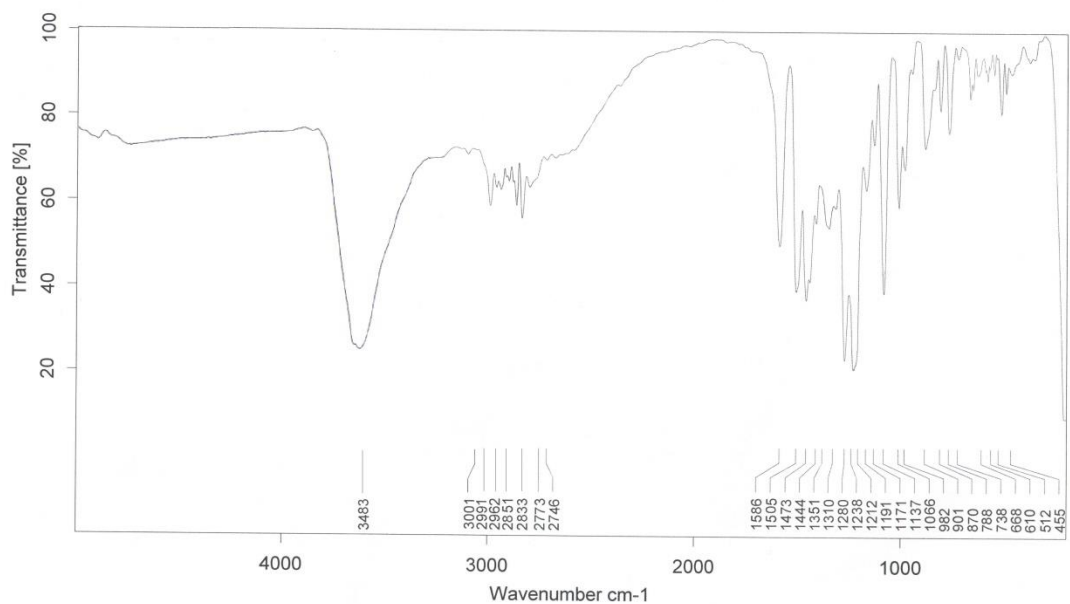
S14:  $^{13}\text{C}$  NMR spectrum of boldine metabolite-3 (100 MHz,  $\text{CDCl}_3$ ).



S15: DEPT 135 spectrum of boldine metabolite-**3** (100 MHz,  $\text{CDCl}_3$ ).



S16: APT spectrum of boldine metabolite-**3** ( $\text{CDCl}_3$ ).



C:\OPUS\_7.0.122\MEAS\SAMPLE\Dr.DAAA ELEWA 22-5-2017\17

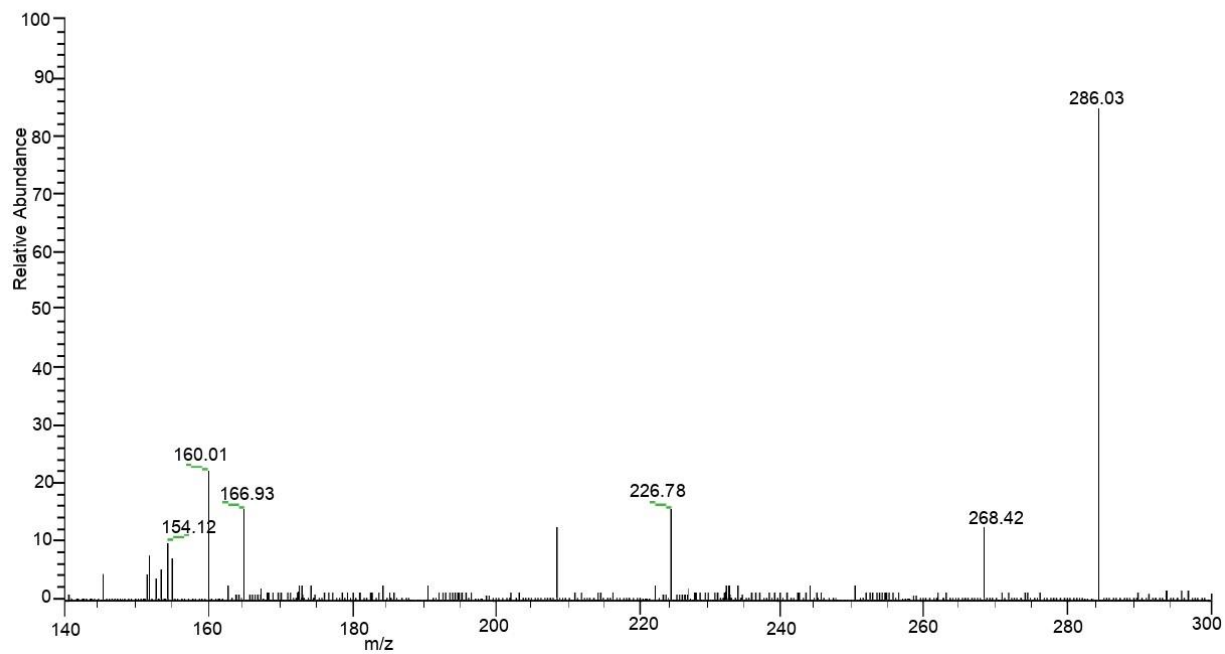
17

Instrument type and / or accessory

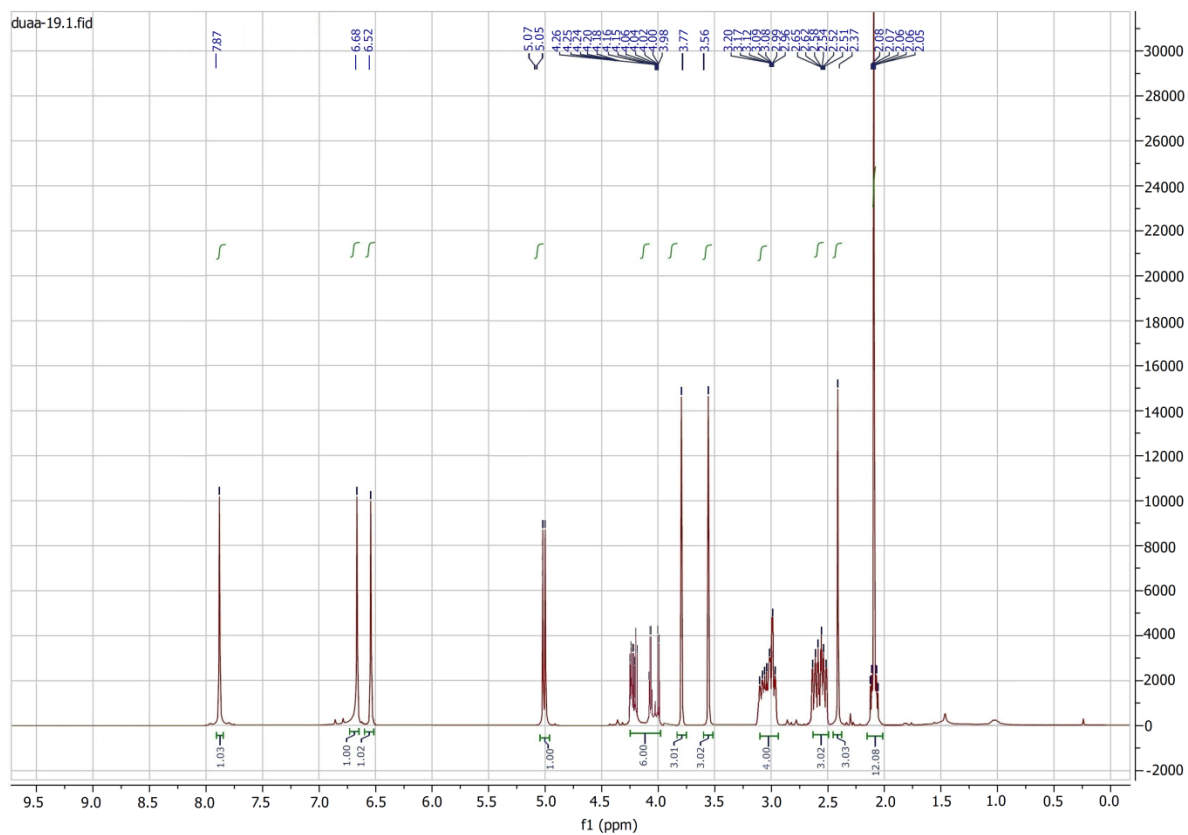
Signature:

S17: IR spectrum of boldine metabolite **-3**.

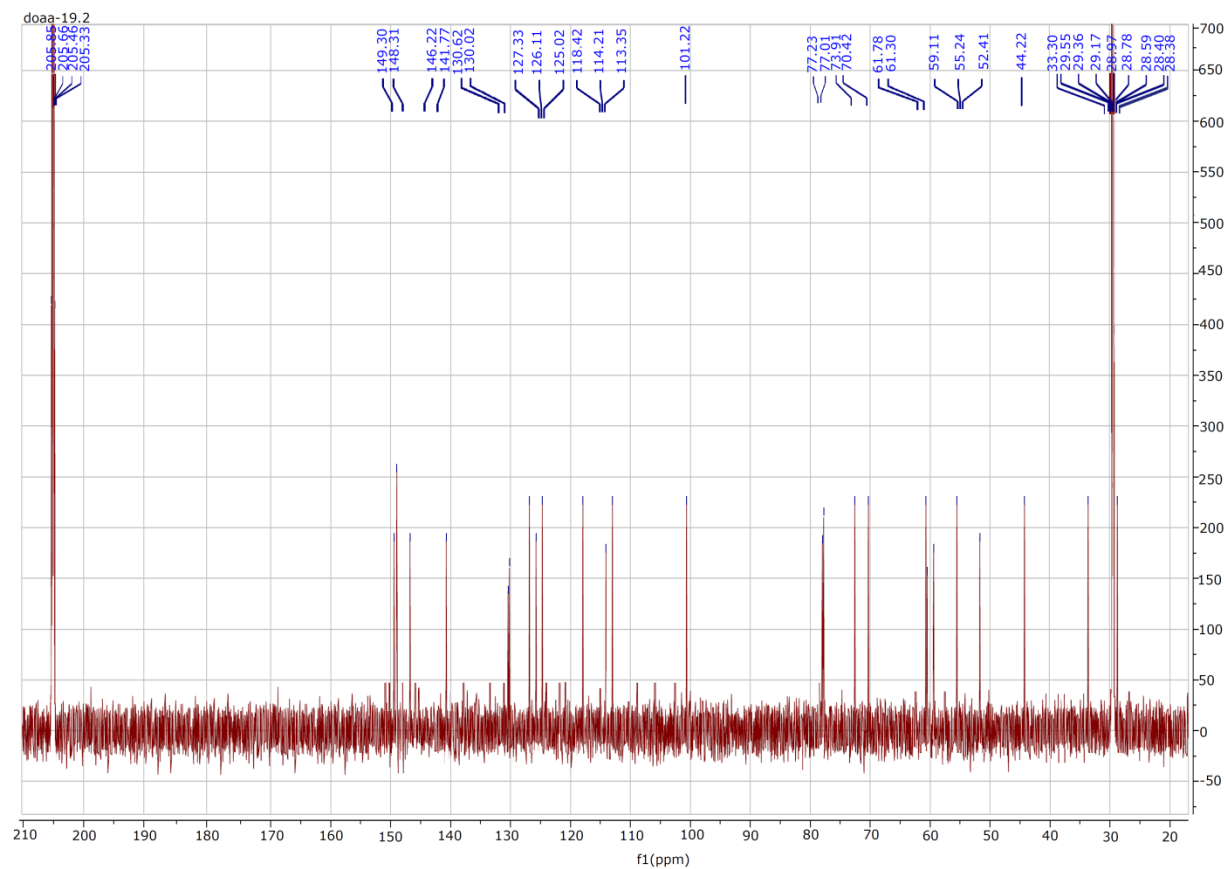
DRDU17 #66 RT: 0.42 AV: 1 NL: 0.21E5  
T: + c ESI Q1MS



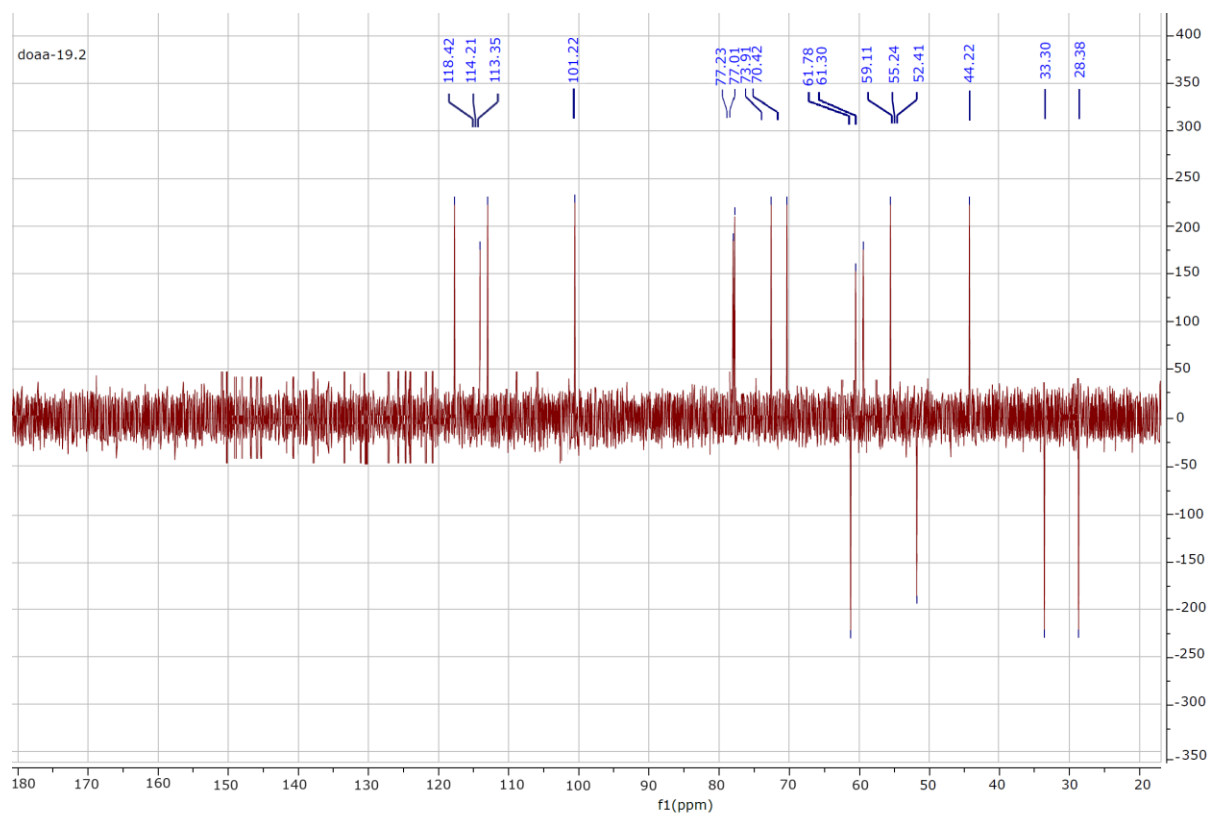
S18: (+) ESI- MS spectrum of boldine metabolite -3.



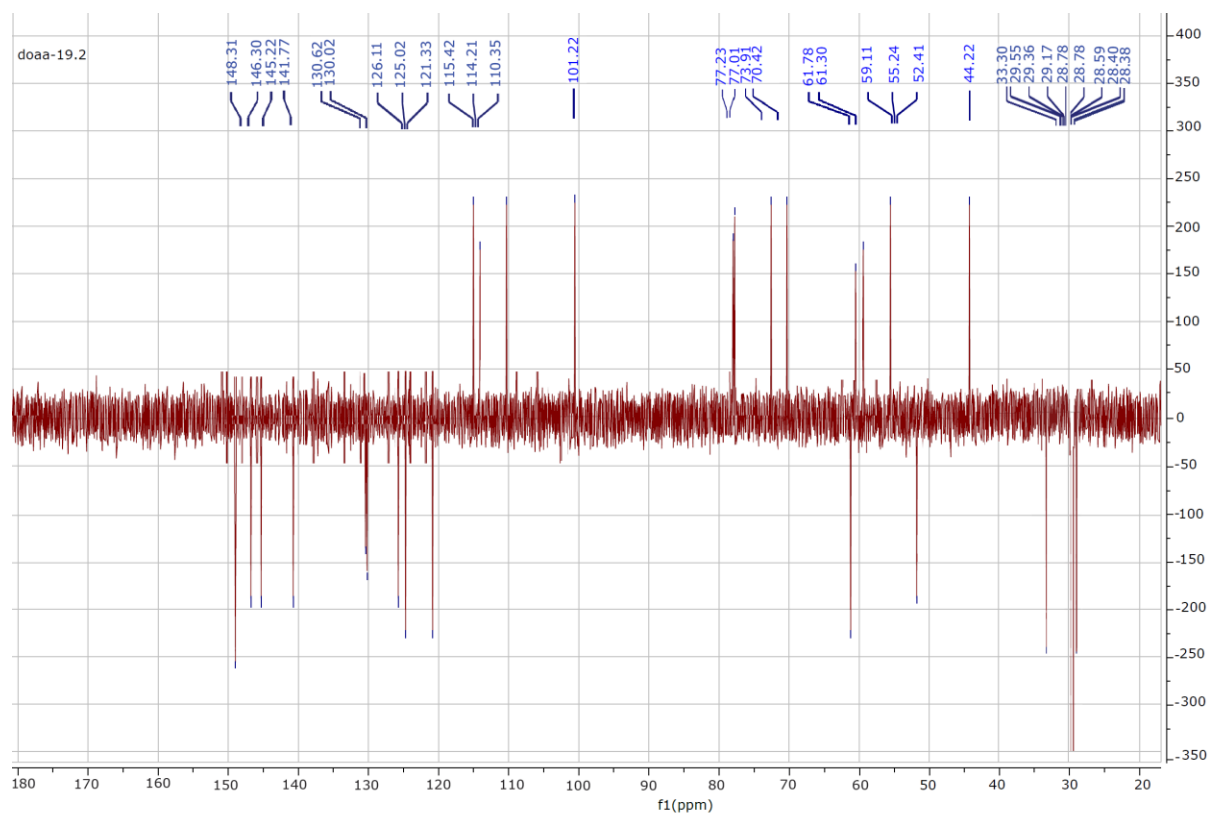
S19:  $^1\text{H}$  NMR spectrum of boldine metabolite-4 (400 MHz, Acetone- $d_6$ ).



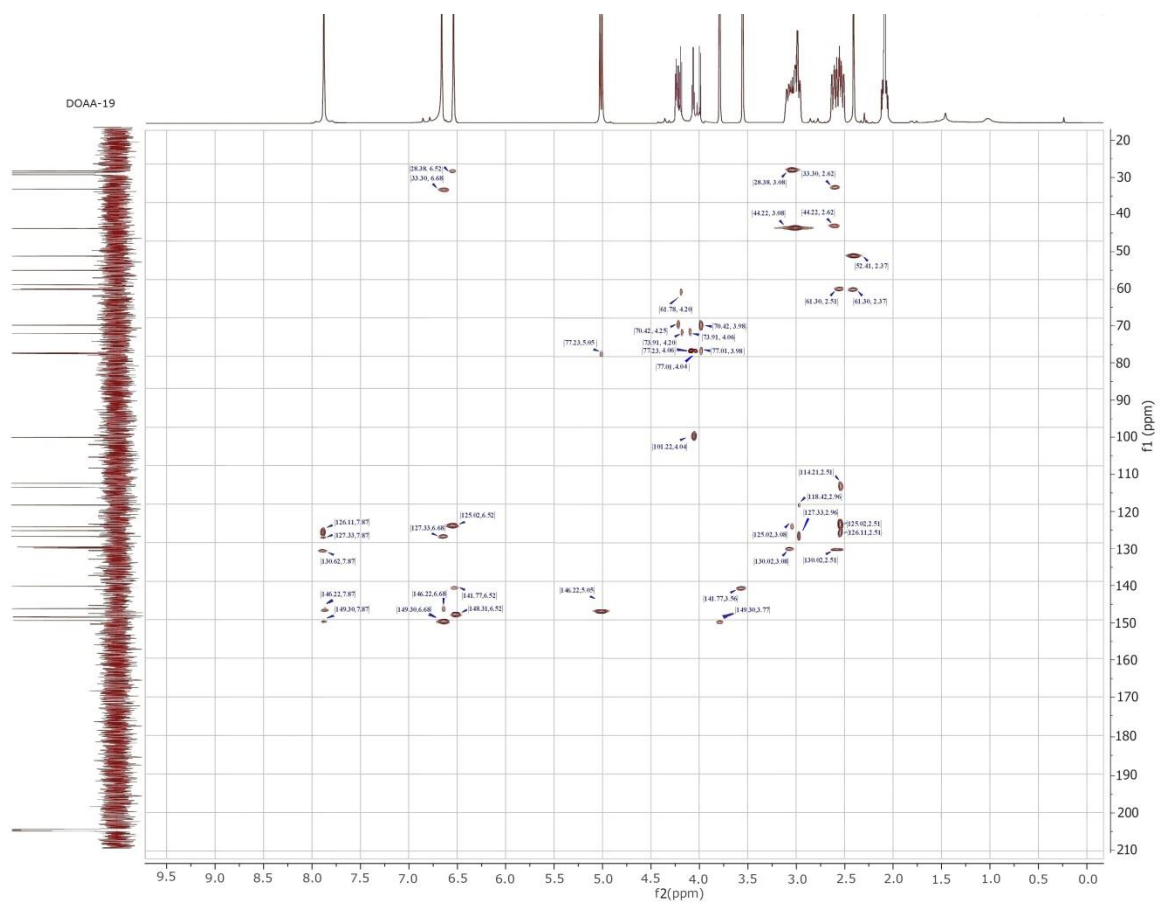
S20:  $^{13}\text{C}$  NMR spectrum of boldine metabolite-4 (100 MHz, Acetone- $d_6$ ).



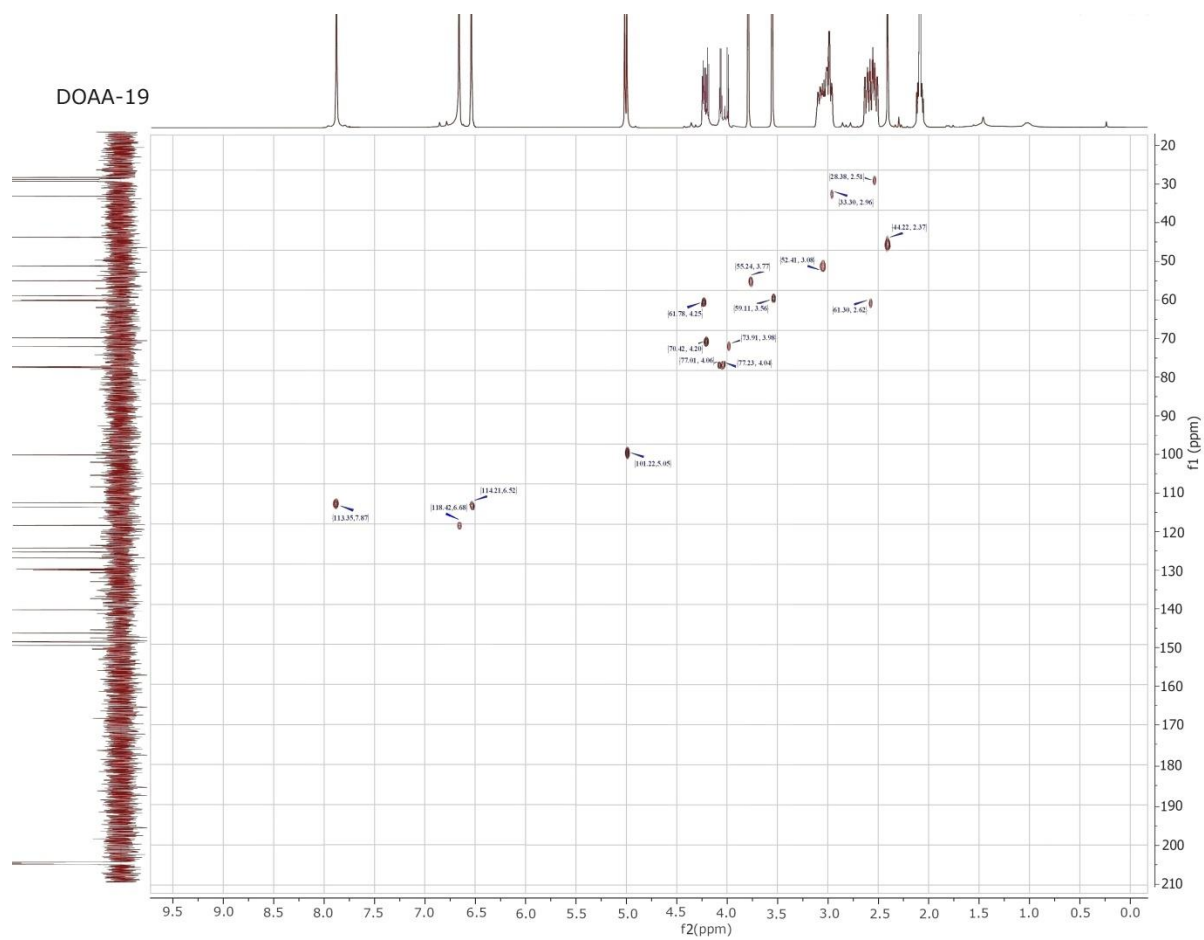
S21: DEPT135 spectrum of boldine metabolite-**4** (100 MHz, Acetone-*d*6).



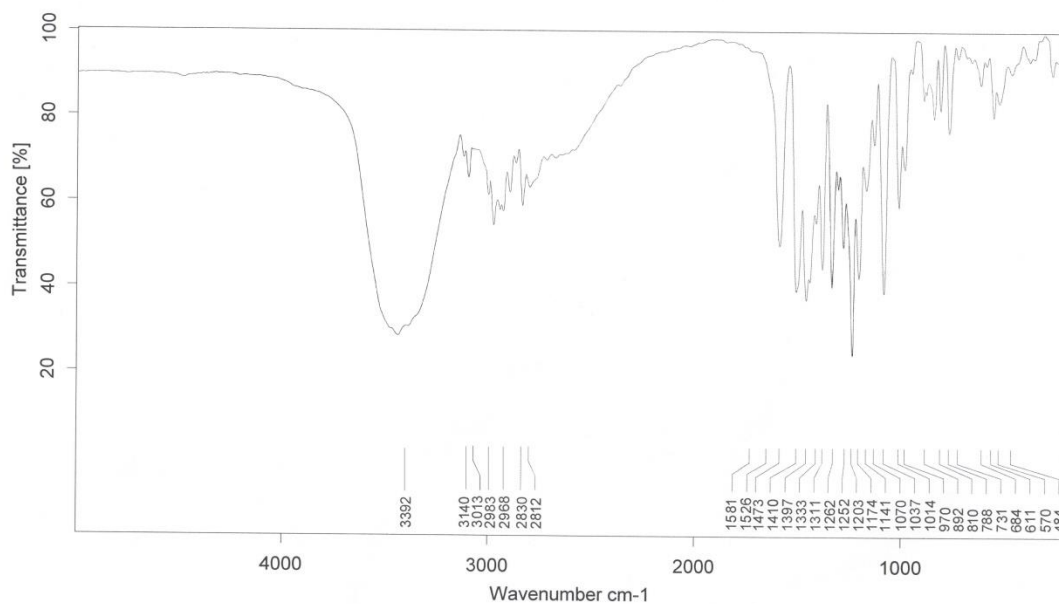
S22: APT spectrum of boldine metabolite-4 (100 MHz, Acetone-*d*6).



S23: HMBC NMR spectrum of boldine metabolite-4 (Acetone- $d_6$ ).



S24: HMQC NMR spectrum of boldine metabolite-4 (Acetone- $d_6$ ).



C:\OPUS\_7.0.122\MEAS\SAMPLE\Dr.DAAA ELEWA 22-5-2017\19

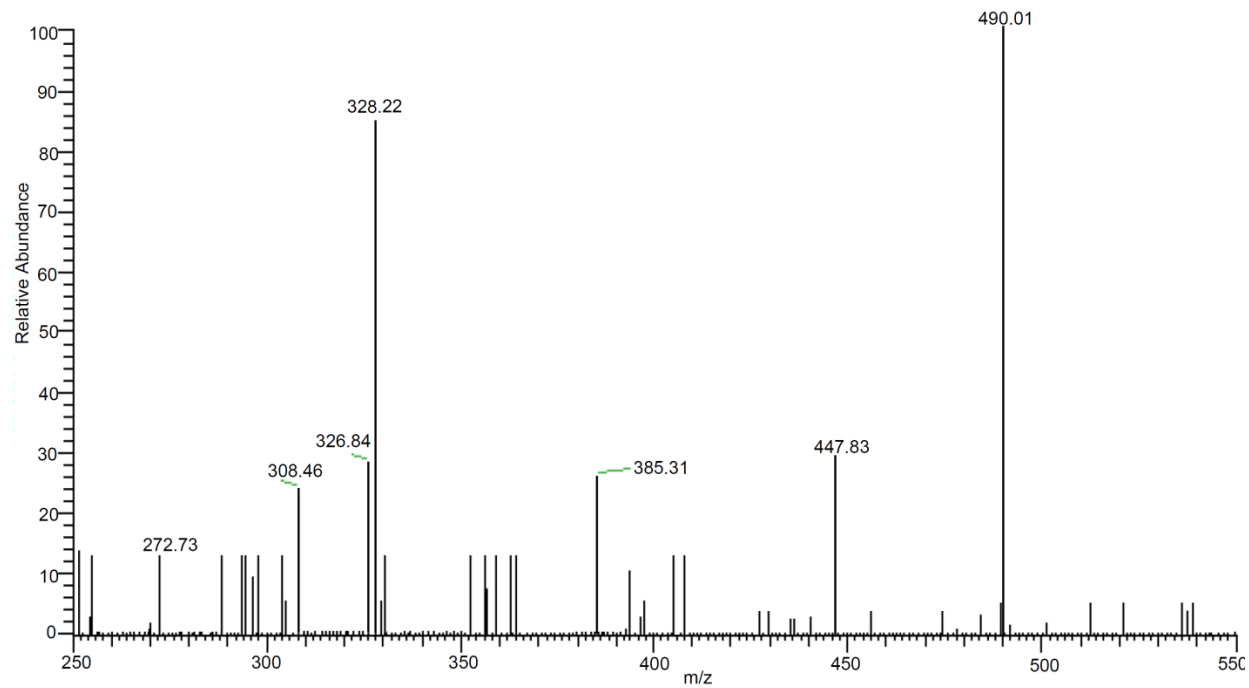
19

Instrument type and / or accessory

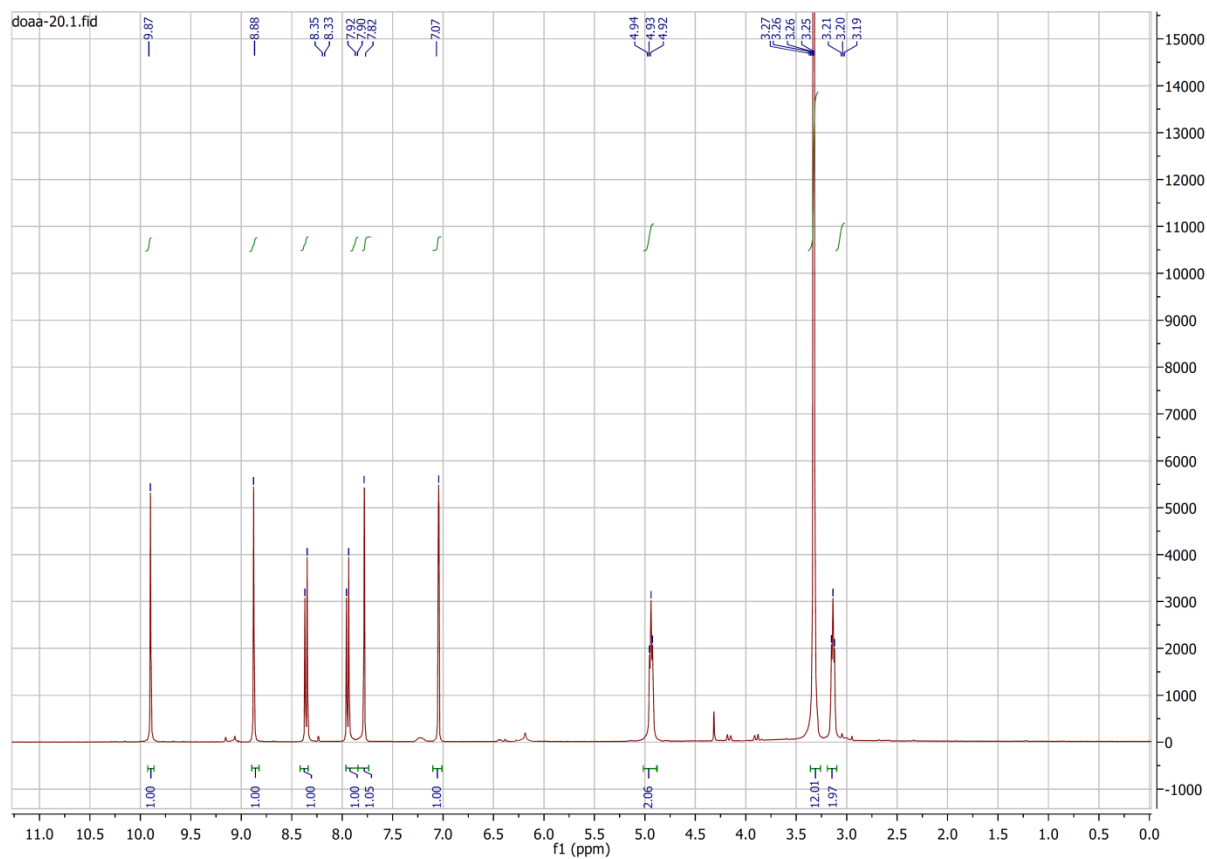
Signature:

S25: IR of boldine metabolite-4.

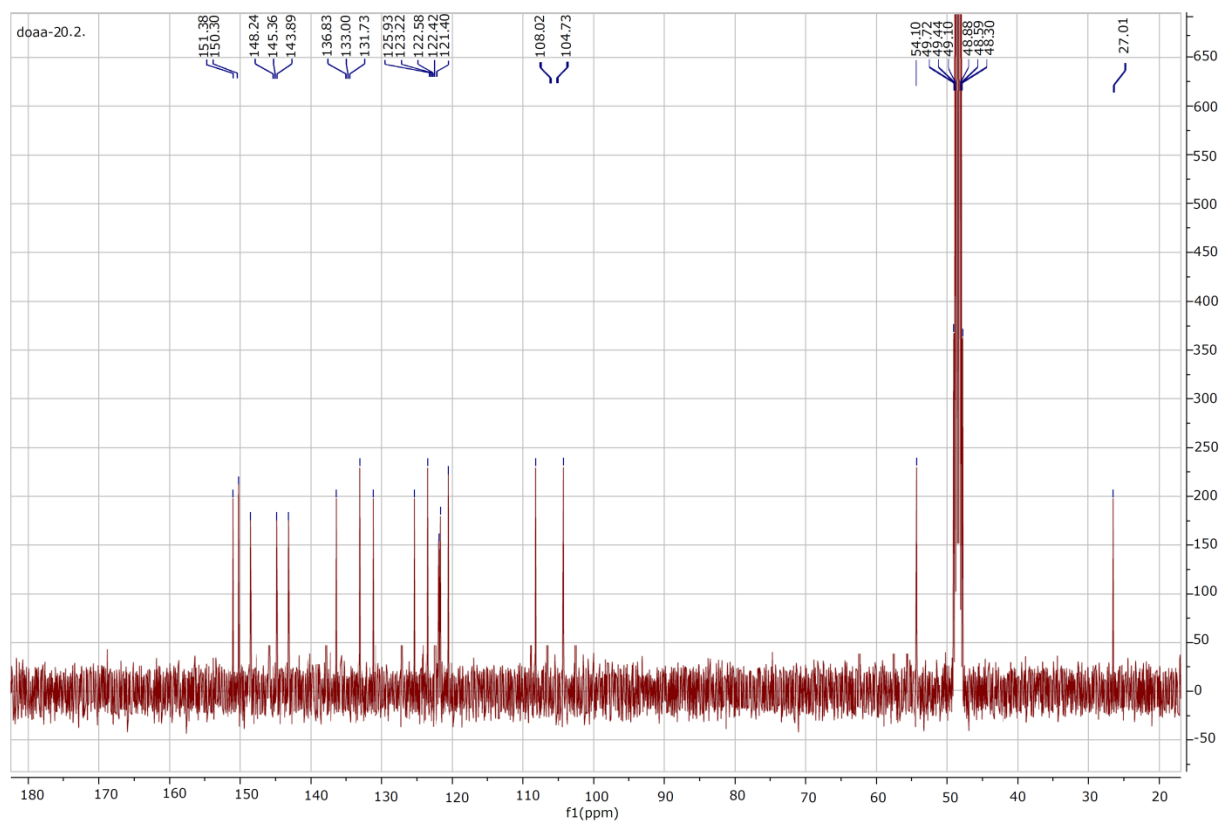
DRDU19 #54 RT: 0.21 AV: 1 NL: 0.34E8  
T: + c ESI Q1MS



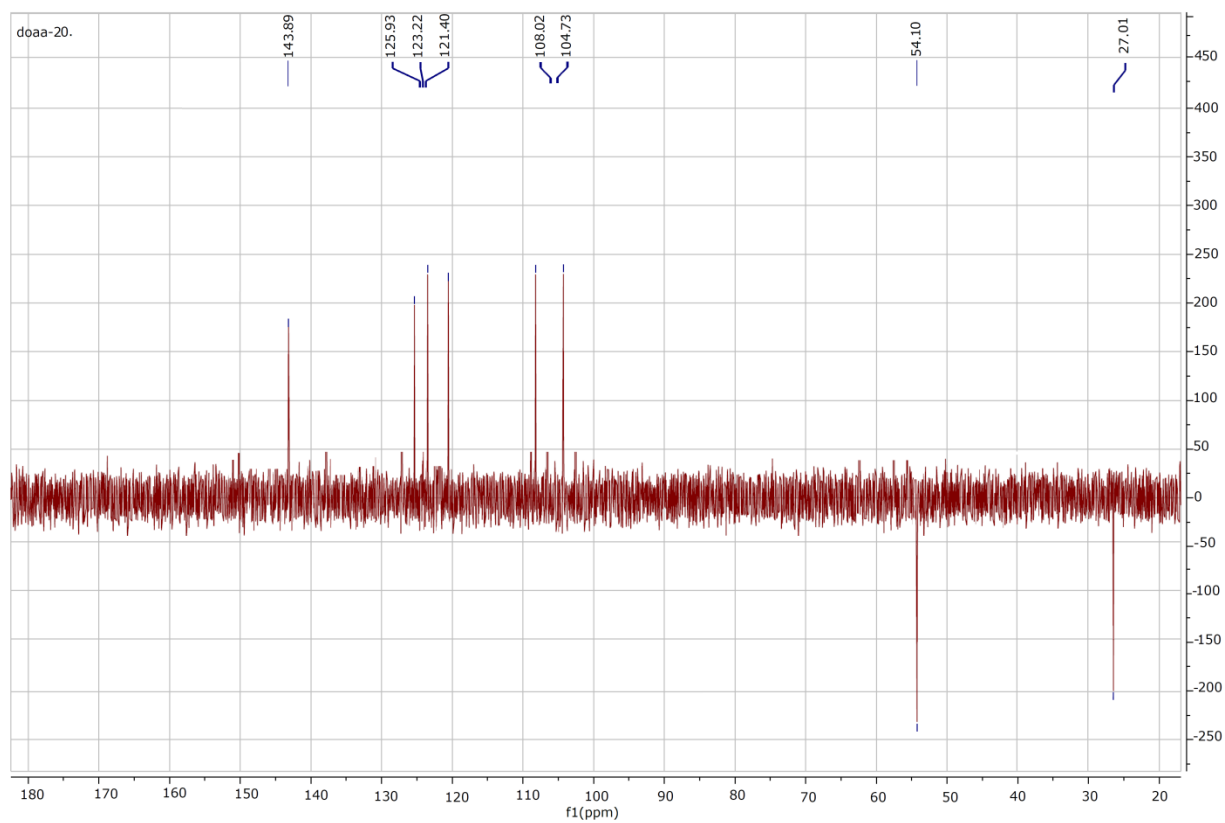
S26: (+) ESI- MS Mass spectrum of boldine metabolite-4.



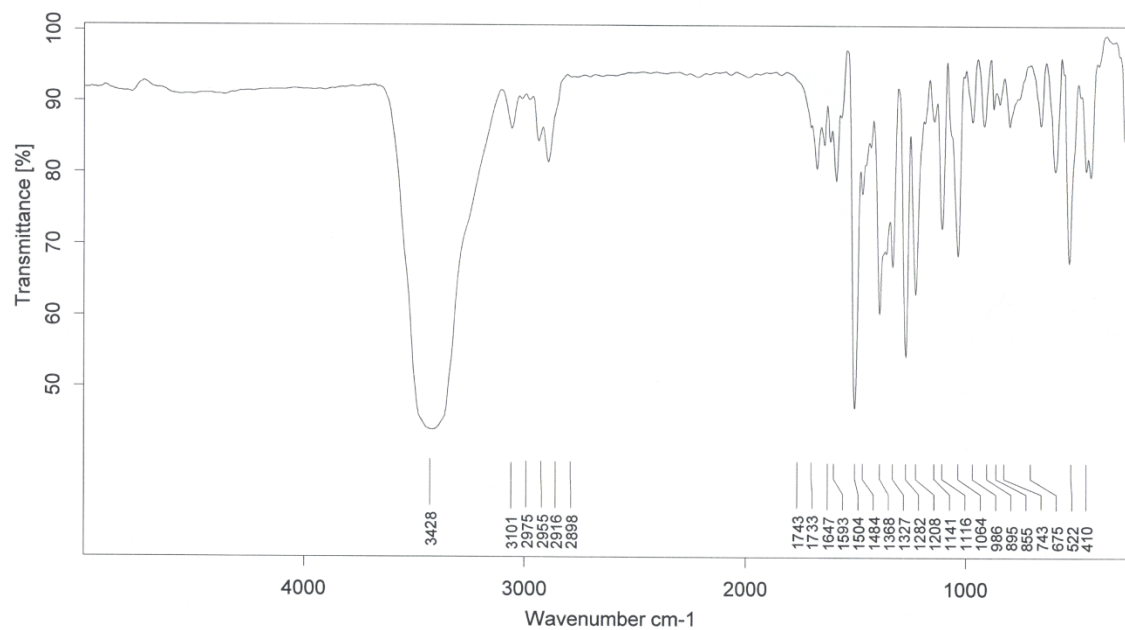
S27:  $^1\text{H}$  NMR spectrum of berberine metabolite-5 (400 MHz, MeOD).



S28:  $^{13}\text{C}$  NMR spectrum of berberine metabolite-**5** (100 MHz, MeOD).



S29: DEPT 135 spectrum of berberine metabolite-**5** (100 MHz, MeOD).



C:\OPUS\_7.0.122\MEAS\SAMPLE\Dr.Doaa Elewa 23-10-2017220\20

20

Instrument type and / or accessory

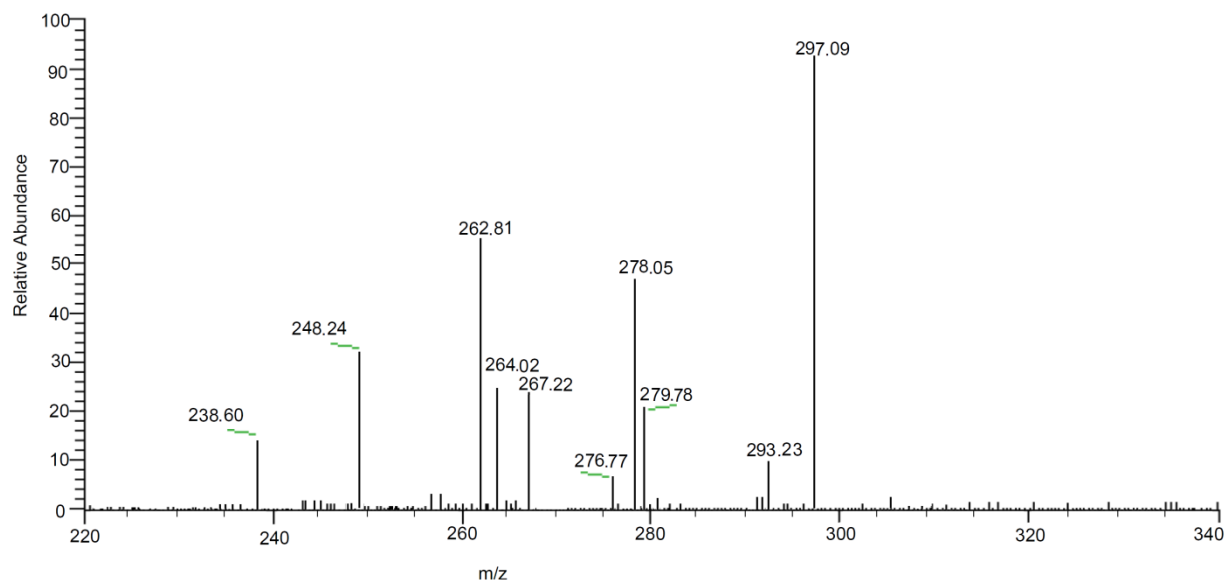
Signature:

23-Oct-17

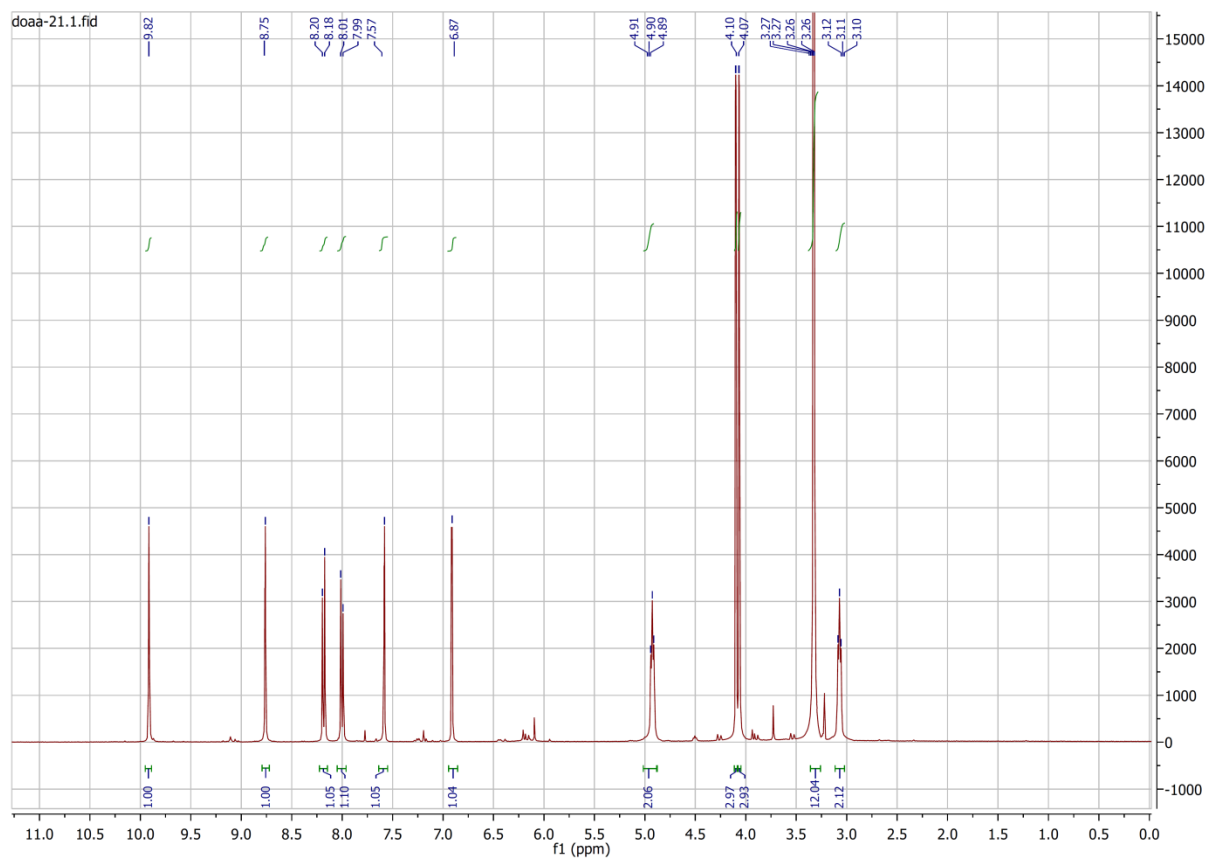
12:16:15 PM

S30: IR spectrum of berberine metabolite-5.

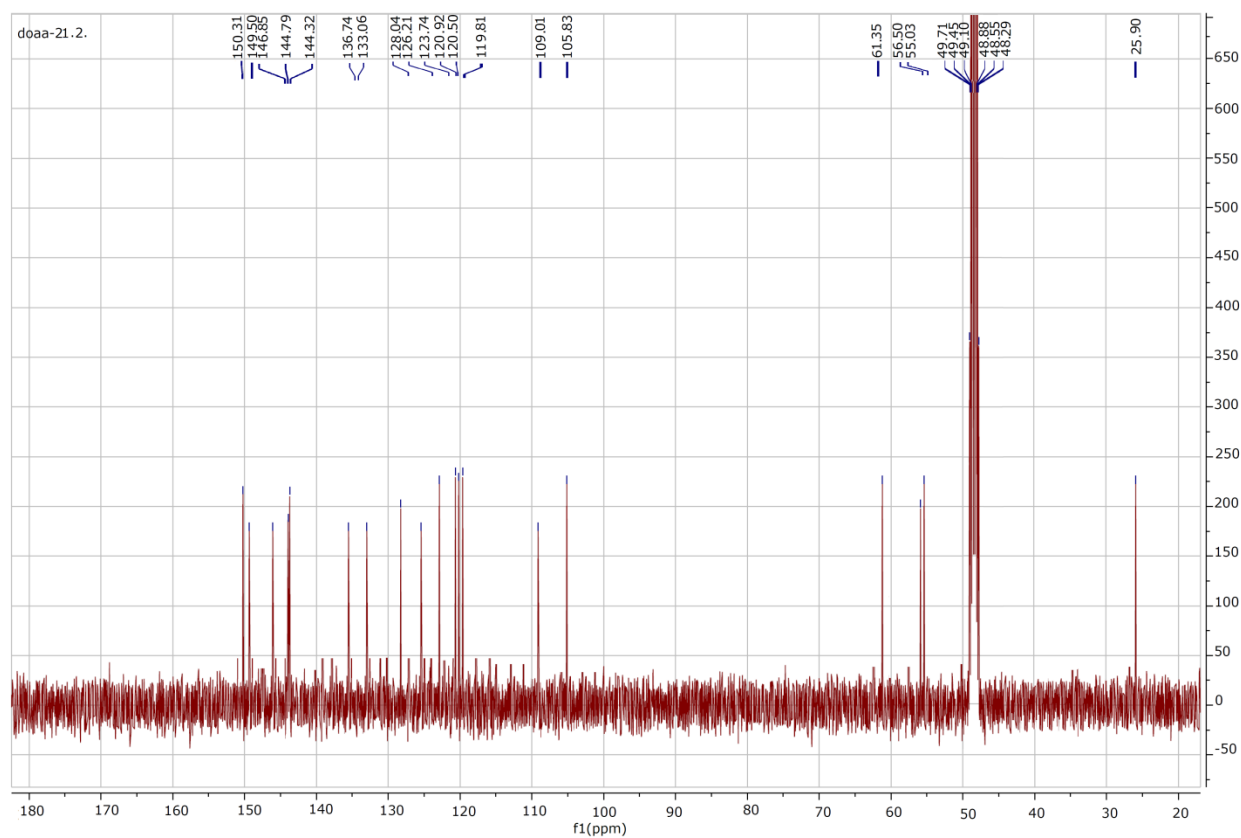
DRDU20 #10 RT: 0.20 AV: 1 NL:0.50E4  
T: + c ESI Q1MS



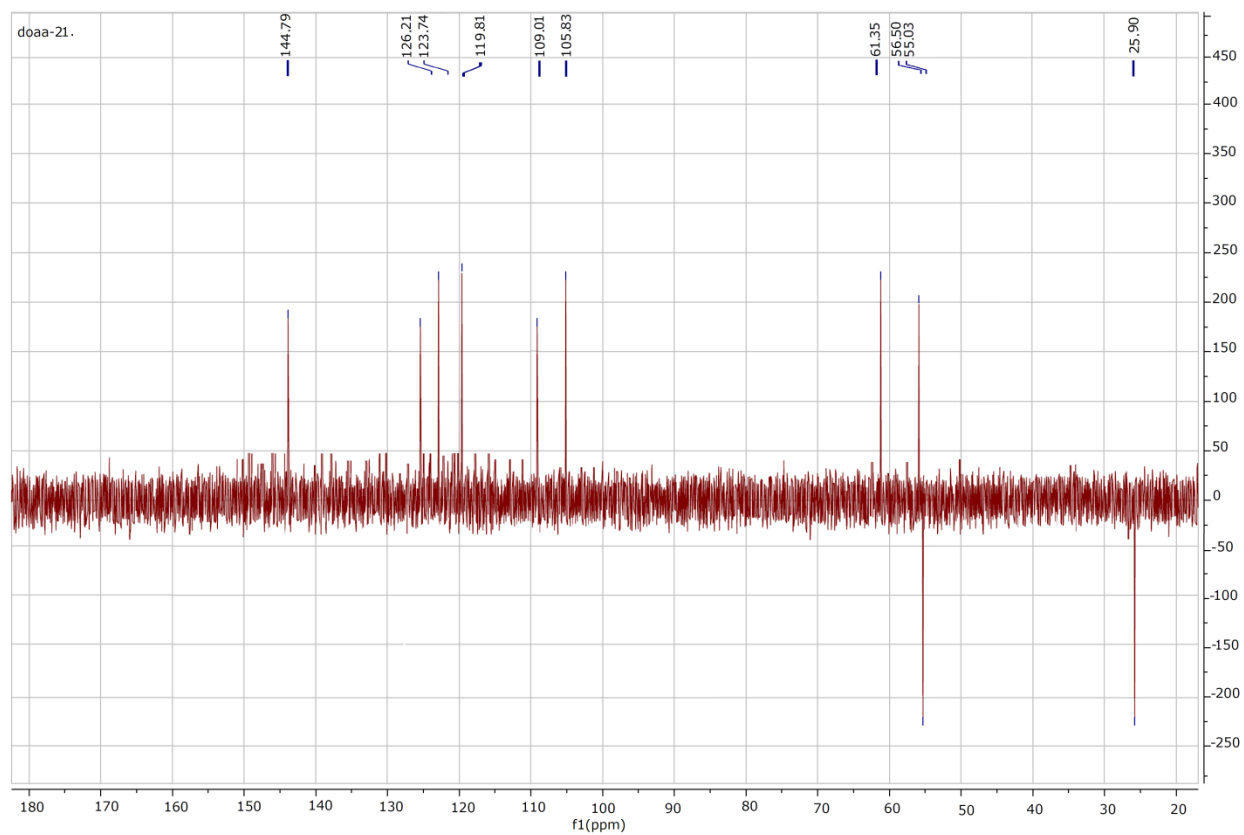
S31: (+) ESI- MS Mass spectrum of berberine metabolite-**5**.



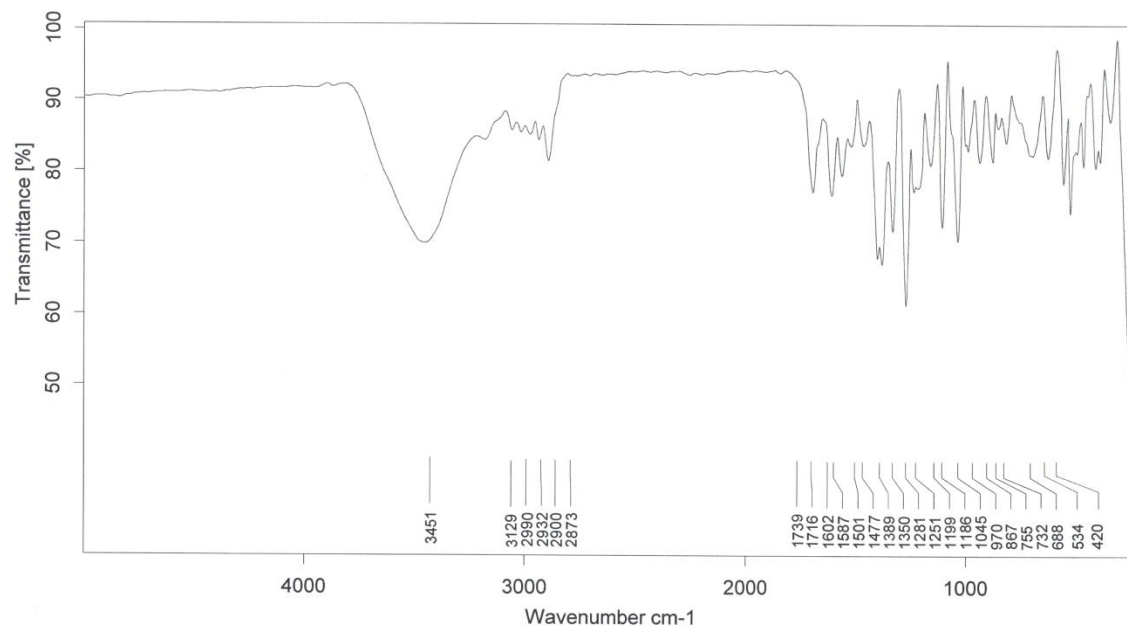
S32:  $^1\text{H}$  NMR spectrum of berberine metabolite-6 (400 MHz, MeOD).



S33:  $^{13}\text{C}$  NMR spectrum of berberine metabolite-**6** (100 MHz, MeOD).



S34: DEPT 135 spectrum of berberine metabolite-**6** (100 MHz, MeOD).



C:\OPUS\_7.0.122\MEAS\SAMPLE\Dr.Doaa Elewa 23-10-2017220\21

21

Instrument type and / or accessory

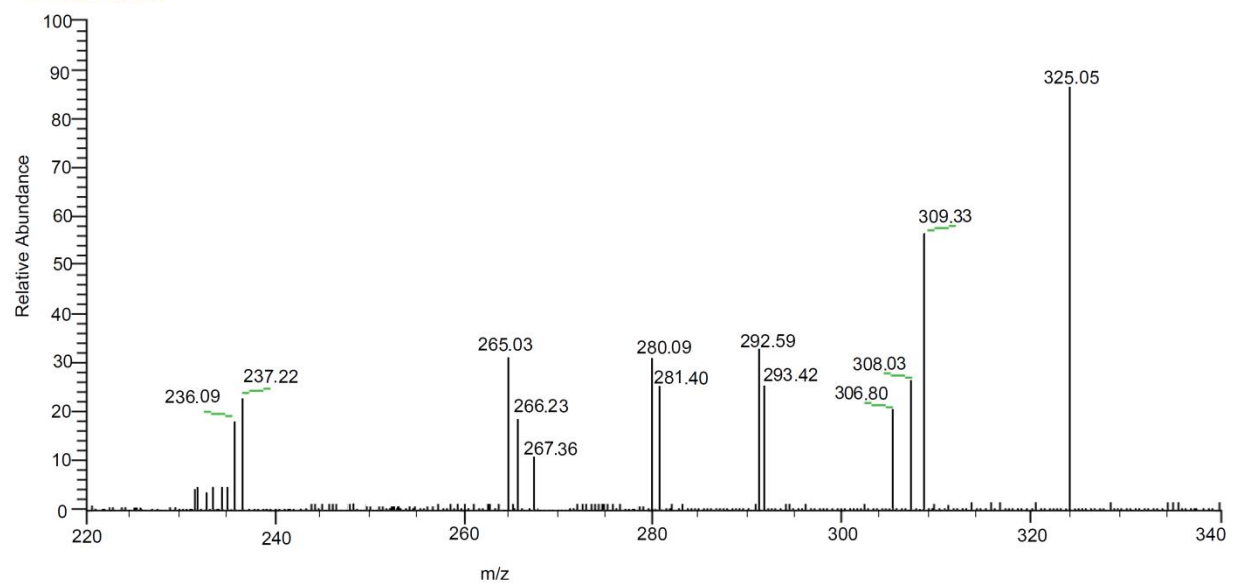
Signature:

23-Oct-17

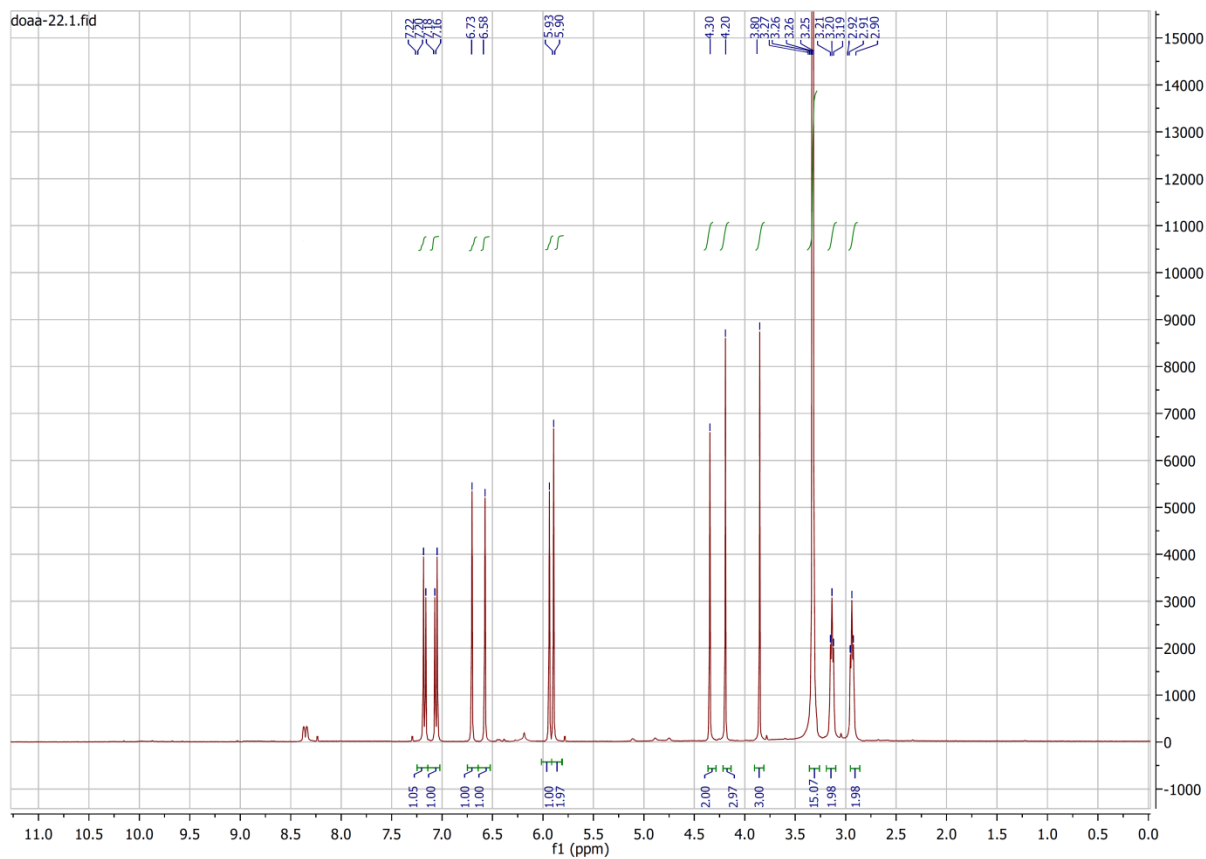
12:22:33 PM

S35: IR spectrum of berberine metabolite-6.

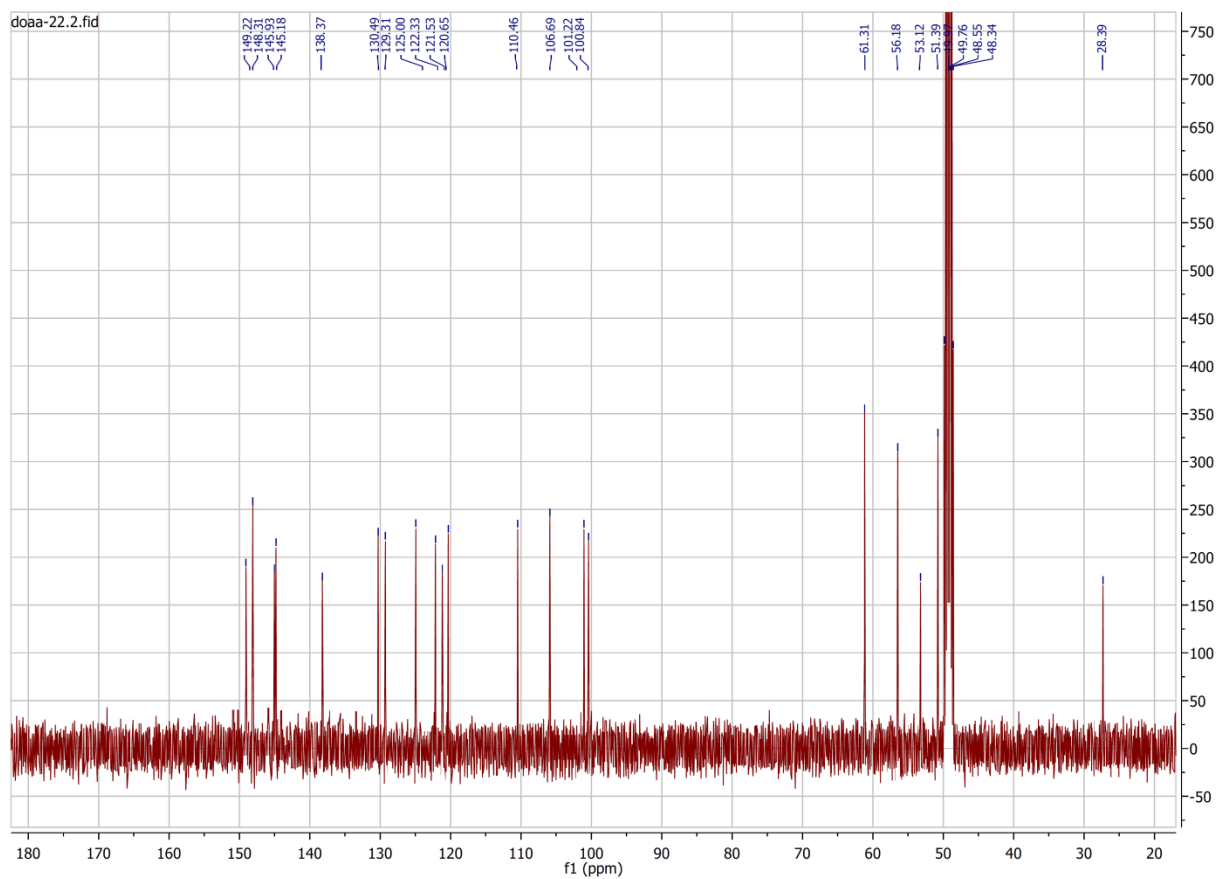
DRDU21 #11 RT: 0.40 AV: 1 NL:0.50E4  
T: + c ESI Q1MS



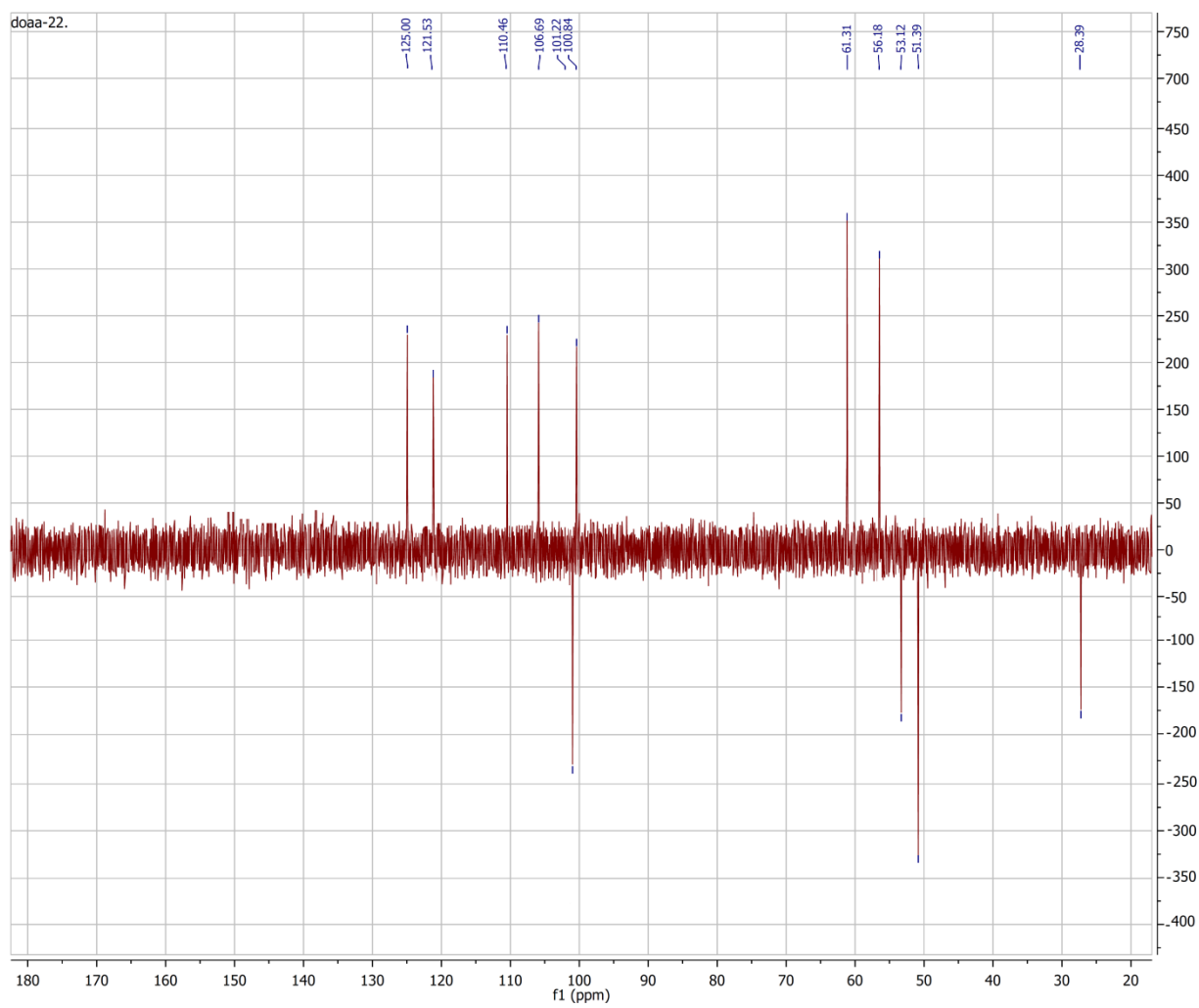
S36: (+) ESI-MS analysis of berberine metabolite-6.



S37:  $^1\text{H}$  NMR spectrum of berberine metabolite-7 (400 MHz, MeOD).

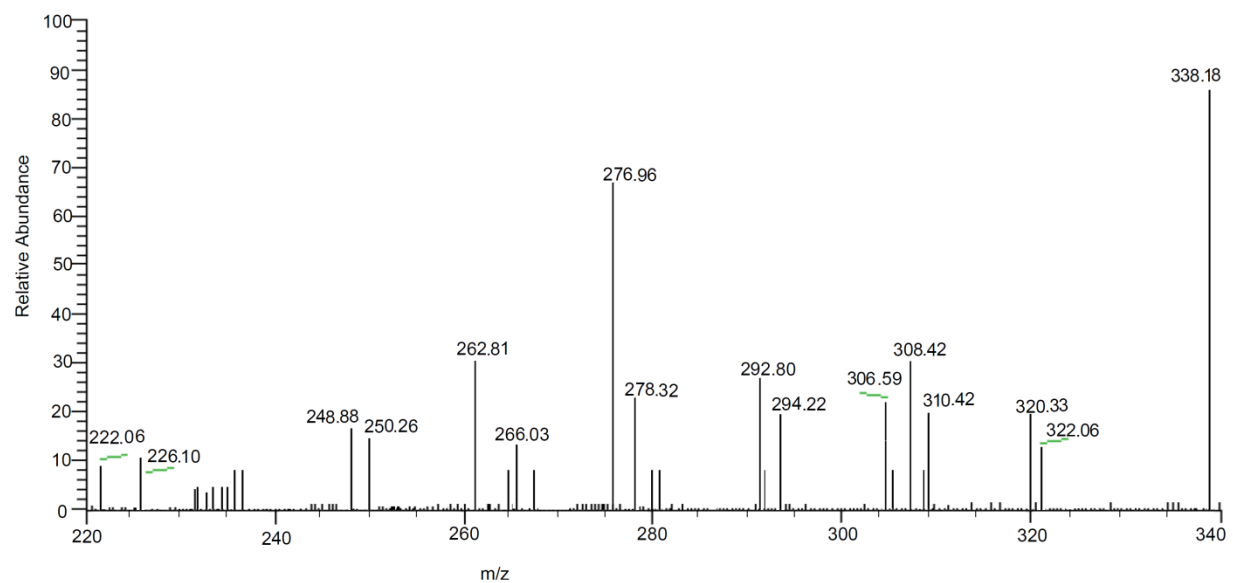


S38:  $^{13}\text{C}$  NMR spectrum of berberine metabolite-**7** (100 MHz, MeOD).



S39: DEPT 135 spectrum of berberine metabolite-**7** (100 MHz, MeOD).

DRDU22 #11 RT: 0.55 AV: 1 NL:0.50E1  
T: + c ESI Q1MS



S40: (+) ESI-MS analysis of berberine metabolite-7.