Electronic Supplementary Material (ESI) for Organic Chemistry Frontiers.

Supporting Information

Evolution of Two Routes for Asymmetric Total Synthesis of Tetrahydroprotoberberine Alkaloids

Jingxun Yu, Zhihong Zhang, Shiqiang Zhou, Wei Zhang, Rongbiao Tong*

Department of Chemistry, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong, China.

Email: rtong@ust.hk

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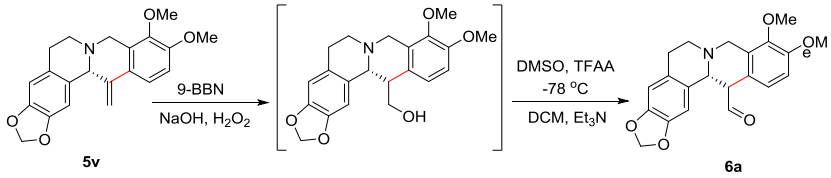
1. General Information

Reactions were carried out in oven or flame-dried glassware under a nitrogen atmosphere, unless otherwise noted. Tetrahydrofuran (THF) was freshly distilled before use from sodium using benzophenone as indicator. Dichloromethane was freshly distilled before use from calcium hydride (CaH_2). All other solvents were dried over 3Å or 4Å molecular sieves. Solvents used in workup, extraction and column chromatography were used as received from commercial suppliers without prior purification. Reactions were magnetically stirred and monitored by thin layer chromatography (TLC, 0.25 mm) on Merck pre-coated silica gel plates. Flash chromatography was performed with silica gel 60 (particle size 0.040 – 0.062 mm) supplied by Grace. ^{1}H and ^{13}C NMR spectra were recorded on a Bruker AV-400 spectrometer (400 MHz for ^{1}H, 100 MHz for ^{13}C). Chemical shifts are reported in parts per million (ppm) as values relative to the internal chloroform (7.26 ppm for ^{1}H and 77.0 ppm for ^{13}C). Abbreviations for signal coupling are as follows: s, singlet; d, doublet; t, triplet; q, quartet; m, multiplet. Optical rotations were measured on a JASCO Perkin-Elmer model P-2000 polarimeter. Enantiomeric ratios were determined by chiral HPLC with Agilent 1290 Infinity UPLC.

2. Asymmetric Synthesis of Tetrahydroprotoberberines with Redox-A^3 Reaction

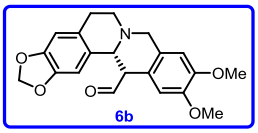
General Procedure for Hydroboration Oxidation Reaction with 5-v:



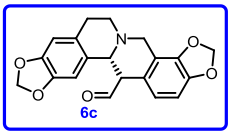
To a round-bottom flask were added **5v** (45 mg, 0.13 mmol) and then 9-BBN (0.5 mol/L, 2.6 mL, 13 mmol) under nitrogen atmosphere, and the mixture was heated to 60 °C and stirred for 12 h. The mixture was then cooled to 0 °C followed by addition of 3 N NaOH (0.4 ml) and 30% H_2O_2 (0.4 mL) sequentially, and the resulting mixture was stirred for 2h at ambient temperature. The biphasic mixture was separated, and the aqueous layer was extracted with EA (3 x 4 mL). The combined organic layers were washed with saturated aqueous Na_2SO_3 solution and brine, dried over anhydrous Na_2SO_4, and concentrated in vacuo. The crude product was subjected to Swern oxidation without further purification.

General Procedure for Swern Oxidation:

To a solution of dimethyl sulfoxide (58 µL, 1.6 mmol) in dry dichloromethane (3 mL) under a nitrogen atmosphere was added dropwise trifluoroacetic anhydride (57 µL, 0.81 mmol) at -78°C for 30 min. Then a solution of **5aa** (30 mg, 0.08 mmol) in dry dichloromethane (1 mL) was added dropwise. After stirring for 1 h, triethylamine (342 µL, 2.5 mmol) was added slowly. The reaction mixture was warmed to room temperature after 10 mins, and quenched with saturated aqueous sodium bicarbonate and extracted with DCM (3 x 5 mL), the combined organic layers were washed with brine, dried over anhydrous Na_2SO_4, concentrated in vacuo. The crude product was purified by flash chromatography on silica gel (Hexane/EA: 4/1) to give **6a** (12 mg, 0.03 mmol, 41%) as a colorless oil. ^{1}H NMR (400 MHz, $CDCl_3$) δ 9.52 (d, *J* = 3.3 Hz, 1H), 6.97 (d, *J* = 8.5 Hz, 1H), 6.89–6.82 (m, 1H), 6.69 (s, 1H), 6.58 (d, *J* = 2.7 Hz, 1H), 5.97–5.89 (m, 2H), 4.25 (d, *J* = 15.9 Hz, 1H), 3.88 (s, 1H), 3.86 (dd, *J* = 3.0, 1.2 Hz, 6H), 3.85–3.81 (m, 2H), 3.54 (d, *J* = 16.1 Hz, 1H), 3.19 (d, *J* = 9.6 Hz, 1H), 2.74–2.61 (m, 2H). ^{13}C NMR (100 MHz, CDCl3) δ 202.05, 151.40, 146.63, 146.40, 144.98, 129.23, 126.91, 125.23, 123.26, 111.18, 108.56, 106.06, 100.94, 60.65, 60.21, 55.96, 55.80, 53.72, 51.20, 29.66. $[\alpha]_D^{25}$= +165 (*c* = 1, $CHCl_3$); **IR** (film, KBr) ν_{max}: 2920, 2852, 1659, 1577, 1266, 878, 778, 669 cm^{-1}; HRMS (CI$^+$) (*m/z*) calcd. for $C_{21}H_{21}NO_5$ $[M + H]^+$ 368.1498; found 368.1509.

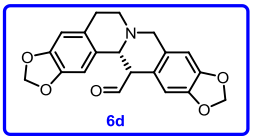


6b ^{1}H NMR (400 MHz, $CDCl_3$) δ 9.56 (d, *J* = 3.7 Hz, 1H), 6.73 (d, *J* = 14.3 Hz, 2H), 6.62 (d, *J* = 12.6 Hz, 2H), 5.94 (s, 2H), 4.03 (d, *J* = 14.6 Hz, 1H), 3.95 – 3.91 (m, 1H), 3.89 (d, *J* = 1.9 Hz, 6H), 3.84 (dd, *J* = 6.6, 2.9 Hz, 1H), 3.70 (d, *J* = 14.6 Hz, 1H), 3.16 (m, 2H), 2.72 – 2.62 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 202.11, 148.64, 148.04, 146.68, 146.44, 129.22, 127.36, 126.88, 121.74, 111.88, 108.82, 108.59, 106.08, 100.97, 60.93, 57.76, 56.18, 56.00, 55.97, 55.94, 51.16, 29.62. $[\alpha]_D^{25}$= +177 (*c* = 1, $CHCl_3$); **IR** (film, KBr) ν_{max}: 2922, 2854, 1658, 1577, 1516, 1200, 1044, 878, 752, 603 cm^{-1}; HRMS (CI$^+$) (*m/z*) calcd. for $C_{21}H_{21}NO_5$ $[M + H]^+$ 368.1498; found 368.1504.

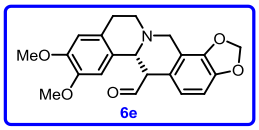


6c ^{1}H NMR (400 MHz, $CDCl_3$) δ 9.51 (d, *J* = 3.2 Hz, 1H), 6.74 (s, 2H), 6.70 (s, 1H), 6.58 (s, 1H), 6.00 (d, *J* = 1.4 Hz, 1H), 5.96 (d, *J* = 1.5 Hz, 1H), 5.95 – 5.88 (m, 2H), 4.12 (d, *J* = 15.4 Hz, 1H), 3.93 (s, 1H), 3.85 (t, *J* = 3.1 Hz, 1H), 3.55 (dd, *J* = 15.4, 1.1 Hz, 1H), 3.22 – 3.12 (m, 1H), 3.07 (d, *J* = 13.3 Hz, 1H), 2.78 – 2.55 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 201.69, 146.68, 146.46,

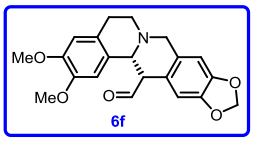
146.30, 143.43, 129.16, 126.78, 124.23, 122.78, 117.13, 108.57, 107.25, 106.04, 101.39, 100.97, 60.89, 56.10, 52.67, 51.11, 29.64. $[\alpha]_D^{25}$= +184 (*c* = 1, $CHCl_3$); **IR** (film, KBr) ν_{max}: 2956, 2918, 2852, 1715, 1645, 1475, 1036, 871, 799, 615 cm^{-1}; HRMS (CI^+) (*m/z*) calcd. for $C_{20}H_{17}NO_5$ $[M]^+$ 351.1107; found 351.1105.



6d ^1H NMR (400 MHz, $CDCl_3$) δ 9.50 (d, *J* = 3.3 Hz, 1H), 6.76 – 6.65 (m, 2H), 6.58 (s, 2H), 5.99 – 5.86 (m, 4H), 3.97 (d, *J* = 14.8 Hz, 1H), 3.88 (s, 1H), 3.80 – 3.72 (m, 1H), 3.63 (dt, *J* = 14.7, 1.1 Hz, 1H), 3.12 (ddd, *J* = 10.0, 6.8, 3.2 Hz, 2H), 2.70 – 2.54 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 201.78, 147.23, 146.69, 146.57, 146.46, 129.21, 128.42, 126.78, 122.93, 109.31, 108.59, 106.03, 106.01, 101.02, 100.97, 60.77, 58.06, 56.28, 51.06, 29.59. $[\alpha]_D^{25}$= +199 (*c* = 1, $CHCl_3$); **IR** (film, KBr) ν_{max}: 2957, 2919, 2852, 1716, 1629, 1577, 1037, 872, 753, 616 cm^{-1}; HRMS (CI^+) (*m/z*) calcd. for $C_{20}H_{17}NO_5$ $[M]^+$ 351.1107; found 351.1119.

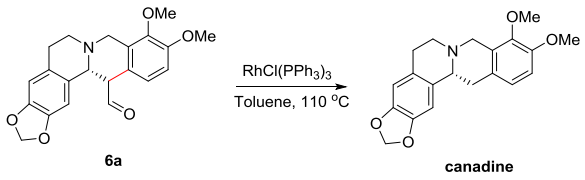


6e ^1H NMR (400 MHz, $CDCl_3$) δ 9.48 (d, *J* = 3.2 Hz, 1H), 6.75 (s, 2H), 6.69 (s, 1H), 6.61 (d, *J* = 2.0 Hz, 1H), 5.98 (dd, *J* = 17.1, 1.5 Hz, 2H), 3.95 (d, *J* = 2.7 Hz, 1H), 3.91 (t, *J* = 3.3 Hz, 1H), 3.86 (d, *J* = 1.6 Hz, 6H), 3.83 (d, *J* = 17.1 Hz, 1H), 3.55 (dd, *J* = 15.5, 1.0 Hz, 1H), 3.25 – 3.02 (m, 2H), 2.74 – 2.62 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 201.68, 147.91, 147.86, 146.28, 143.44, 128.06, 125.62, 124.20, 122.74, 117.20, 111.43, 108.99, 107.24, 101.38, 60.38, 56.11, 55.90, 55.83, 52.71, 51.25, 29.13. $[\alpha]_D^{25}$= +185 (*c* = 1, $CHCl_3$); **IR** (film, KBr) ν_{max}: 2920, 2852, 1658, 1577, 1463, 1266, 877, 780, 611 cm^{-1}; HRMS (CI^+) (*m/z*) calcd. for $C_{21}H_{21}NO_5$ $[M]^+$ 367.1420; found 367.1433.



6f ^1H NMR (400 MHz, $CDCl_3$) δ 9.47 (d, *J* = 3.4 Hz, 1H), 6.72 (s, 1H), 6.67 (s, 1H), 6.59 (d, *J* = 9.5 Hz, 2H), 5.92 (dd, *J* = 10.6, 1.5 Hz, 2H), 3.97 (d, *J* = 14.8 Hz, 1H), 3.90 – 3.88 (m, 1H), 3.86 (s, 6H), 3.83 (d, *J* = 3.2 Hz, 1H), 3.66 – 3.60 (m, 1H), 3.19 – 3.07 (m, 2H), 2.74 – 2.57 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ 201.76, 147.91, 147.85, 147.18, 146.53, 128.49, 128.11, 125.63, 122.87, 111.49, 109.24, 109.01, 106.02, 100.99, 60.35, 58.11, 56.09, 55.83, 51.18, 43.36, 29.06. $[\alpha]_D^{25}$= +172 (*c* = 1, $CHCl_3$); **IR** (film, KBr) ν_{max}: 2919, 2851, 1658, 1578, 1463, 1265, 1042, 878, 781, 665, 615 cm^{-1}; HRMS (CI^+) (*m/z*) calcd. for $C_{21}H_{21}NO_5$ $[M + H]^+$ 368.1498; found 368.1485.

General Procedure for Decarbonylation Reaction of 6a:



To a solution of **6a** (12 mg, 0.03 mmol) in toluene (2 mL) was added Wilkinson's catalyst $RhCl(PPh_3)_3$ (27.8 mg, 0.03 mmol), and the mixture was heated to 110 °C and stirred for 2h. The reaction mixture was then cooled to room temperature and concentrated to afford a residue which was subjected to flash chromatography on silica gel (Hexane/EA: 1/8 ~ 1/4) to give **canadine** (**7a**, 3.0 mg, 0.009 mmol, 29.5%) as a colorless oil. 97% *ee* (HPLC conditions: Chiralcel AD-H column, hexane/*i*-

PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 11.0 min, t_R(minor) = 6.7 min); $[\alpha]_D^{25}$= +30 (*c* = 0.1, $CHCl_3$)

Isocanadine (**7b**, 1.1 mg, 18.3%) as a pale-yellow oil. 99% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 8.9 min, t_R(minor) = 9.7 min); $[\alpha]_D^{25}$= +36 (*c* = 0.1, $CHCl_3$)

Stylopine (**7c**, 1.0 mg, 18.5%) as a pale-yellow oil. 93% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 7.5 min, t_R(minor) = 9.7 min); $[\alpha]_D^{25}$= +68 (*c* = 0.1, $CHCl_3$)

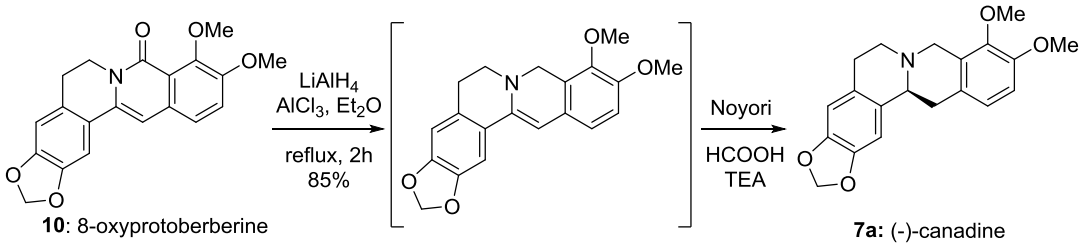
Tetrahydropseudocoptisine (**7d**, 1.6 mg, 20.0%) as a pale-yellow oil. 93% *ee* (HPLC conditions: Chiralcel AD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 7.1 min, t_R(minor) = 11.5 min); $[\alpha]_D^{25}$= +49 (*c* = 0.1, $CHCl_3$)

Sinactine (**7e**, 1.5 mg, 12.0%) as a pale-yellow oil. 88% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 19.2 min, t_R(minor) = 14.0 min); $[\alpha]_D^{25}$= +69 (*c* = 0.1, $CHCl_3$)

Isosinactine (**7f**, 1.2 mg, 21.8%) as a pale-yellow oil. 88% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 8.9 min, t_R(minor) = 19.7 min); $[\alpha]_D^{25}$= +31 (*c* = 0.1, $CHCl_3$)

3. Asymmetric synthesis of tetrahydroprotoberberines via Noyori Reduction

M1: Preparation and Noyori Reduction of Dihydroberberines:



10: 8-oxyprotoberberine

7a: (-)-canadine

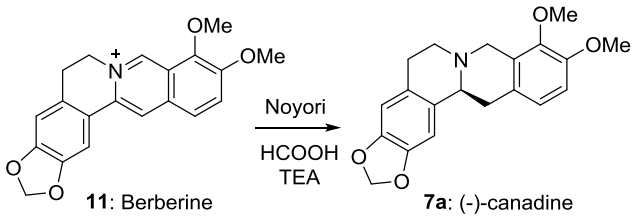
To a suspension of $LiAlH_4$ (142 mg, 4 mmol) in Et_2O (15 mL) at 0 °C was added $AlCl_3$ (133 mg, 1 mmol). The reaction mixture was warmed to room temperature with vigorous stirring for 0.5 h. 8-Oxyprotoberberine[1] (**9**, 27 mg, 0.077 mmol) was added to ethereal AlH_3 mixture and the reaction mixture was heated to reflux for 2 h. The reaction was quenched by slow, careful sequential addition of H_2O (0.1 mL), 15% NaOH (0.1 mL), and H_2O (0.3 mL). The aluminates were removed by filtration and washed with EtOAc (3 x 5 mL). The combined filtrates were dried over Na_2SO_4 and evaporated to give the crude product lambertine (**10**, 21mg, 81%) as yellow solid, which gradually turned brown in air. The crude product was used for Noyori reduction without further purification.

To a stirred solution of **10** (21 mg, 0.063 mmol) in dichloromethane (2 mL) was added formic acid (29 mg, 0.63 mmol), triethylamine (25 mg, 0.252 mmol) and RuCl[(S,S)-TsDPEN](mesitylene) (0.006 mmol, 3.7 mg). The reaction mixture was stirred at room temperature for 40 h. Then the reaction was quenched by addition of $NaHCO_3$ and washed with CH_2Cl_2 (4 mL). The combined organic fractions were washed with brine, dried over Na_2SO_4 and concentrated under reduced pressure. The crude product was purified by flash column chromatography on silica gel using eluents (EtOAc/hexane = 1/1) to afford the product canadine[2] (**7a**, 6.0 mg, 74%) as a pale yellow solid.

M2: Noyori Reduction of Quaternary Salts:

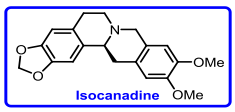
[1] Zhou. S., Tong, R. *Chem. Eur. J.* **2016**, *22*, 7084-7089.

[2] Mastranzo, V. M., Romero, J. L. O., Yuste, F., Ortiz, B., Sánchez-Obregón, R. & Ruano, J. L. G. *Tetrahedron*, **2012**, *68*, 1266–1271.



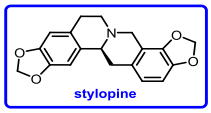
11: Berberine **7a**: (-)-canadine

Quaternary salts were prepared according our previous report[1]. To a stirred solution of **11** (8 mg, 0.025 mmol) in dichloromethane (1 mL) was added formic acid (11.5 mg, 0.25 mmol), triethylamine (10 mg, 0.1 mmol) and RuCl[(S,S)-TsDPEN] (mesitylene) (1.5 mg, 0.002 mmol). The reaction mixture was stirred at room temperature for 40 h. Then the reaction was quenched by addition of $NaHCO_3$ and washed with CH_2Cl_2 (2 mL). The combined organic fractions were washed brine, dried over Na_2SO_4 and concentrated under reduced pressure. The crude product was purified by flash column chromatography on silica gel using eluents (EtOAc/hexane = 1/1) to afford the product **(-)-canadine** (**7a**, 7.4 mg, 88%) as a pale-yellow solid. 77% *ee* (HPLC conditions: Chiralcel AD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 6.7 min, t_R(minor) = 11.0 min); $[\alpha]_D^{25}$ = –52 (*c* = 0.17, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.86 (d, *J* = 8.4 Hz, 1H), 6.80 (d, *J* = 8.4 Hz, 1H), 6.73 (s, 1H), 6.59 (s, 1H), 5.91 (s, 2H), 4.23 (d, *J* = 15.8 Hz, 1H), 3.84 (s, 6H), 3.53 (d, *J* = 15.4 Hz, 2H), 3.24–3.07 (m, 3H), 2.81 (dd, *J* = 15.4 11.7Hz, 1H), 2.67–2.59 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 150.3, 146.1, 145.9, 145.0, 130.8, 128.6, 127.8, 127.6, 123.9, 110.9, 108.4, 105.5, 100.7, 60.1, 59.6, 55.9, 53.9, 51.4, 36.4, 29.6.



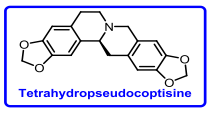
Isocanadine

Isocanadine[3] (**7b**, 5.1 mg, 58% yield over 2 steps) as a pale-yellow solid. 99% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 9.7 min, t_R(minor) = 8.9 min); $[\alpha]_D^{25}$ = –72 (*c* = 0.18, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.73 (s, 1H), 6.64 (s, 1H), 6.59 (s, 1H), 6.56 (s, 1H), 5.92 (s, 2H), 3.93 (d, *J* = 14.6 Hz, 1H), 3.86 (s, 3H), 3.85 (s, 3H), 3.67 (d, *J* = 14.4 Hz, 1H), 3.57 (m, 1H), 3.20 (dd, *J* = 15.9, 3.8 Hz, 1H), 3.15–3.08 (m, 2H), 2.85–2.78 (m, 1H), 2.67–2.57 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 147.6, 147.4, 146.1, 145.9, 130.9, 127.7, 126.2, 111.4, 109.0, 108.4, 105.5, 100.7, 59.9, 58.2, 56.0, 55.9, 51.2, 36.5, 29.5.



stylopine

Stylopine[4] (**7c**, 5.2 mg, 70% yield over 2 steps) as a pale-yellow solid. 86% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 9.7 min, t_R(minor) = 7.5 min); $[\alpha]_D^{25}$ = –100 (*c* = 0.15, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.72 (s, 1H), 6.69 (d, *J* = 7.9 Hz, 1H), 6.63 (d, *J* = 7.9 Hz, 1H), 6.59 (s, 1H), 5.94 (d, *J* = 15.4 Hz, 2H), 5.92 (s, 2H), 4.08 (d, *J* = 15.4 Hz, 1H), 3.56 (t, *J* = 12.4 Hz, 2H), 3.23 (dd, *J* = 15.8, 3.7 Hz, 1H), 3.20–3.05 (m, 3H), 2.80 (dd, *J* = 15.8, 11.4 Hz, 1H), 2.69–2.59 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 146.2, 146.0, 145.0, 143.3, 130.7, 128.6, 127.8, 121.0, 116.9, 108.4, 106.8, 105.5, 101.0, 100.8, 59.8, 52.9, 51.2, 36.5, 29.6.

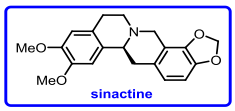


Tetrahydropseudocoptisine

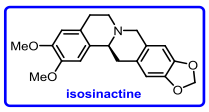
Tetrahydropseudocoptisine[5] (**7d**, 5.5 mg, 65% yield over 2 steps) as a pale-yellow solid. 86% *ee* (HPLC conditions: Chiralcel AD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 11.5 min, t_R(minor) = 7.1 min); $[\alpha]_D^{25}$ = –85 (*c* = 0.19, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.72 (s, 1H), 6.60 (s, 1H), 6.59 (s, 1H), 6.54 (s, 1H), 5.92 (s, 2H), 5.90 (s, 2H), 3.90

[3] Orito, K., Satoh, Y., Nishizawa, H., Harada, R., Tokuda, M. *Org. Lett.* **2000**, *2*, 2535–2537.
[4] Kim, J. H., Ryu, Y. B., Lee, W. S., Kim, Y. H. *Bioorg. Med. Chem.* **2014**, *22*, 6047–6052.
[5] Gatland, A. E., Pilgrim, B. S., Procopiou, P. A., Donohoe, T. J. *Angew. Chem. Int. Ed.* **2014**, *126*, 14783–14786.

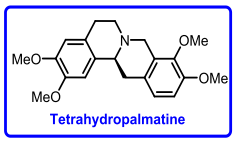
(d, *J* = 14.6 Hz, 1H), 3.62 (d, *J* = 14.7 Hz, 1H), 3.54 (dd, *J* = 11.2, 3.5 Hz, 1H), 3.19–3.06 (m, 3H), 2.78 (dd, *J* = 15.5, 11.6 Hz, 1H), 2.60 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 146.1, 145.9, 145.9, 145.8, 130.7, 127.7, 127.2, 108.4, 108.4, 106.0, 105.4, 100.8, 100.6, 100.0, 59.8, 58.5, 51.2, 36.9, 29.4.



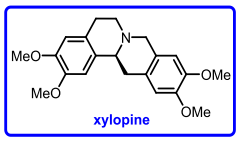
Sinactine[6] (**7e**, 5.7 mg, 70% yield over 2 steps) as a pale-yellow solid. 88% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 14.0 min, t_R(minor) = 19.2 min); $[\alpha]_D^{25}$ = –136 (*c* = 0.18, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.73 (s, 1H), 6.69 (d, *J* = 7.8 Hz, 1H), 6.66 (d, *J* = 7.8 Hz, 1H), 6.62 (s, 1H), 5.97 (s, 1H), 5.93 (s, 1H), 4.10 (t, *J* = 15.1 Hz, 1H), 3.89 (s, 3H), 3.87 (s, 3H), 3.61–3.53 (m, 2H), 3.28 (dd, *J* = 15.3, 3.2 Hz, 1H), 3.26–3.09 (m, 2H), 2.81–2.62 (m, 3H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 147.5, 147.4, 145.0, 143.3, 129.6, 128.6, 126.7, 121.0, 116.9, 111.3, 108.6, 106.7, 101.0, 59.4, 56.1, 55.8, 53.0, 51.3, 36.4, 29.1.



Isosinactine[7] (**7f**, 5.7 mg, 58% yield over 2 steps) as a pale-yellow solid. 99% *ee* (HPLC conditions: Chiralcel OD-H column, hexane/*i*-PrOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 19.7 min, t_R(minor) = 8.9 min); $[\alpha]_D^{25}$ = –30 (*c* = 0.21, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.72 (s, 1H), 6.63 (s, 1H), 6.62 (s, 1H), 6.54 (s, 1H), 5.91 (s, 2H), 3.93 (d, *J* = 16.2 Hz, 1H), 3.89 (s, 3H), 3.87 (s, 3H), 3.67 (d, *J* = 14.3 Hz, 1H), 3.58 (d, *J* = 8.4 Hz, 1H), 3.23 (dd, *J* = 16.2, 3.4 Hz, 1H), 3.19–3.12 (m, 2H), 2.87–2.79 (m, 1H), 2.69–2.59 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 147.6, 147.5, 146.2, 145.9, 129.5, 127.2, 126.6, 111.4, 108.5, 108.4, 106.0, 100.7, 59.5, 58.5, 56.1, 55.9, 51.2, 36.7, 29.70, 28.9.



Tetrahydropalmatine[8] (**7g**, 5.5 mg, 80% yield over 2 steps) as a pale-yellow solid. 99% *ee* (HPLC conditions: Chiralcel AD-H column, hexane/EtOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 12.7 min, t_R(minor) = 8.0 min); $[\alpha]_D^{25}$ = –48 (*c* = 0.2, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.86 (d, *J* = 8.2 Hz, 1H), 6.77 (d, *J* = 8.4 Hz, 1H), 6.73 (s, 1H), 6.61 (s, 1H), 4.23 (d, *J* = 15.3 Hz, 1H), 3.89 (s, 3H), 3.86 (s, 3H), 3.84 (s, 3H), 3.83 (s, 3H), 3.55 –3.50 (m, 2H), 3.28–3.09 (m, 3H), 2.82 (dd, *J* = 15.3, 11.1 Hz, 1H), 2.85–2.60 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 150.2, 147.5, 147.4, 145.0, 129.7, 128.7, 127.6, 126.8, 123.8, 111.2, 110.9, 108.6, 60.1, 59.3, 56.0, 55.8, 55.7, 53.9, 51.5, 36.2, 29.0.



Xylopine[9] (**7h**, 6.0 mg, 72% yield over 2 steps) as a pale-yellow solid. 90% *ee* (HPLC conditions: Chiralcel AD-H column, hexane/EtOH = 80/20, 1.0 mL/min, λ = 210 nm, t_R(major) = 12.7 min, t_R(minor) = 8.0 min); $[\alpha]_D^{25}$ = –40 (*c* = 0.18, $CHCl_3$); ^{1}H NMR (400 MHz, $CDCl_3$) δ (ppm) 6.74 (s, 1H), 6.67 (s, 1H), 6.62 (s, 1H), 6.58 (s, 1H), 3.94 (d, *J* = 14.8 Hz, 1H), 3.89 (s, 3H), 3.87 (s, 3H), 3.86 (s, 3H), 3.85 (s, 3H), 3.69 (d, *J* = 14.2 Hz, 1H), 3.62 (dd, *J* = 11.3, 3.4 Hz, 1H), 3.22 (dd, *J* = 15.8, 3.5 Hz, 1H), 3.18–3.10

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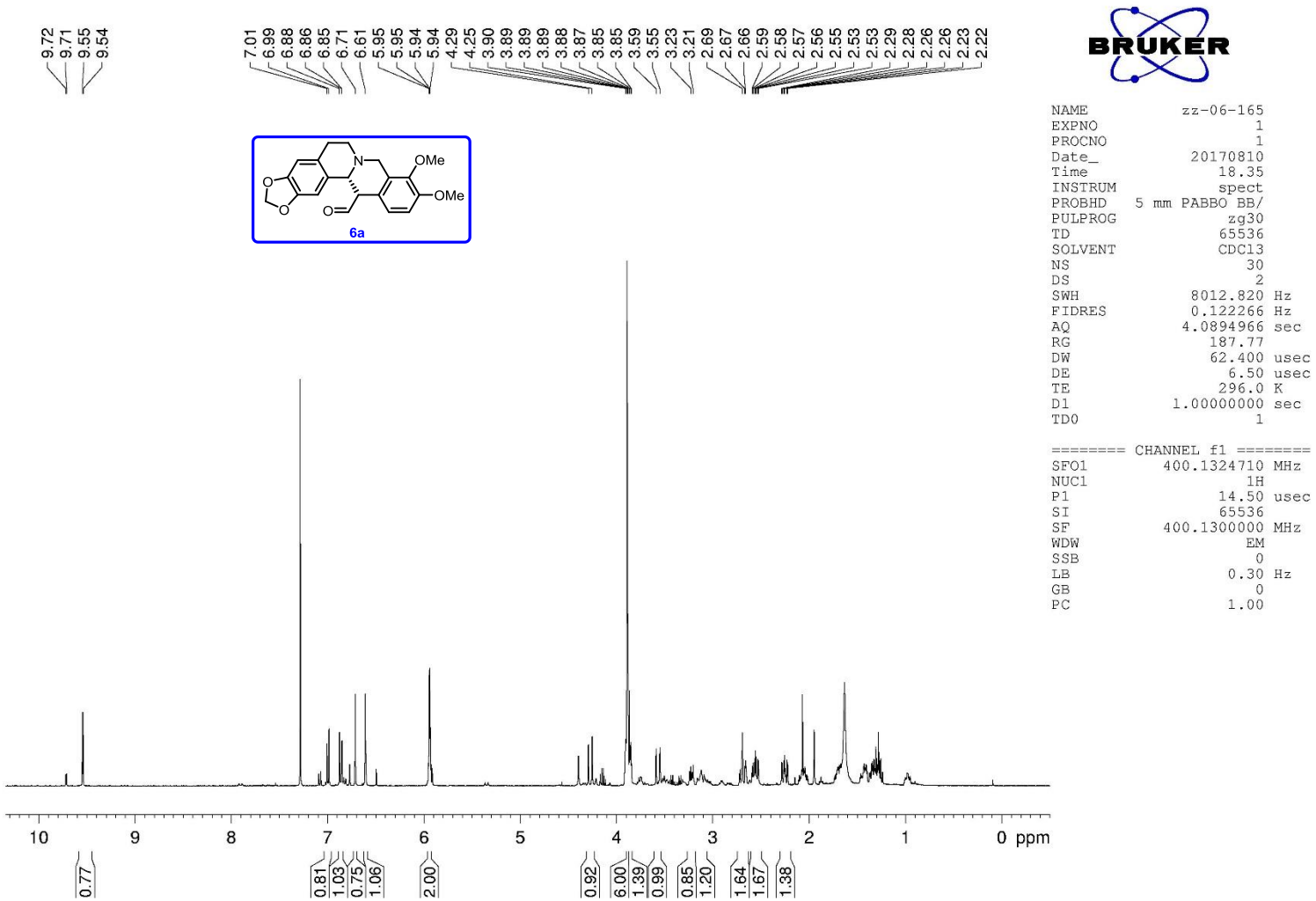
[6] Seger, C., Sturm, S., Strasser, E. M., Ellmerer, E., Stuppner, H. *Magn. Reson. Chem.* **2004**, *42*, 882–886.
[7] Orito, K., Satoh, Y., Nishizawa, H., Harada, R. & Tokuda, M. *Org. lett.* **2000**, *2*, 2535–2537.
[8] Boudou, M., Enders, D. *J. Org. Chem.* **2005**, *70*, 9486–9494.
[9] Mastranzo, V. M., Yuste, F., Ortiz, B., Sánchez-Obregón, R., Toscano, R. A., García Ruano, J. L. *J. Org. Chem.* **2011,** *76*, 5036–5041.

(m, 2H), 2.85 (dd, *J* = 15.6, 11.4 Hz, 1H), 2.69–2.59 (m, 2H). ^{13}C NMR (100 MHz, $CDCl_3$) δ (ppm) 147.6, 147.5, 147.4, 147.4, 129.8, 126.7, 126.3, 126.3, 111.3, 109.0, 108.5, 59.6, 58.2, 56.0, 56.0, 55.9, 55.8, 51.3, 36.4, 29.0.

.

5. Copies of NMR Spectra and HPLC Spectra



BRUKER

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NS	30
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FIDRES	0.122266 Hz
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RG	187.77
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DE	6.50 usec
TE	296.0 K
D1	1.00000000 sec
TD0	1
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NUC1	1H
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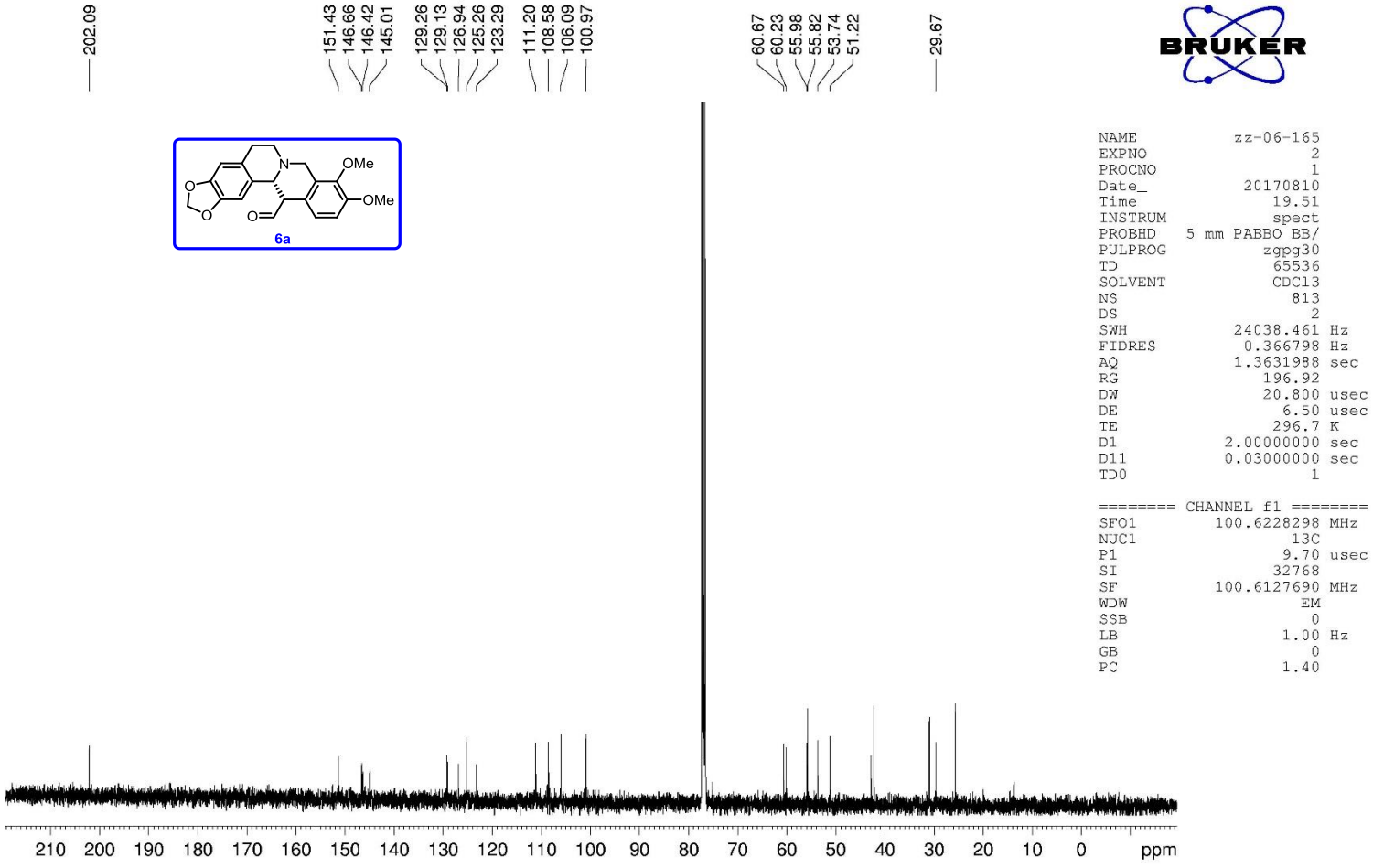
SI	65536
SF	400.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00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129.13
126.94
125.26
123.29
111.20
108.58
106.09
100.97
60.67
60.23
55.98
55.82
53.74
51.22
29.67
OMe
OMe
6a
NAME zz-06-165
EXPNO 2
PROCNO 1
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Time 19.51
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 813
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 196.92
DW 20.800 usec
DE 6.50 usec
TE 296.7 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228298 MHz
NUC1 13C
P1 9.70 usec
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
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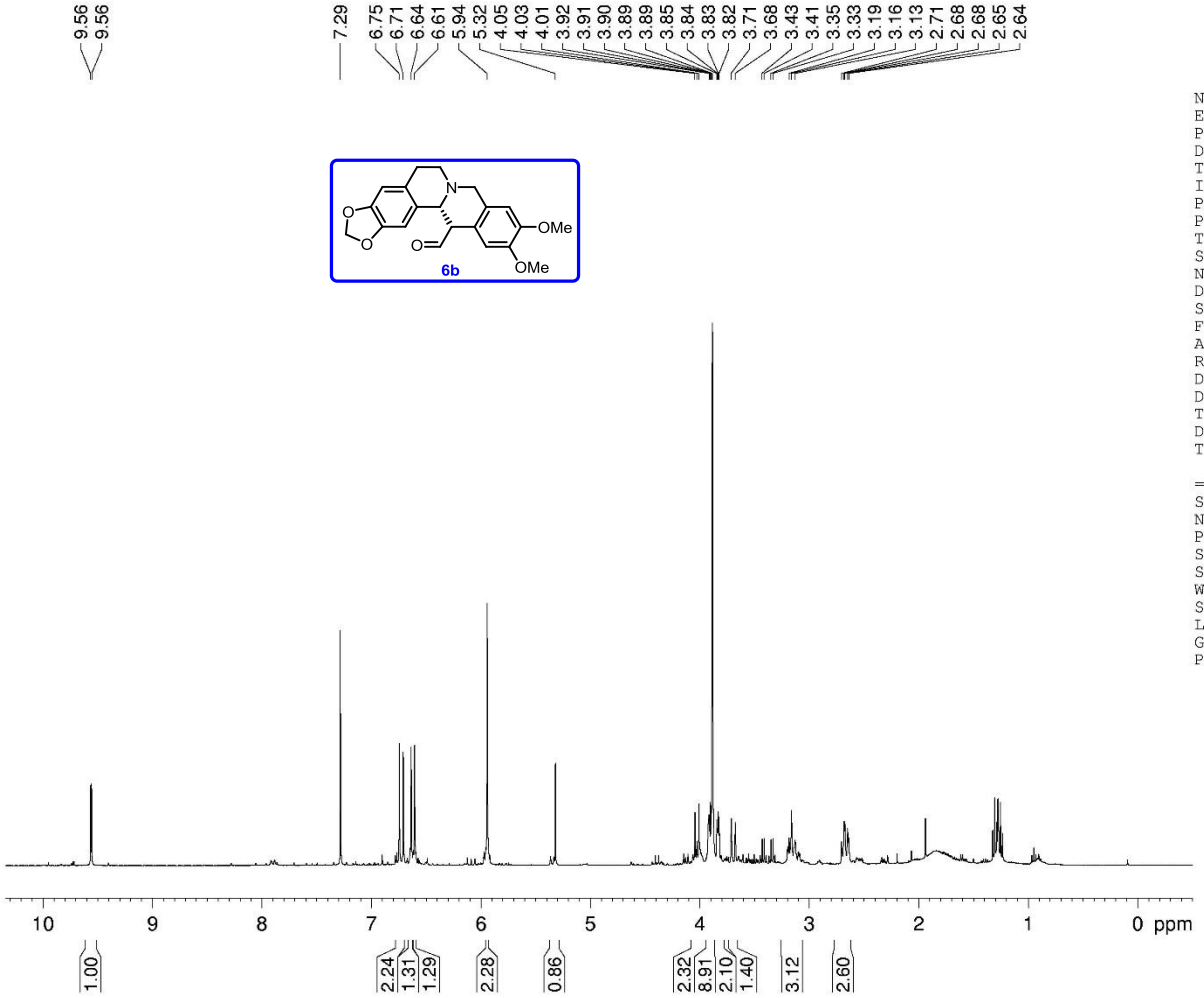

BRUKER

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SOLVENT	CDCl3
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DS	2
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FIDRES	0.122266 Hz
AQ	4.0894966 sec
RG	196.92
DW	62.400 usec
DE	6.50 usec
TE	298.8 K
D1	1.00000000 sec
TD0	1
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NUC1	1H
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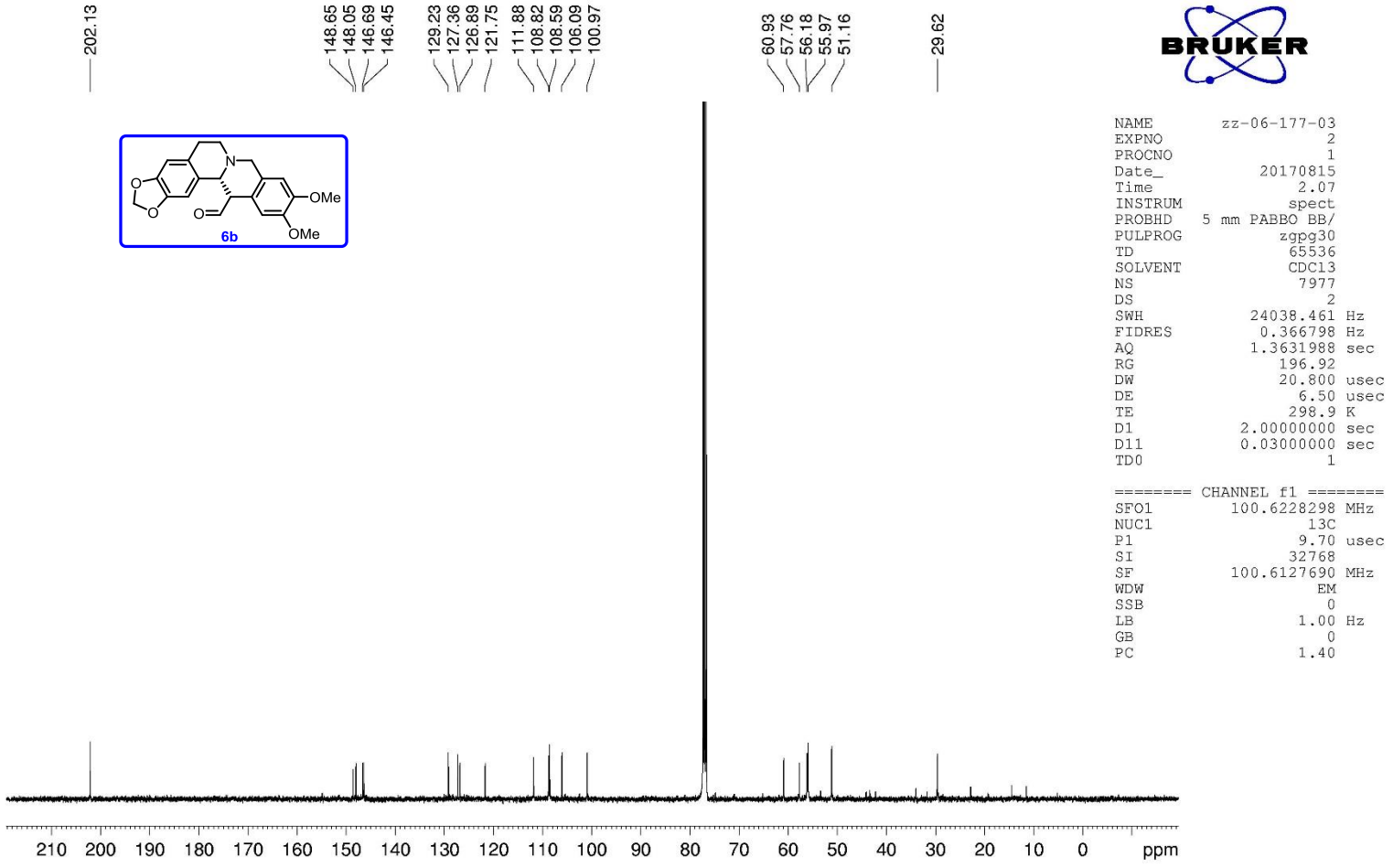
SI	65536
SF	400.1300000 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00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129.23
127.36
126.89
121.75
111.88
108.82
108.59
106.09
100.97
60.93
57.76
56.18
55.97
51.16
29.62
6b
OMe
OMe
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EXPNO 2
PROCNO 1
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Time 2.07
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 7977
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SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 196.92
DW 20.800 usec
DE 6.50 usec
TE 298.9 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228298 MHz
NUC1 13C
P1 9.70 usec
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
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PC 1.40
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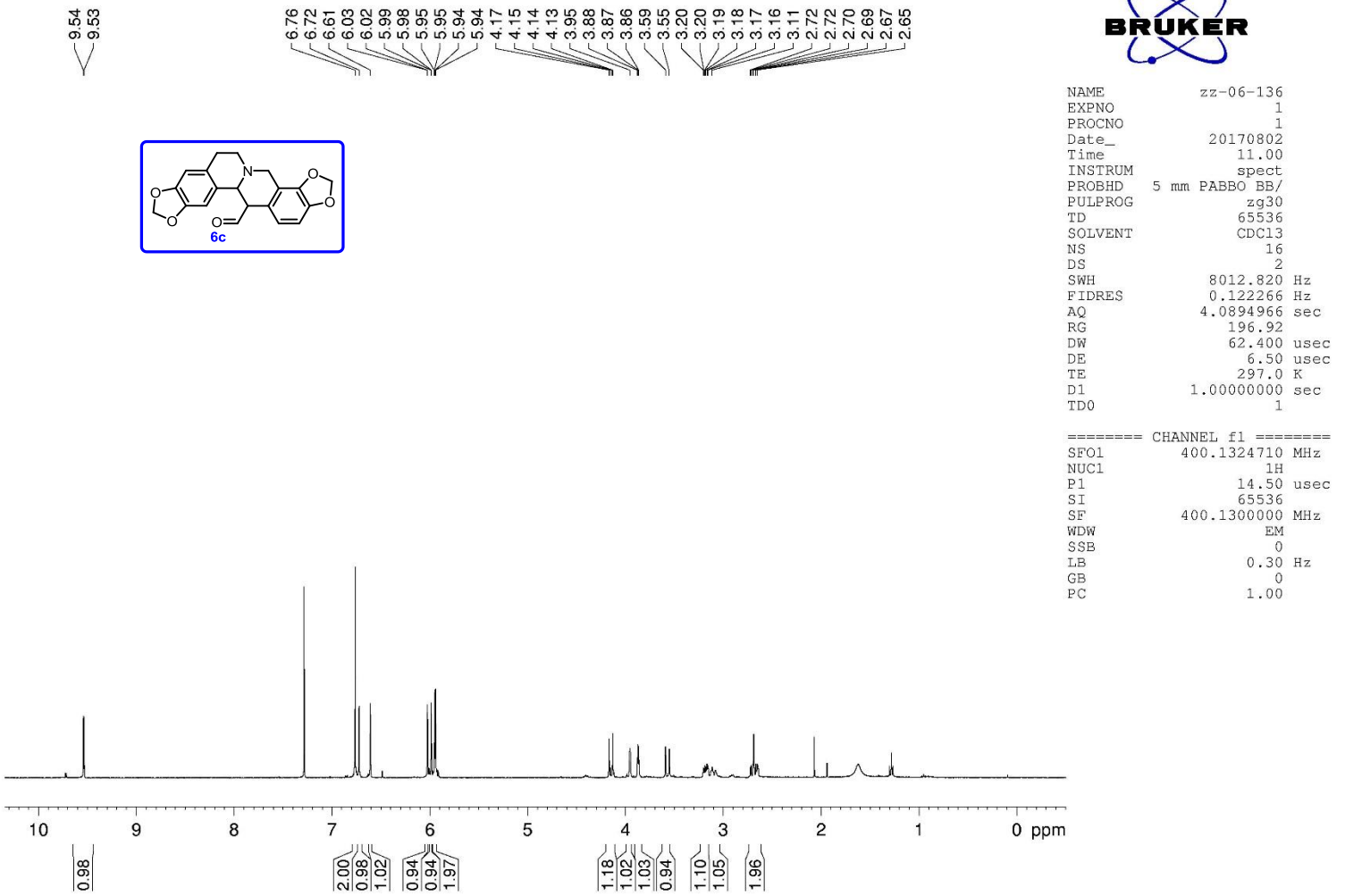
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6.61
6.03
6.02
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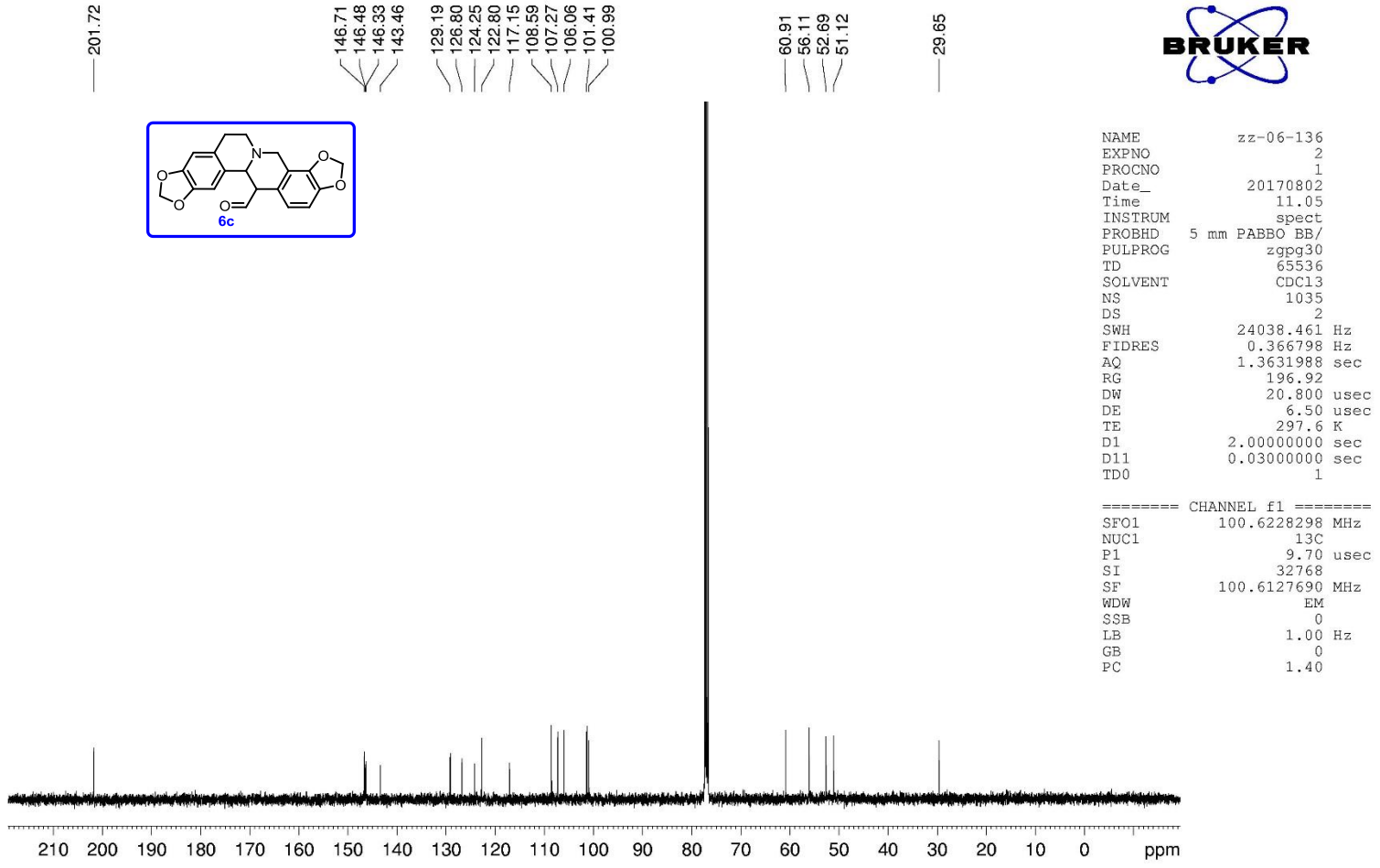
5.98
5.95
5.95
5.94
5.94
4.17
4.15
4.14
4.13
3.95
3.88
3.87
3.86
3.59
3.55
3.20
3.20
3.19
3.18
3.17
3.16
3.11
2.72
2.72
2.70
2.69
2.67
2.65
6c
BRUKER
NAME zz-06-136
EXPNO 1
PROCNO 1
Date_ 20170802
Time 11.00
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 196.92
DW 62.400 usec
DE 6.50 usec
TE 297.0 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 usec
SI 65536
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
10
9
8
7
6
5
4
3
2
1
0 ppm
0.98
2.00
0.98
1.02
0.94
0.94
1.97
1.18
1.02
1.03
0.94
1.10
1.05
1.96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143.46
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126.80
124.25
122.80
117.15
108.59
107.27
106.06
101.41
100.99
60.91
56.11
52.69
51.12
29.65
6c
NAME zz-06-136
EXPNO 2
PROCNO 1
Date_ 20170802
Time 11.05
INSTRUM spect
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1035
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 196.92
DW 20.800 usec
DE 6.50 usec
TE 297.6 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
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NUC1 13C
P1 9.70 usec
SI 32768
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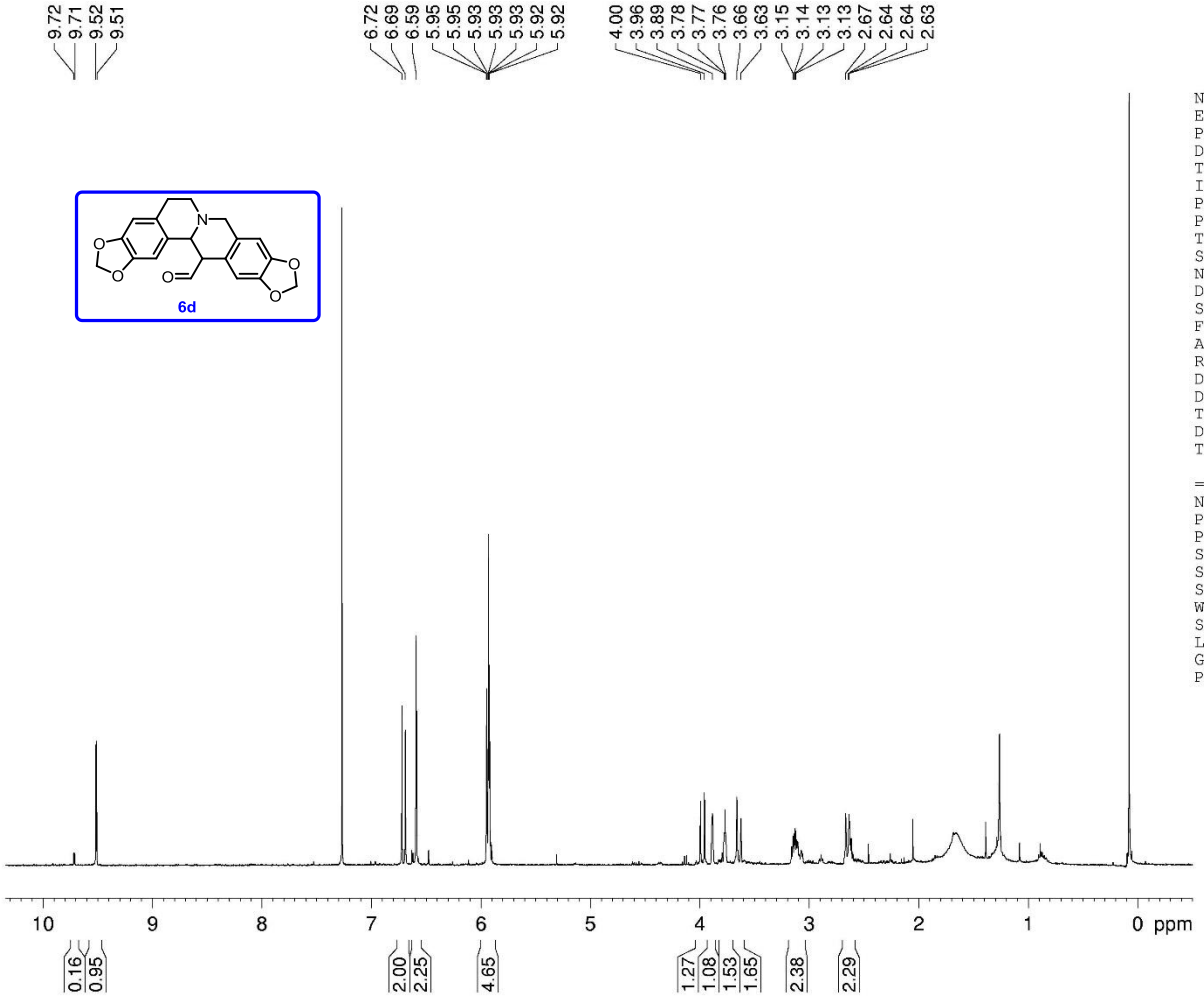


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PROCNO                   1
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TD                   65536
SOLVENT              CDCl3
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DS                       2
SWH              8223.685 Hz
FIDRES           0.125483 Hz
AQ               3.9846387 sec
RG                     724
DW                60.800 usec
DE                 6.00 usec
TE                296.6 K
D1             1.00000000 sec
TD0                      1

======== CHANNEL f1 ========
NUC1                    1H
P1                   13.60 usec
PL1                  -1.00 dB
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SI                   32768
SF            400.1300054 MHz
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LB                    0.30 Hz
GB                       0
PC                    1.00
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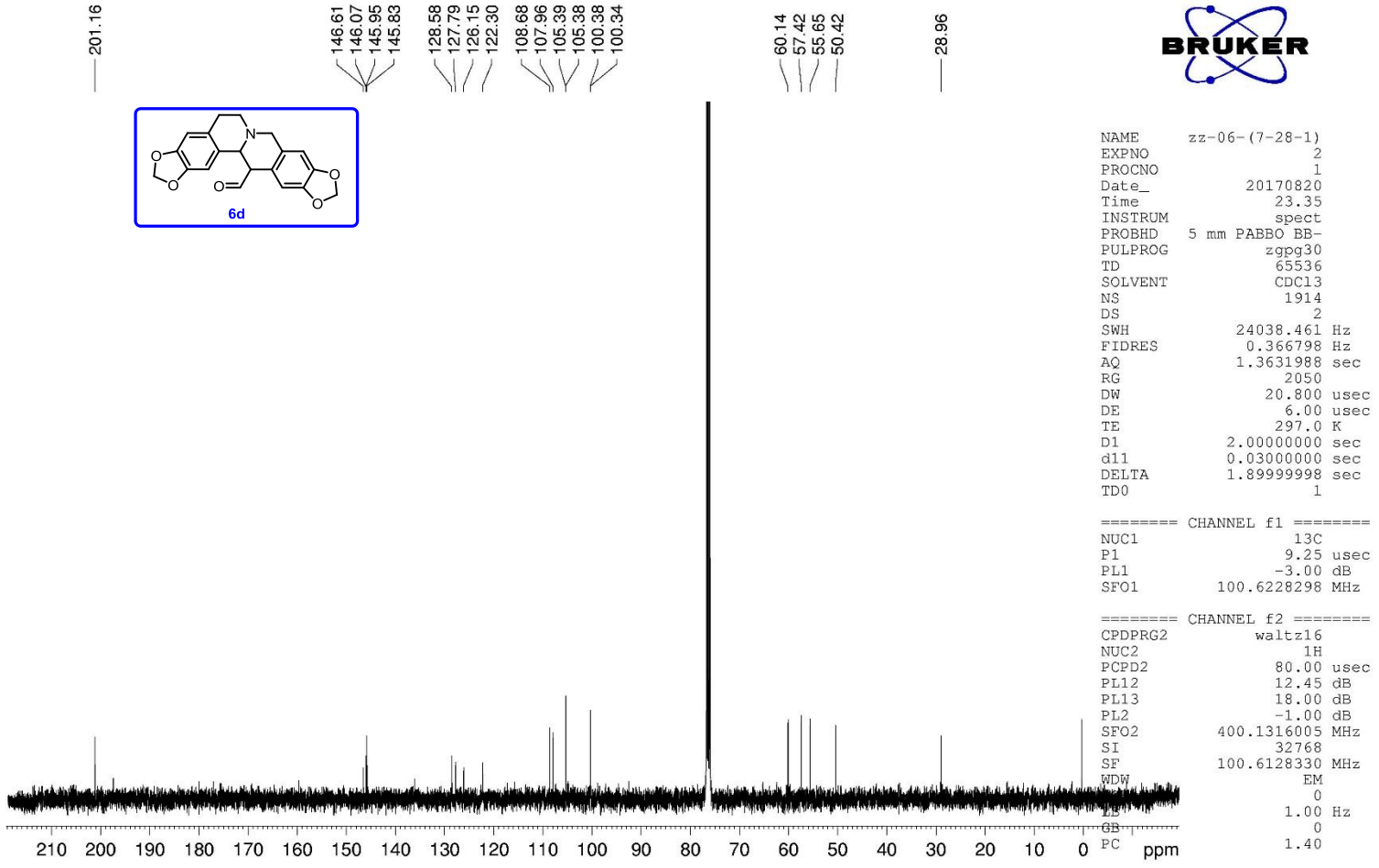
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126.15
122.30
108.68
107.96
105.39
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100.34
60.14
57.42
55.65
50.42
28.96
6d
BRUKER
NAME zz-06-(7-28-1)
EXPNO 2
PROCNO 1
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Time 23.35
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1914
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 2050
DW 20.800 usec
DE 6.00 usec
TE 297.0 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 9.25 usec
PL1 -3.00 dB
SFO1 100.6228298 MHz
======== CHANNEL f2 ========
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL12 12.45 dB
PL13 18.00 dB
PL2 -1.00 dB
SFO2 400.1316005 MHz
SI 32768
SF 100.6128330 MHz
WDW EM
0
LB 1.00 Hz
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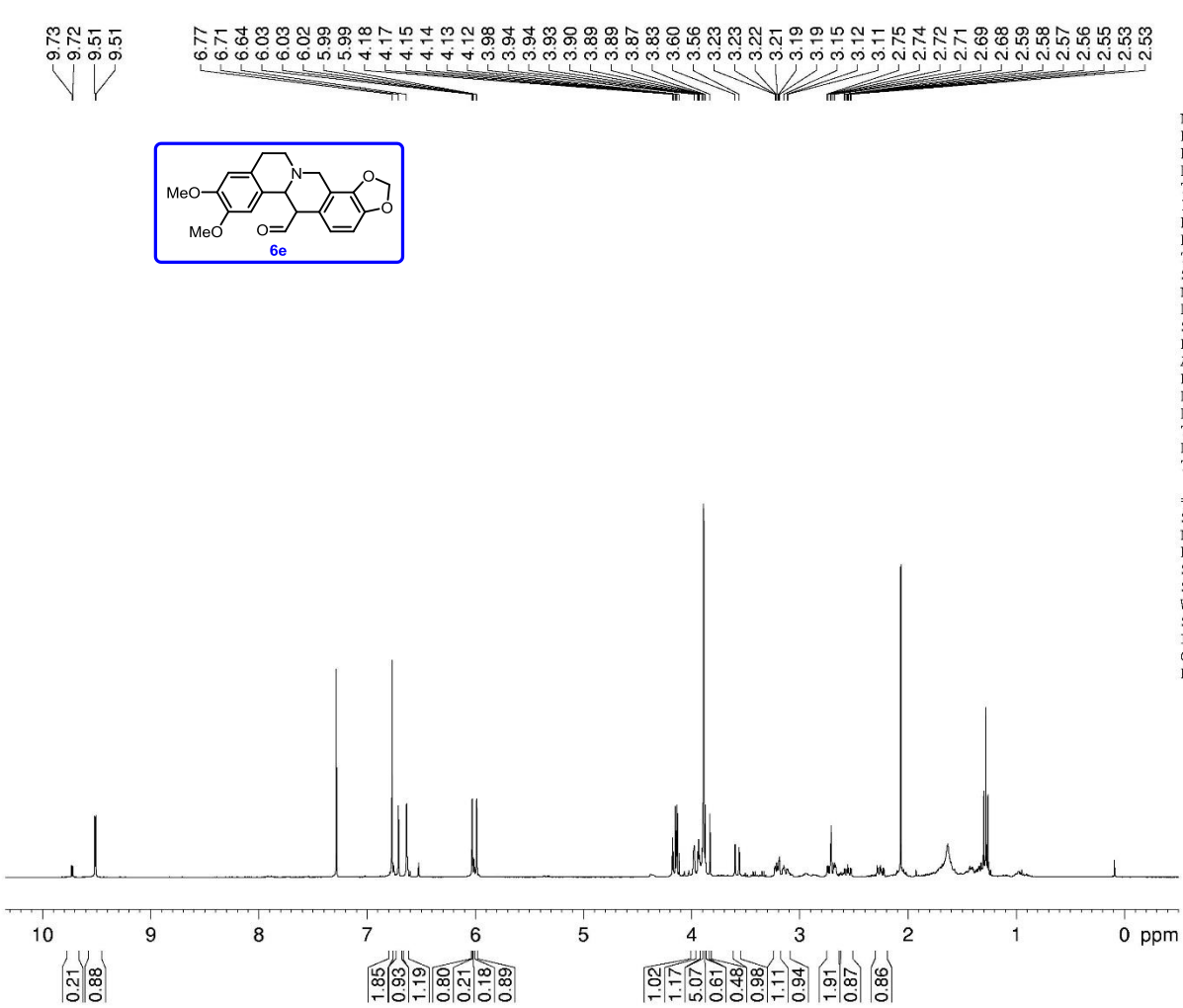


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TD                   65536
SOLVENT              CDCl3
NS                      68
DS                       2
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FIDRES            0.122266 Hz
AQ                4.0894966 sec
RG                   126.97
DW                   62.400 usec
DE                    6.50 usec
TE                   296.4 K
D1              1.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1           400.1324710 MHz
NUC1                   1H
P1                   14.50 usec
SI                   65536
SF             400.1300000 MHz
WDW                    EM
SSB                     0
LB                   0.30 Hz
GB                      0
PC                   1.00
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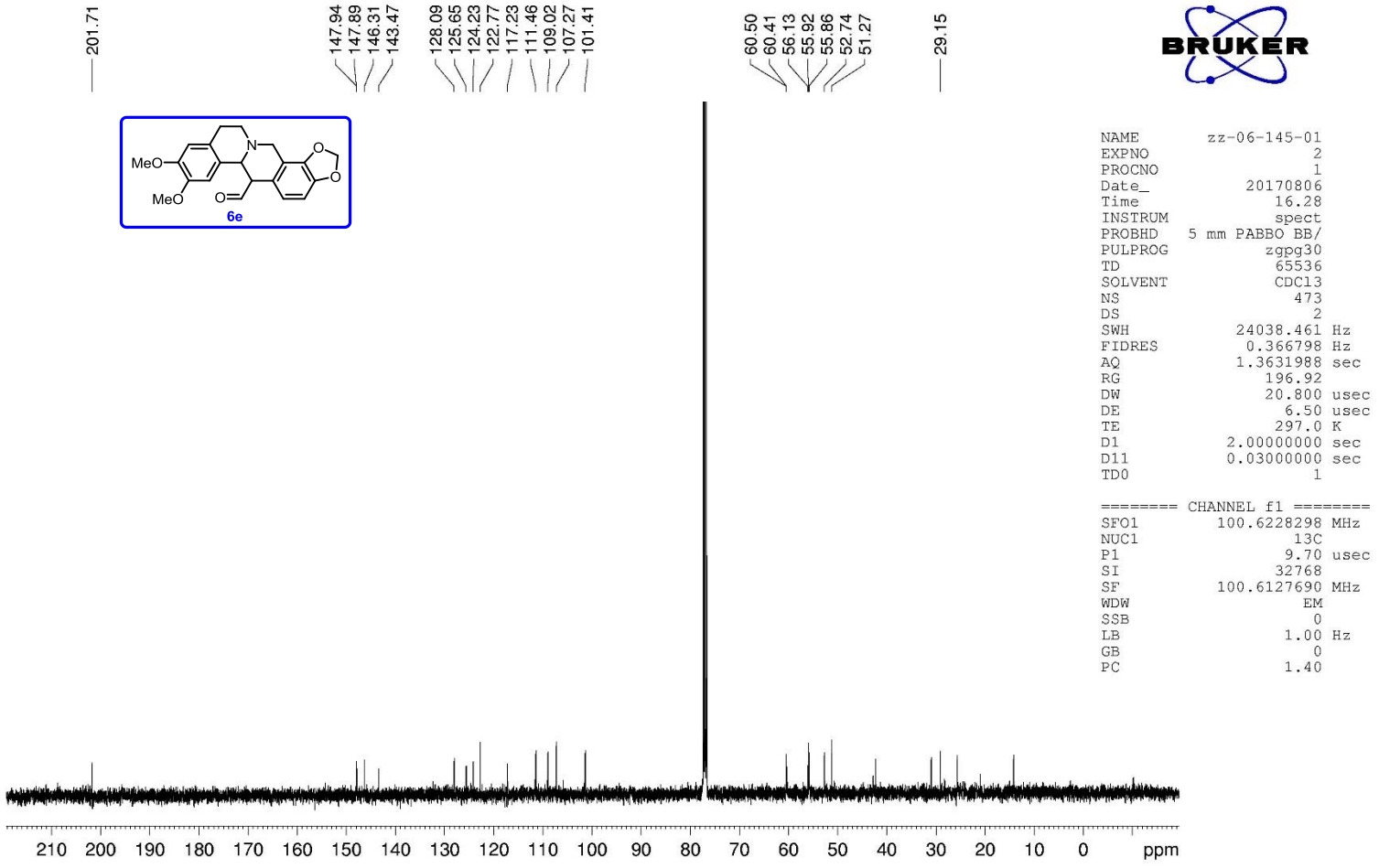
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146.31
143.47
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125.65
124.23
122.77
117.23
111.46
109.02
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101.41
60.50
60.41
56.13
55.92
55.86
52.74
51.27
29.15
MeO
MeO
O
N
O
O
6e
BRUKER
NAME zz-06-145-01
EXPNO 2
PROCNO 1
Date_ 20170806
Time 16.28
INSTRUM spect
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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 473
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 196.92
DW 20.800 usec
DE 6.50 usec
TE 297.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
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NUC1 13C
P1 9.70 usec
SI 32768
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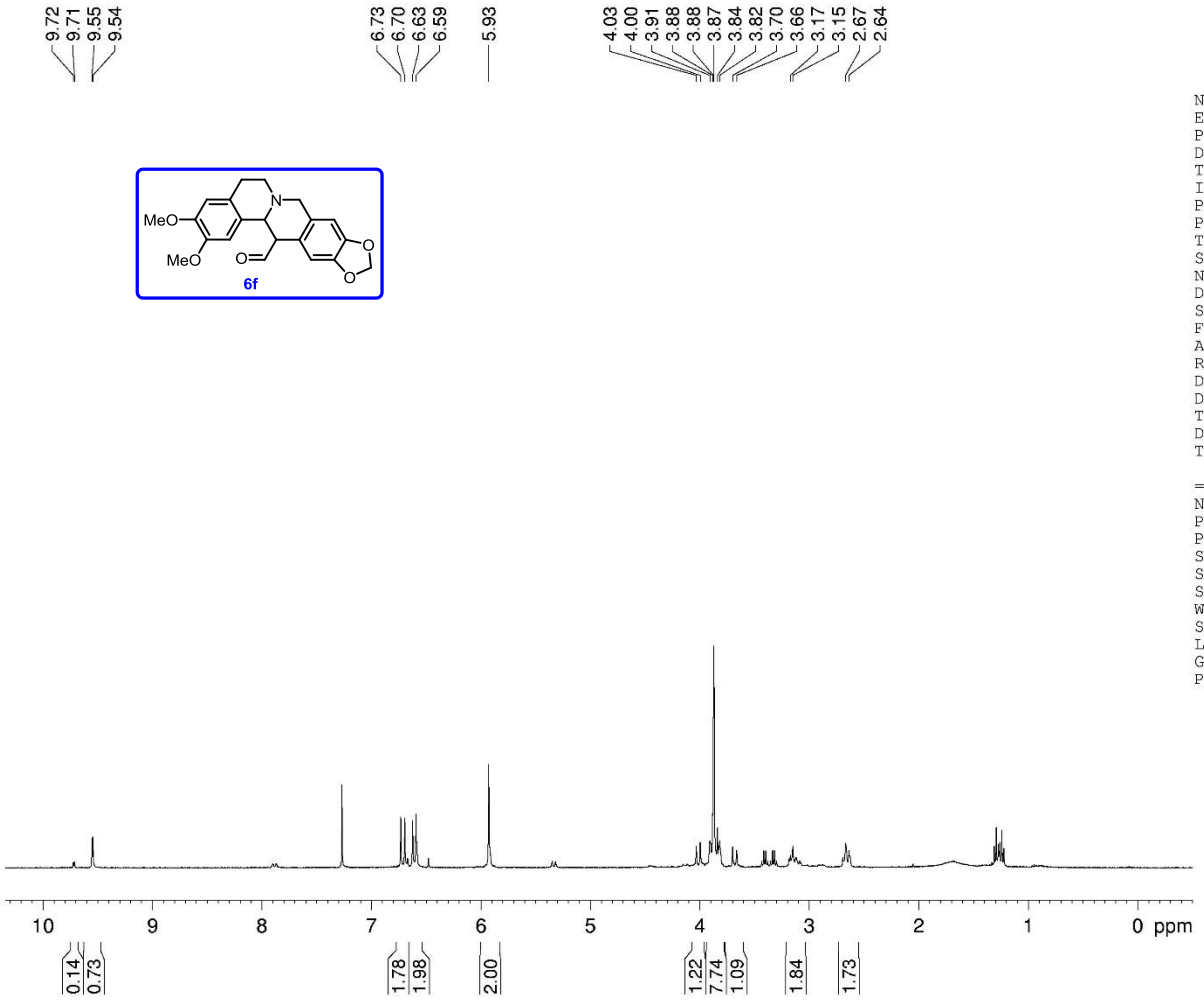

BRUKER

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PROCNO                  1
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PULPROG              zg30
TD                  65536
SOLVENT             CDCl3
NS                     16
DS                      2
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FIDRES          0.125483 Hz
AQ              3.9846387 sec
RG                    575
DW                 60.800 usec
DE                  6.00 usec
TE                 297.6 K
D1            1.00000000 sec
TD0                     1

======== CHANNEL f1 ========
NUC1                   1H
P1                  13.60 usec
PL1                 -1.00 dB
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SI                  32768
SF           400.1300054 MHz
WDW                    EM
SSB                     0
LB                   0.30 Hz
GB                      0
PC                   1.00
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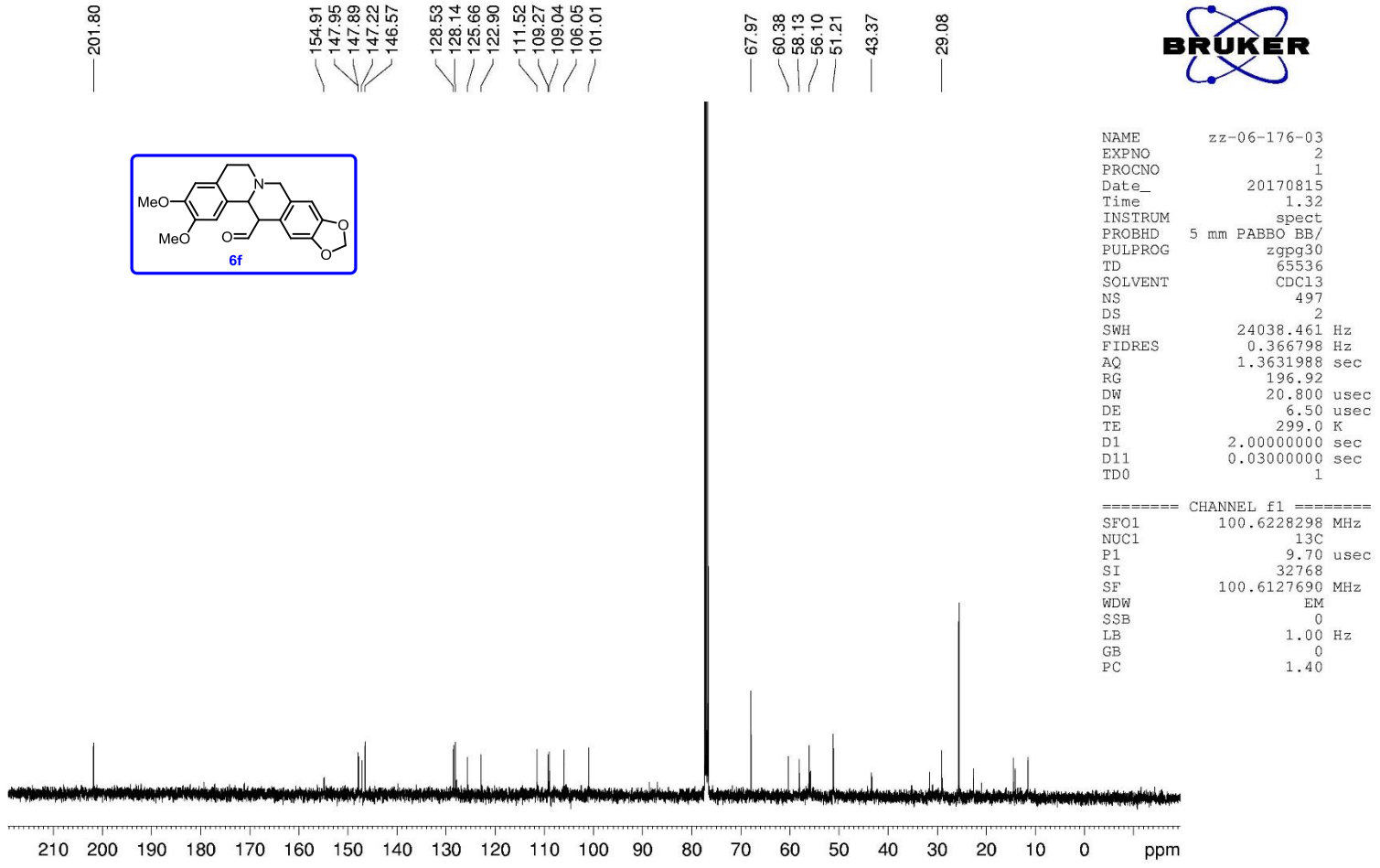
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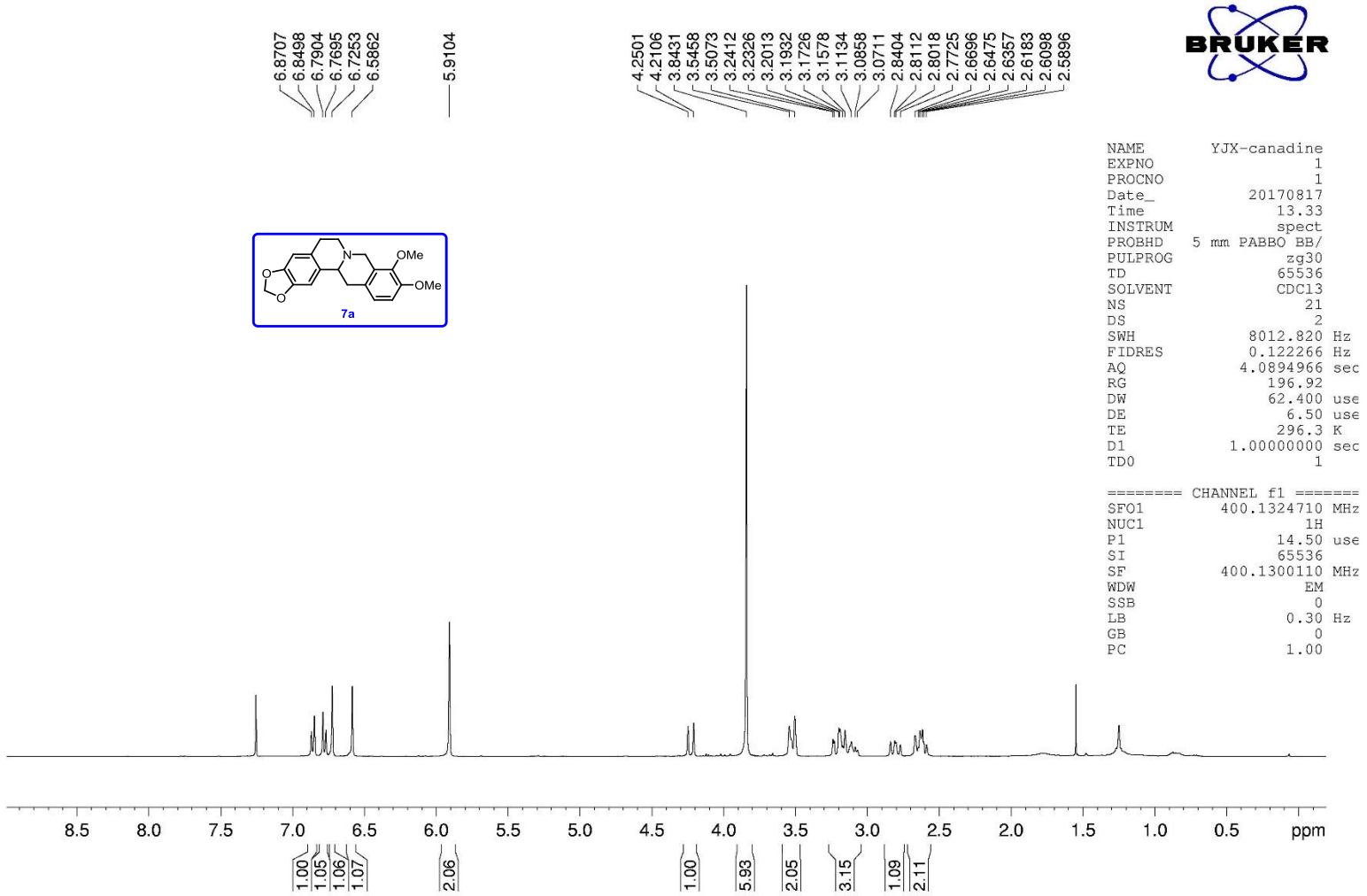
154.91
147.95
147.89
147.22
146.57
128.53
128.14
125.66
122.90
111.52
109.27
109.04
106.05
101.01
67.97
60.38
58.13
56.10
51.21
43.37
29.08
MeO
MeO
O
N
O
O
6f
NAME zz-06-176-03
EXPNO 2
PROCNO 1
Date_ 20170815
Time 1.32
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 497
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 196.92
DW 20.800 usec
DE 6.50 usec
TE 299.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228298 MHz
NUC1 13C
P1 9.70 usec
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm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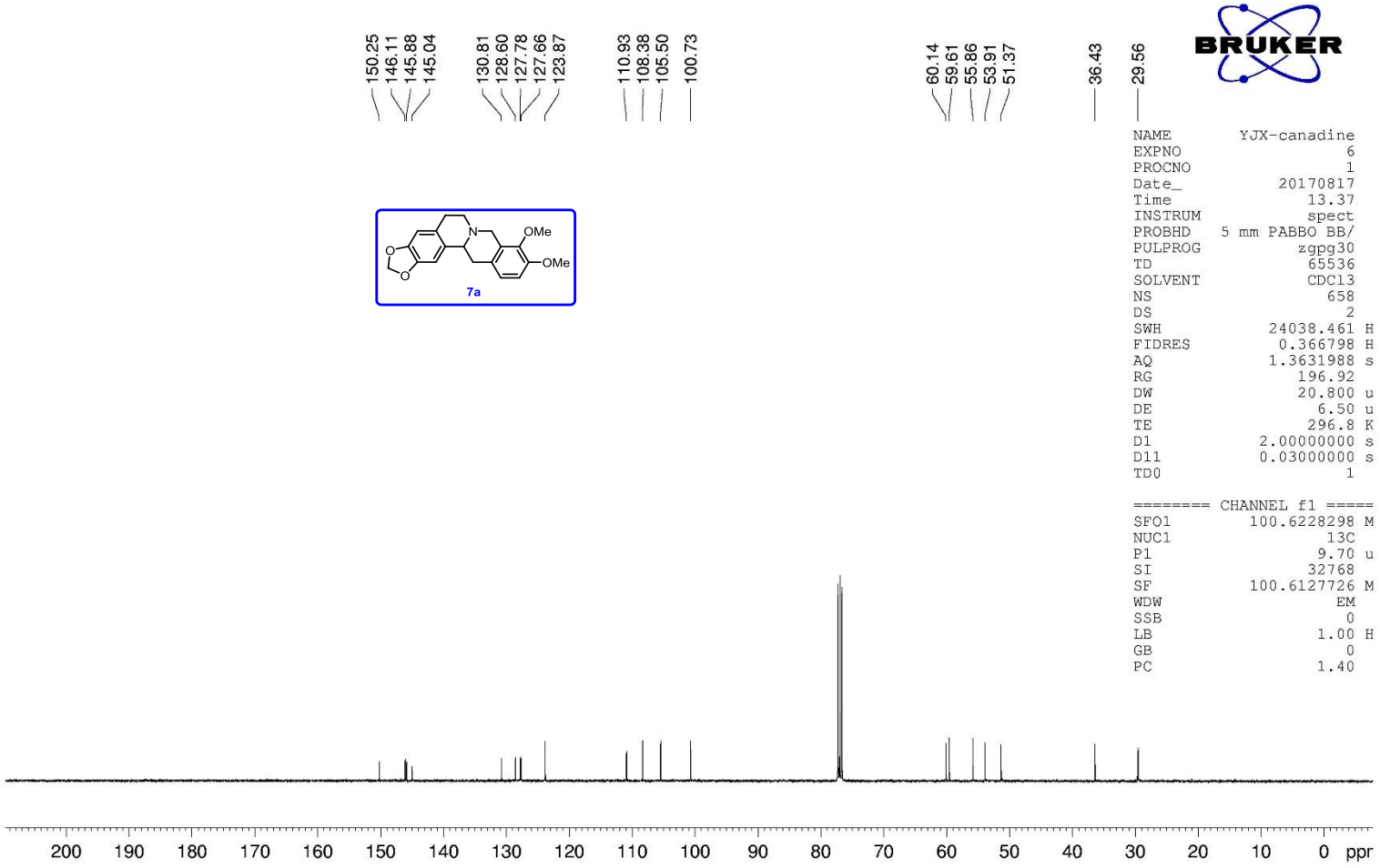
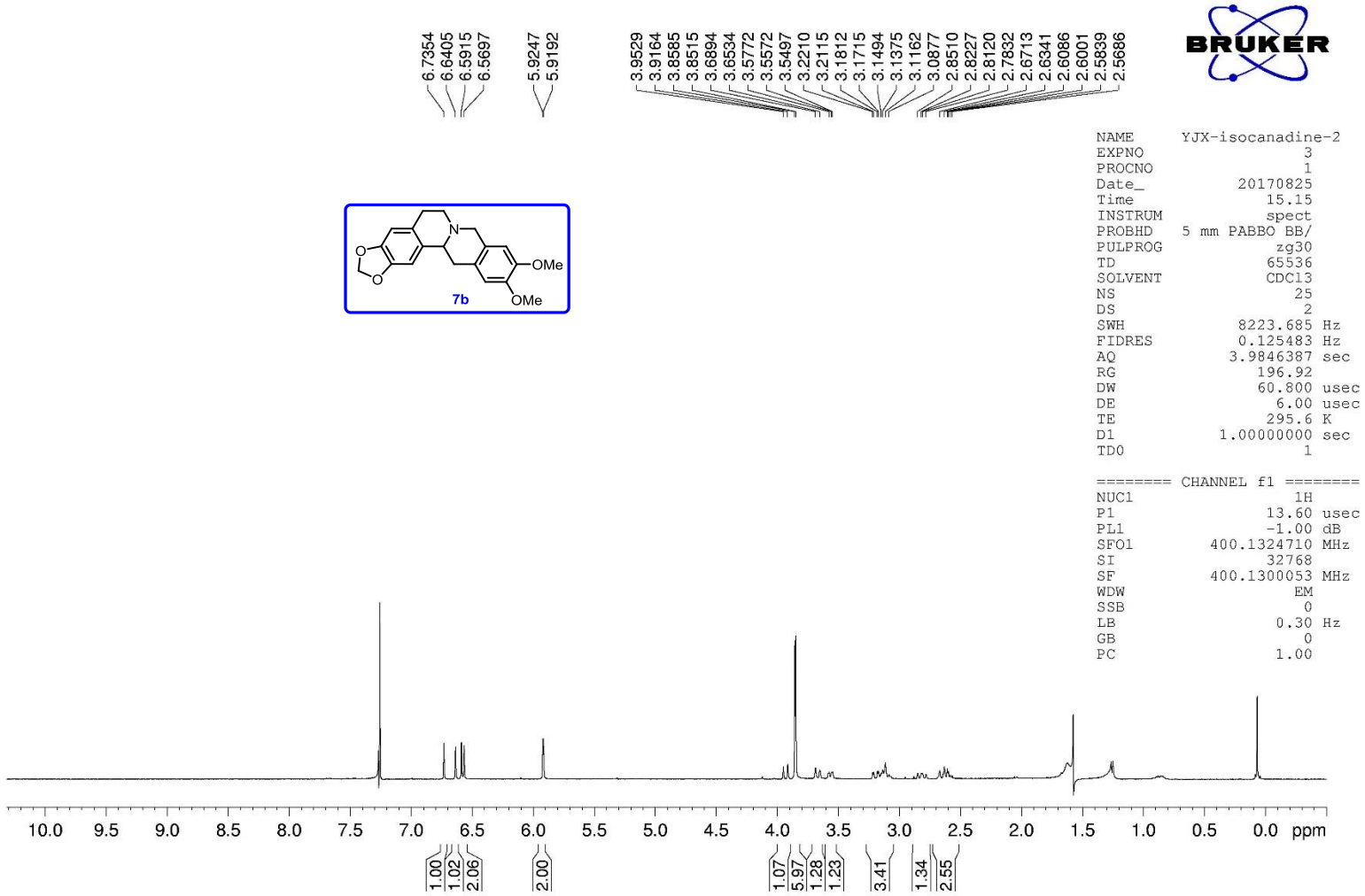
6.7904
6.7695
6.7253
6.5862
5.9104
4.2501
4.2106
3.8431
3.5458
3.5073
3.2412
3.2326
3.2013
3.1932
3.1726
3.1578
3.1134
3.0858
3.0711
2.8404
2.8112
2.8018
2.7725
2.6696
2.6475
2.6357
2.6183
2.6098
2.5896
BRUKER
OMe
OMe
7a
NAME YJX-canadine
EXPNO 1
PROCNO 1
Date_ 20170817
Time 13.33
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 21
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 196.92
DW 62.400 use
DE 6.50 use
TE 296.3 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =======
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 use
SI 65536
SF 400.1300110 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 ppm
1.00 1.05 1.06 1.07 2.06 1.00 5.93 2.05 3.15 1.09 2.11


150.25
146.11
145.88
145.04
130.81
128.60
127.78
127.66
123.87
110.93
108.38
105.50
100.73
60.14
59.61
55.86
53.91
51.37
36.43
29.56
OMe
OMe
7a
NAME YJX-canadine
EXPNO 6
PROCNO 1
Date_ 20170817
Time 13.37
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 658
DS 2
SWH 24038.461 H
FIDRES 0.366798 H
AQ 1.3631988 s
RG 196.92
DW 20.800 u
DE 6.50 u
TE 296.8 K
D1 2.00000000 s
D11 0.03000000 s
TD0 1
======== CHANNEL f1 =====
SFO1 100.6228298 M
NUC1 13C
P1 9.70 u
SI 32768
SF 100.6127726 M
WDW EM
SSB 0
LB 1.00 H
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr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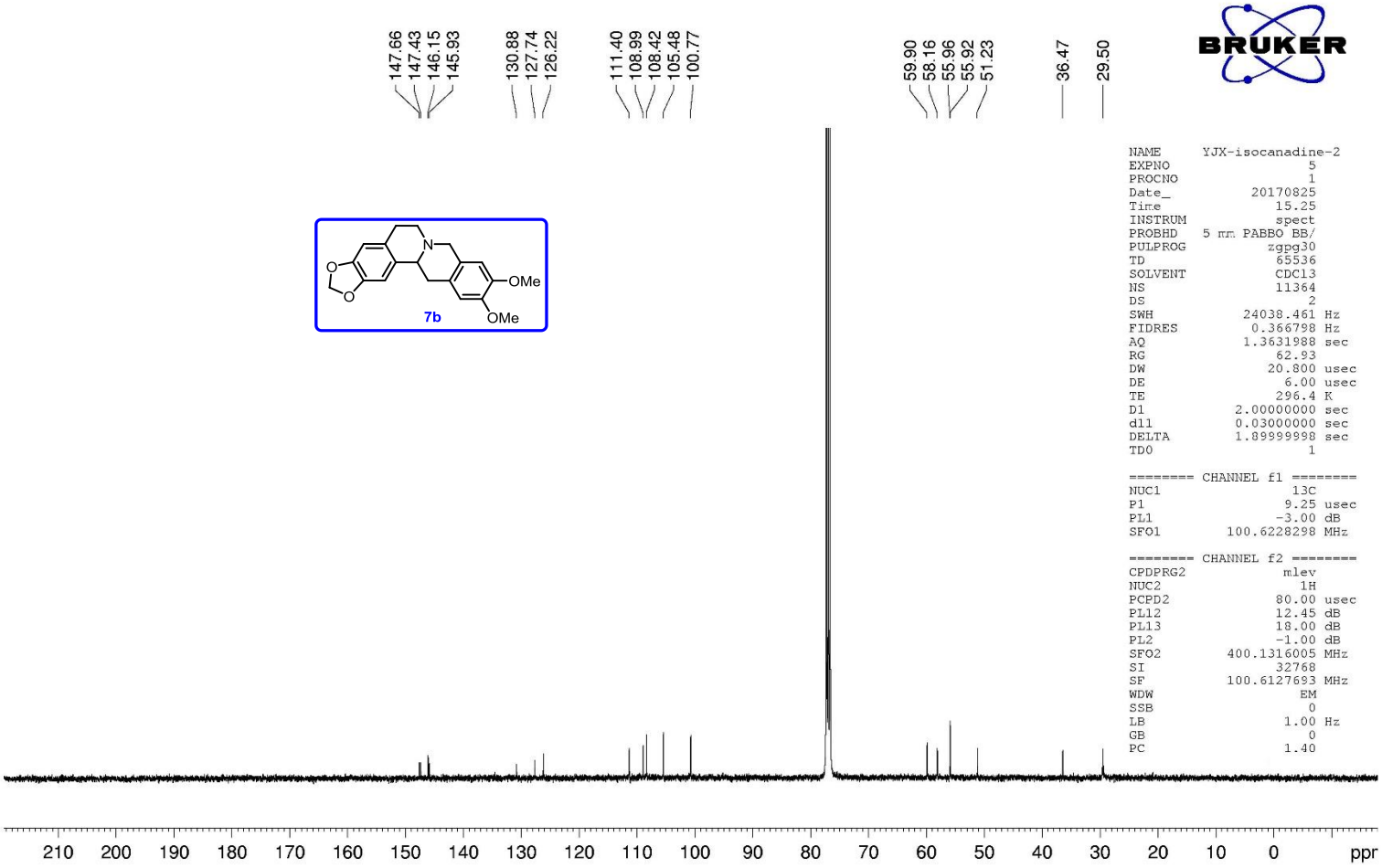
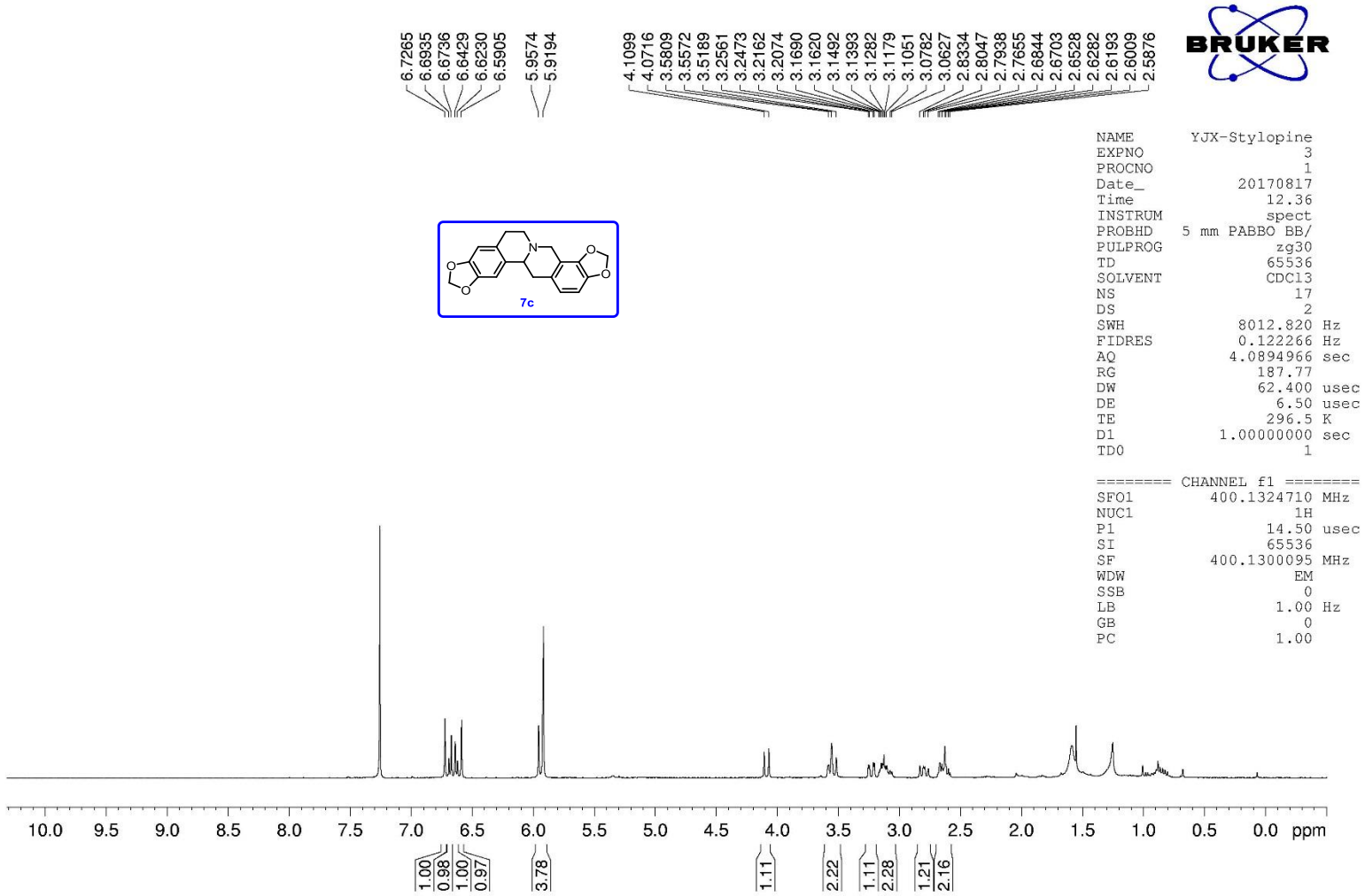
6.6405
6.5915
6.5697
5.9247
5.9192
3.9529
3.9164
3.8585
3.8515
3.6894
3.6534
3.5772
3.5572
3.5497
3.2210
3.2115
3.1812
3.1715
3.1494
3.1375
3.1162
3.0877
2.8510
2.8227
2.8120
2.7832
2.6713
2.6341
2.6086
2.6001
2.5839
2.5686
BRUKER
7b
OMe
OMe
NAME YJX-isocanadine-2
EXPNO 3
PROCNO 1
Date_ 20170825
Time 15.15
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 25
DS 2
SWH 8223.685 Hz
FIDRES 0.125483 Hz
AQ 3.9846387 sec
RG 196.92
DW 60.800 usec
DE 6.00 usec
TE 295.6 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
NUC1 1H
P1 13.60 usec
PL1 -1.00 dB
SFO1 400.1324710 MHz
SI 32768
SF 400.1300053 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.00
1.02
2.06
2.00
1.07
5.97
1.28
1.23
3.41
1.34
2.55


147.66
147.43
146.15
145.93
130.88
127.74
126.22
111.40
108.99
108.42
105.48
100.77
59.90
58.16
55.96
55.92
51.23
36.47
29.50
BRUKER
7b
OMe
OMe
NAME YJX-isocanadine-2
EXPNO 5
PROCNO 1
Date_ 20170825
Time 15.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 11364
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 62.93
DW 20.800 usec
DE 6.00 usec
TE 296.4 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD0 1
======== CHANNEL f1 ========
NUC1 13C
P1 9.25 usec
PL1 -3.00 dB
SFO1 100.6228298 MHz
======== CHANNEL f2 ========
CPDPRG2 mlev
NUC2 1H
PCPD2 80.00 usec
PL12 12.45 dB
PL13 18.00 dB
PL2 -1.00 dB
SFO2 400.1316005 MHz
SI 32768
SF 100.6127693 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr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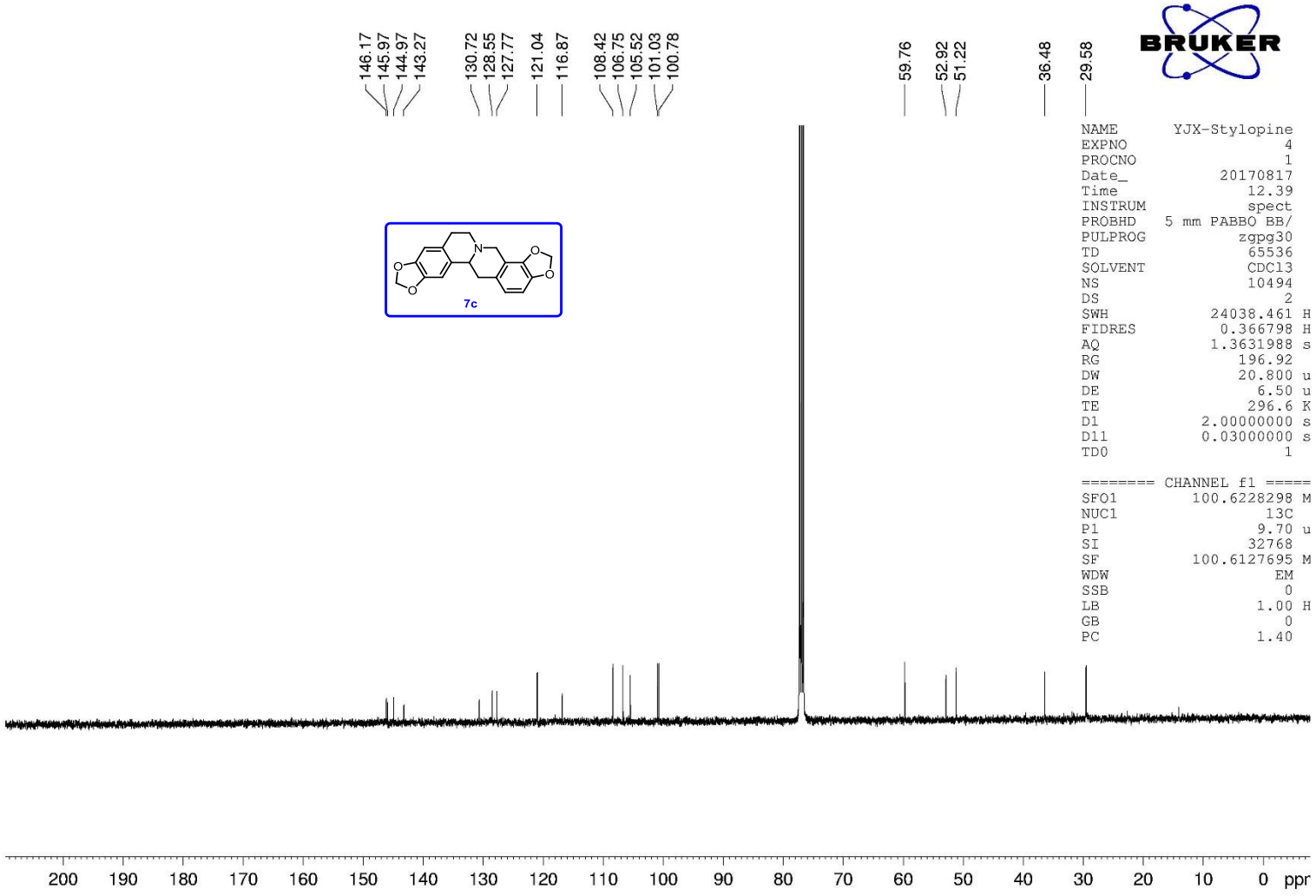
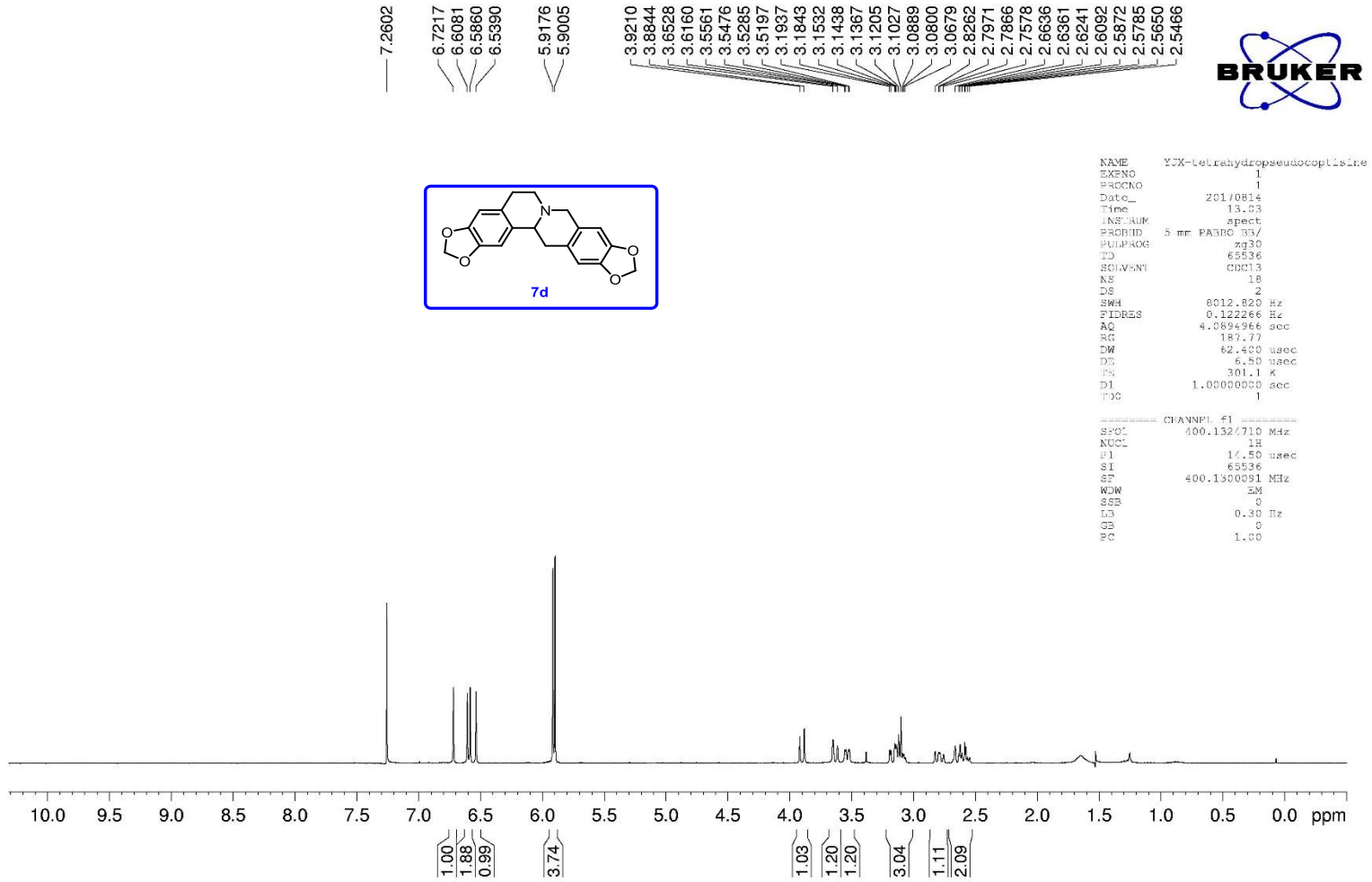
6.6935
6.6736
6.6429
6.6230
6.5905
5.9574
5.9194
4.1099
4.0716
3.5809
3.5572
3.5189
3.2561
3.2473
3.2162
3.2074
3.1690
3.1620
3.1492
3.1393
3.1282
3.1179
3.1051
3.0782
3.0627
2.8334
2.8047
2.7938
2.7655
2.6844
2.6703
2.6528
2.6282
2.6193
2.6009
2.5876
BRUKER
7c
NAME YJX-Stylopine
EXPNO 3
PROCNO 1
Date_ 20170817
Time 12.36
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 17
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 187.77
DW 62.400 usec
DE 6.50 usec
TE 296.5 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 usec
SI 65536
SF 400.1300095 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.00
0.98
1.00
0.97
3.78
1.11
2.22
1.11
2.28
1.21
2.16


146.17
145.97
144.97
143.27
130.72
128.55
127.77
121.04
116.87
108.42
106.75
105.52
101.03
100.78
59.76
52.92
51.22
36.48
29.58
7c
NAME YJX-Stylopine
EXPNO 4
PROCNO 1
Date_ 20170817
Time 12.39
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 10494
DS 2
SWH 24038.461 H
FIDRES 0.366798 H
AQ 1.3631988 s
RG 196.92
DW 20.800 u
DE 6.50 u
TE 296.6 K
D1 2.00000000 s
D11 0.03000000 s
TD0 1
======== CHANNEL f1 =====
SFO1 100.6228298 M
NUC1 13C
P1 9.70 u
SI 32768
SF 100.6127695 M
WDW EM
SSB 0
LB 1.00 H
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr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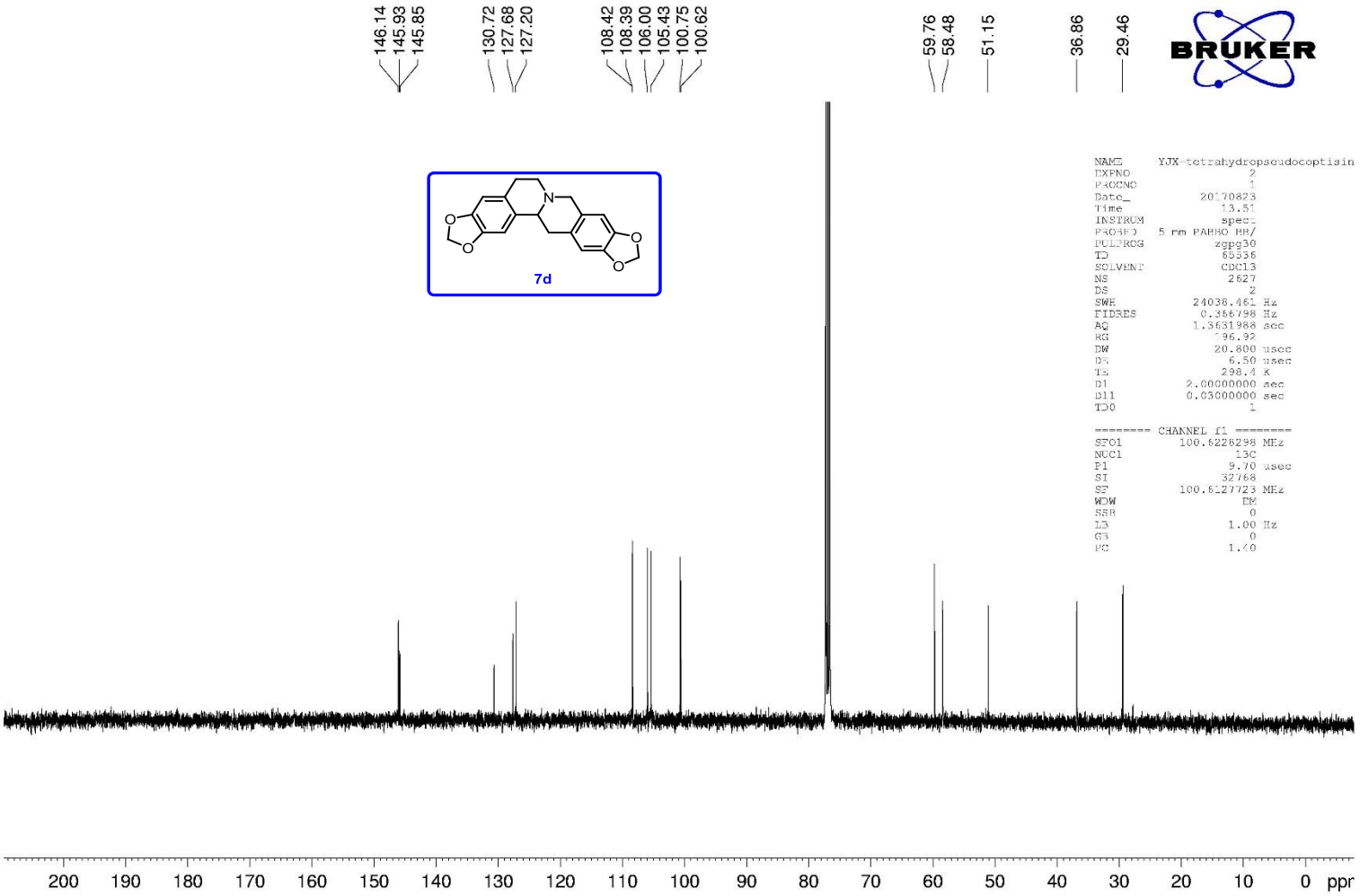
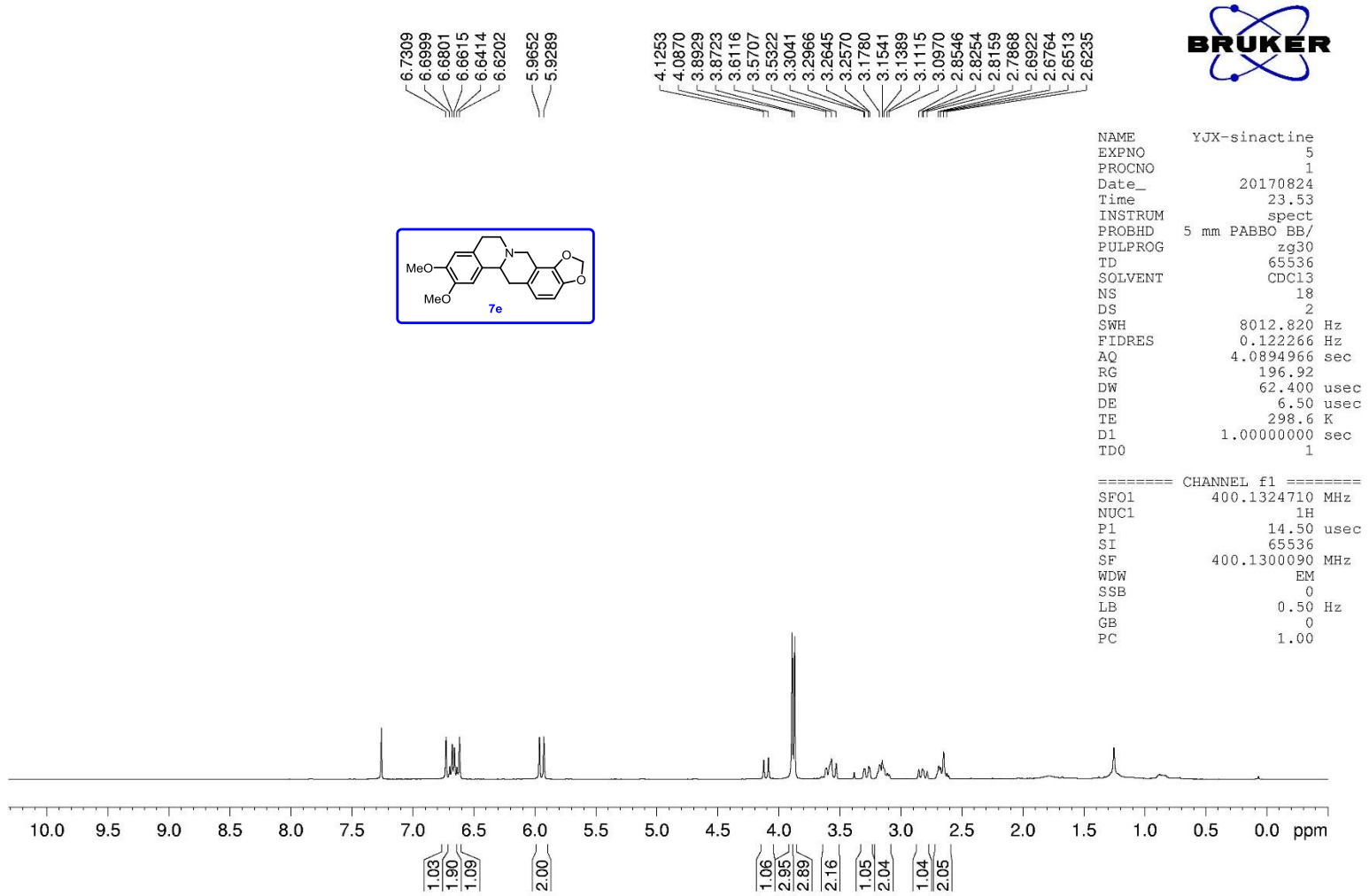
6.6081
6.5860
6.5390
5.9176
5.9005
3.9210
3.8844
3.6528
3.6160
3.5561
3.5476
3.5285
3.5197
3.1937
3.1843
3.1532
3.1438
3.1367
3.1205
3.1027
3.0889
3.0800
3.0679
2.8262
2.7971
2.7866
2.7578
2.6636
2.6361
2.6241
2.6092
2.5872
2.5785
2.5650
2.5466
BRUKER
7d
NAME YJX-tetrahydropseudocoptisine
EXPNO 1
PROCNO 1
Date_ 20170814
Time 13.03
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 187.77
DW 62.400 usec
DE 6.50 usec
TE 301.1 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 usec
SI 65536
SF 400.1300091 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.00
1.88
0.99
3.74
1.03
1.20
1.20
3.04
1.11
2.09


146.14
145.93
145.85
130.72
127.68
127.20
108.42
108.39
106.00
105.43
100.75
100.62
59.76
58.48
51.15
36.86
29.46
BRUKER
7d
NAME YJX-tetrahydropseudocoptisin
EXPNO 2
PROCNO 1
Date_ 20170823
Time 13.51
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 2627
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 796.92
DW 20.800 usec
DE 6.50 usec
TE 298.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228298 MHz
NUC1 13C
P1 9.70 usec
SI 32768
SF 100.6127723 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm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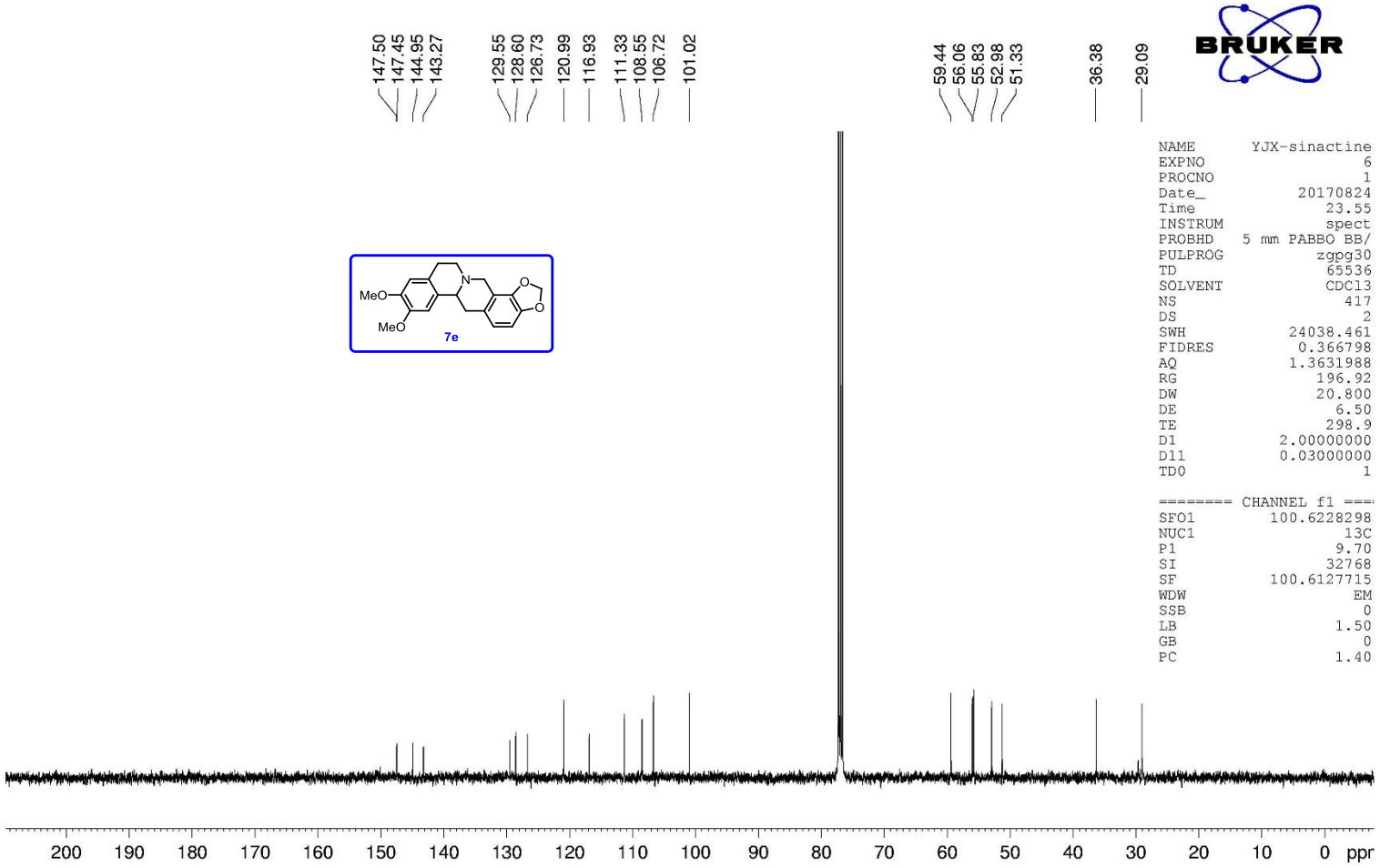
6.6999
6.6801
6.6615
6.6414
6.6202
5.9652
5.9289
4.1253
4.0870
3.8929
3.8723
3.6116
3.5707
3.5322
3.3041
3.2966
3.2645
3.2570
3.1780
3.1541
3.1389
3.1115
3.0970
2.8546
2.8254
2.8159
2.7868
2.6922
2.6764
2.6513
2.6235
MeO
MeO
O
O
N
7e
NAME YJX-sinactine
EXPNO 5
PROCNO 1
Date_ 20170824
Time 23.53
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 18
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 196.92
DW 62.400 usec
DE 6.50 usec
TE 298.6 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 usec
SI 65536
SF 400.1300090 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.03
1.90
1.09
2.00
1.06
2.95
2.89
2.16
1.05
2.04
1.04
2.05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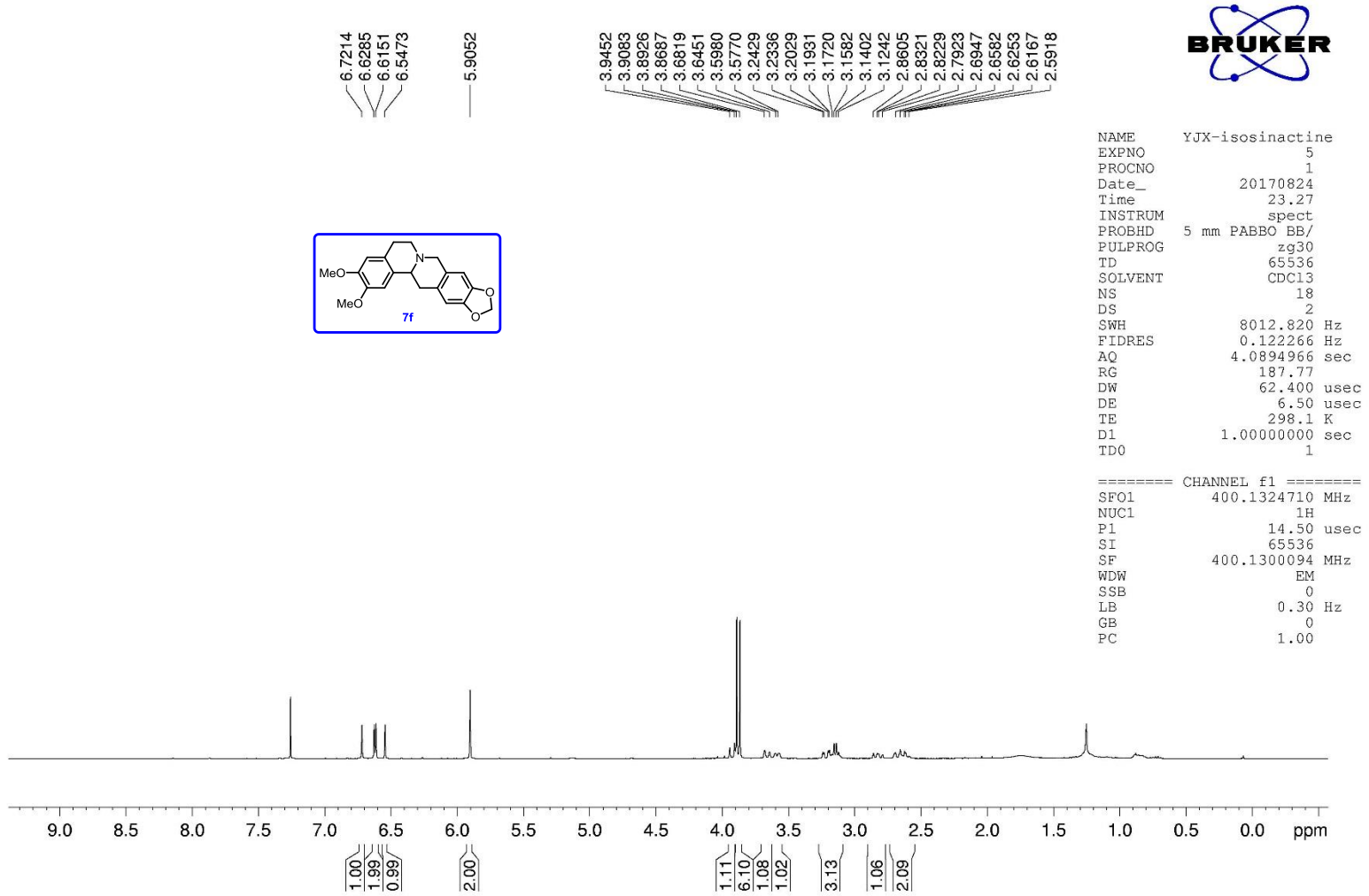
144.95
143.27
129.55
128.60
126.73
120.99
116.93
111.33
108.55
106.72
101.02
59.44
56.06
55.83
52.98
51.33
36.38
29.09
BRUKER
MeO
MeO
7e
NAME YJX-sinactine
EXPNO 6
PROCNO 1
Date_ 20170824
Time 23.55
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 417
DS 2
SWH 24038.461
FIDRES 0.366798
AQ 1.3631988
RG 196.92
DW 20.800
DE 6.50
TE 298.9
D1 2.00000000
D11 0.03000000
TD0 1
======== CHANNEL f1 ===
SFO1 100.6228298
NUC1 13C
P1 9.70
SI 32768
SF 100.6127715
WDW EM
SSB 0
LB 1.50
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr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6.6151
6.5473
5.9052
3.9452
3.9083
3.8926
3.8687
3.6819
3.6451
3.5980
3.5770
3.2429
3.2336
3.2029
3.1931
3.1720
3.1582
3.1402
3.1242
2.8605
2.8321
2.8229
2.7923
2.6947
2.6582
2.6253
2.6167
2.5918
MeO
MeO
N
O
O
7f
NAME YJX-isosinactine
EXPNO 5
PROCNO 1
Date_ 20170824
Time 23.27
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 18
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 187.77
DW 62.400 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 usec
SI 65536
SF 400.1300094 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
ppm
1.00
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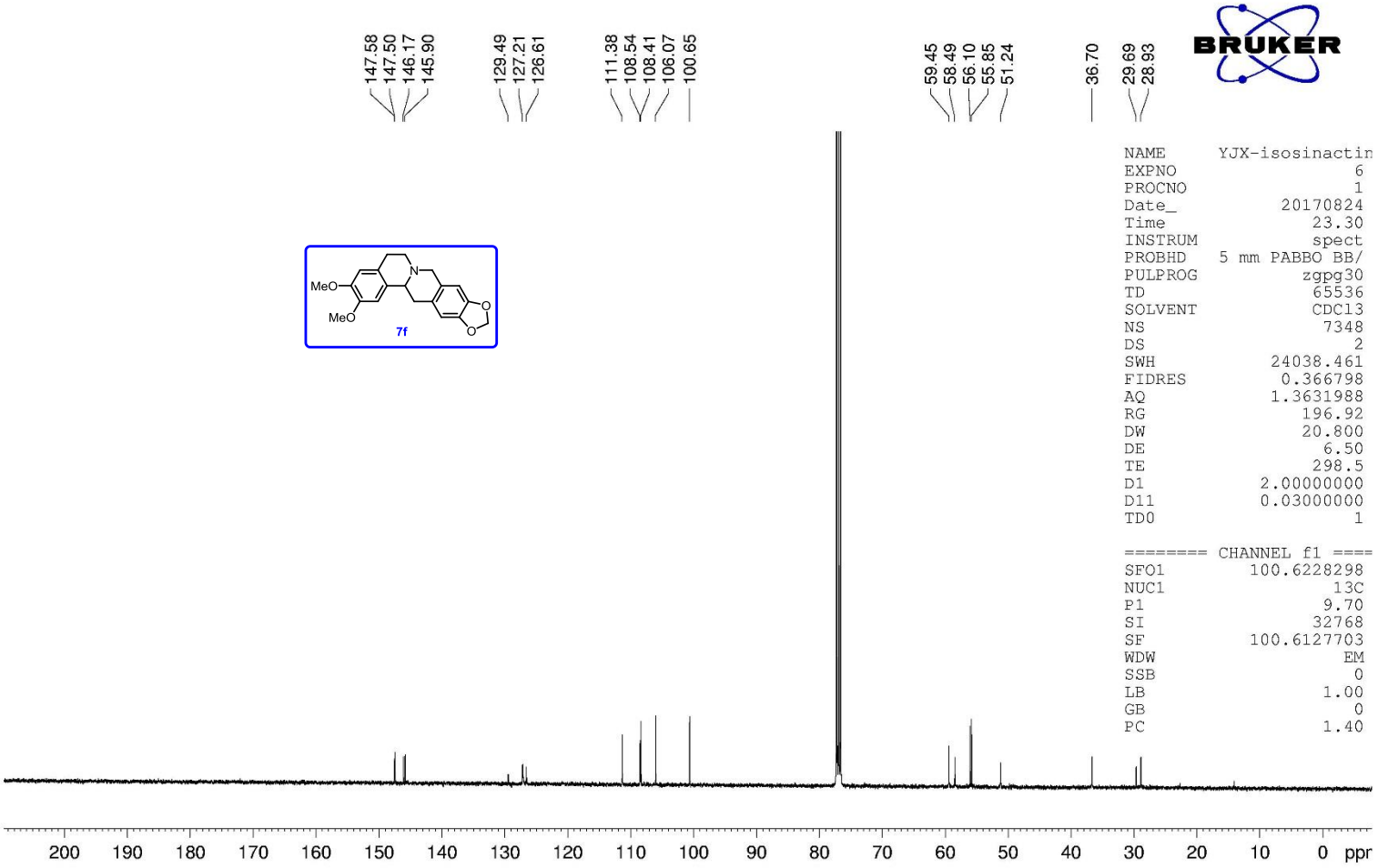
0.99
2.00
1.11
6.10
1.08
1.02
3.13
1.06
2.09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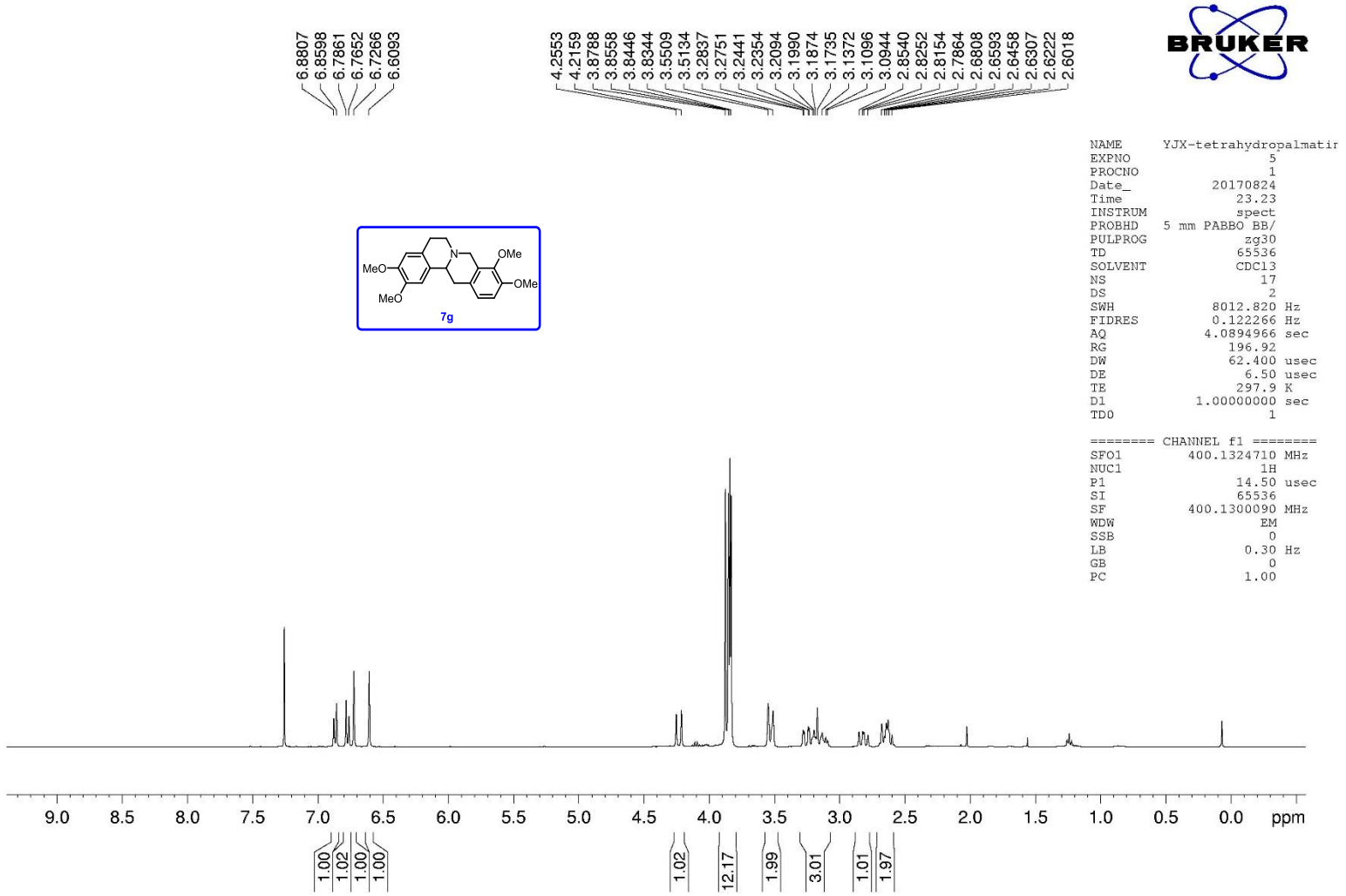
129.49
127.21
126.61
111.38
108.54
108.41
106.07
100.65
59.45
58.49
56.10
55.85
51.24
36.70
29.69
28.93
BRUKER
MeO
MeO
N
O
O
7f
NAME YJX-isosinactin
EXPNO 6
PROCNO 1
Date_ 20170824
Time 23.30
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 7348
DS 2
SWH 24038.461
FIDRES 0.366798
AQ 1.3631988
RG 196.92
DW 20.800
DE 6.50
TE 298.5
D1 2.00000000
D11 0.03000000
TD0 1
======== CHANNEL f1 ====
SFO1 100.6228298
NUC1 13C
P1 9.70
SI 32768
SF 100.6127703
WDW EM
SSB 0
LB 1.00
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr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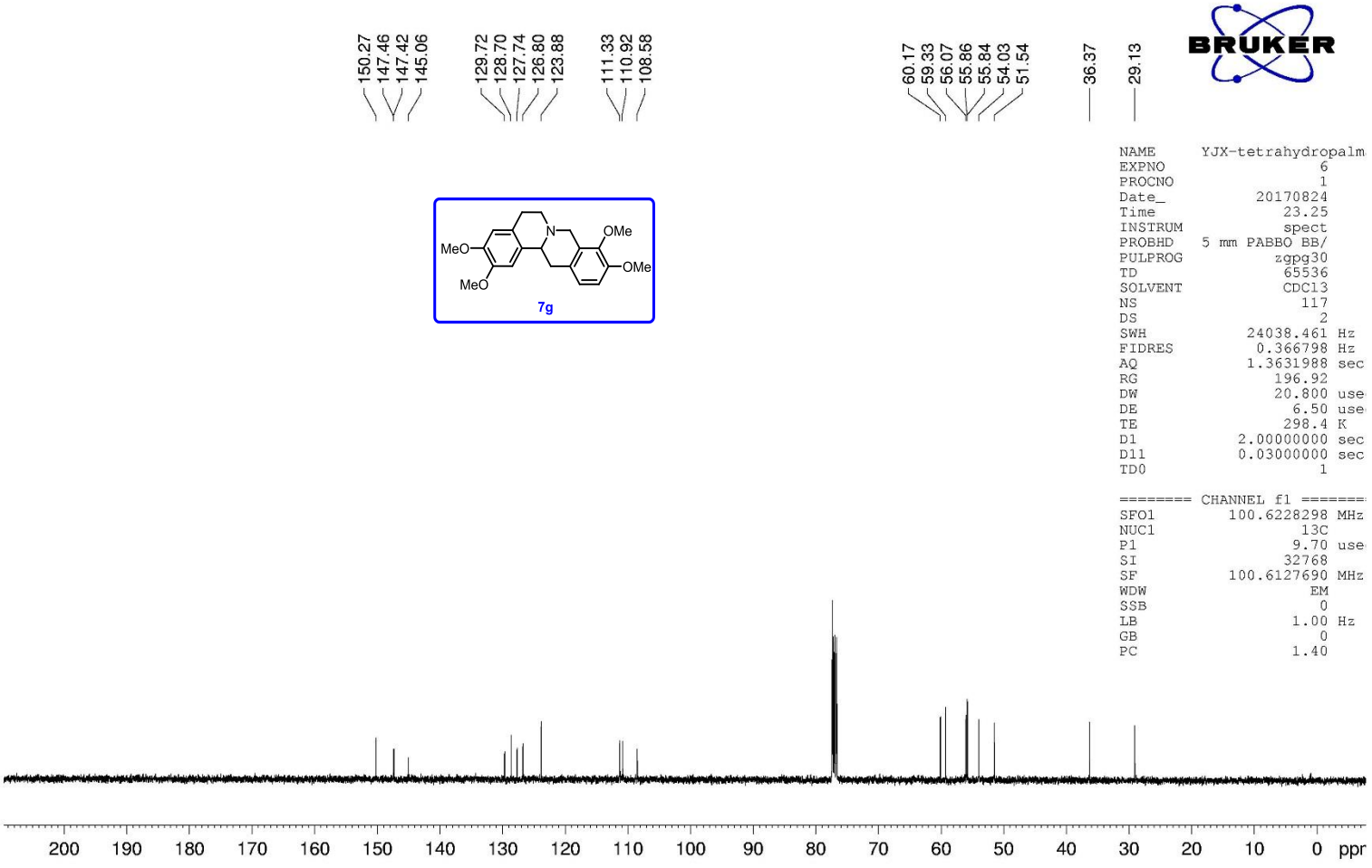
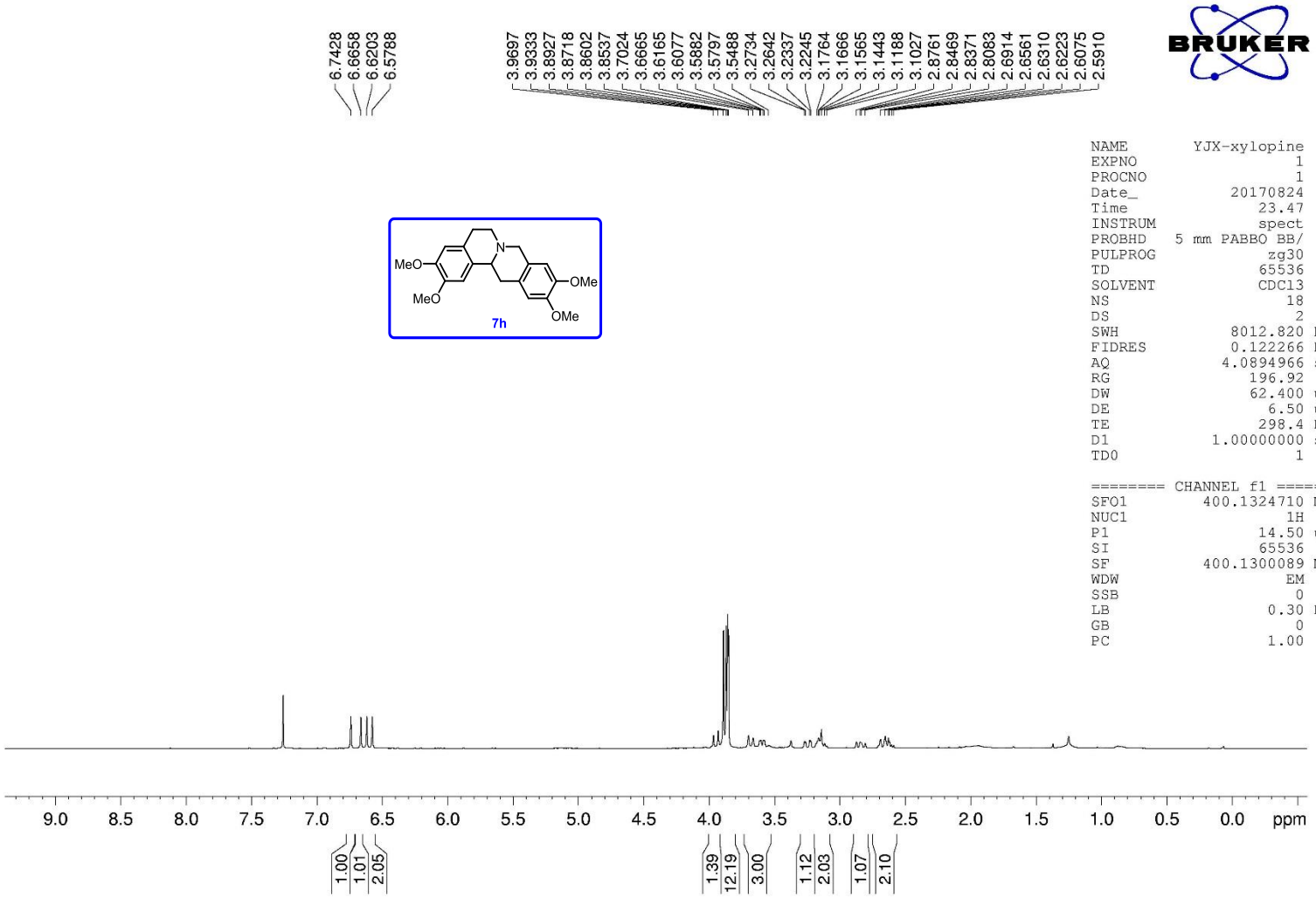
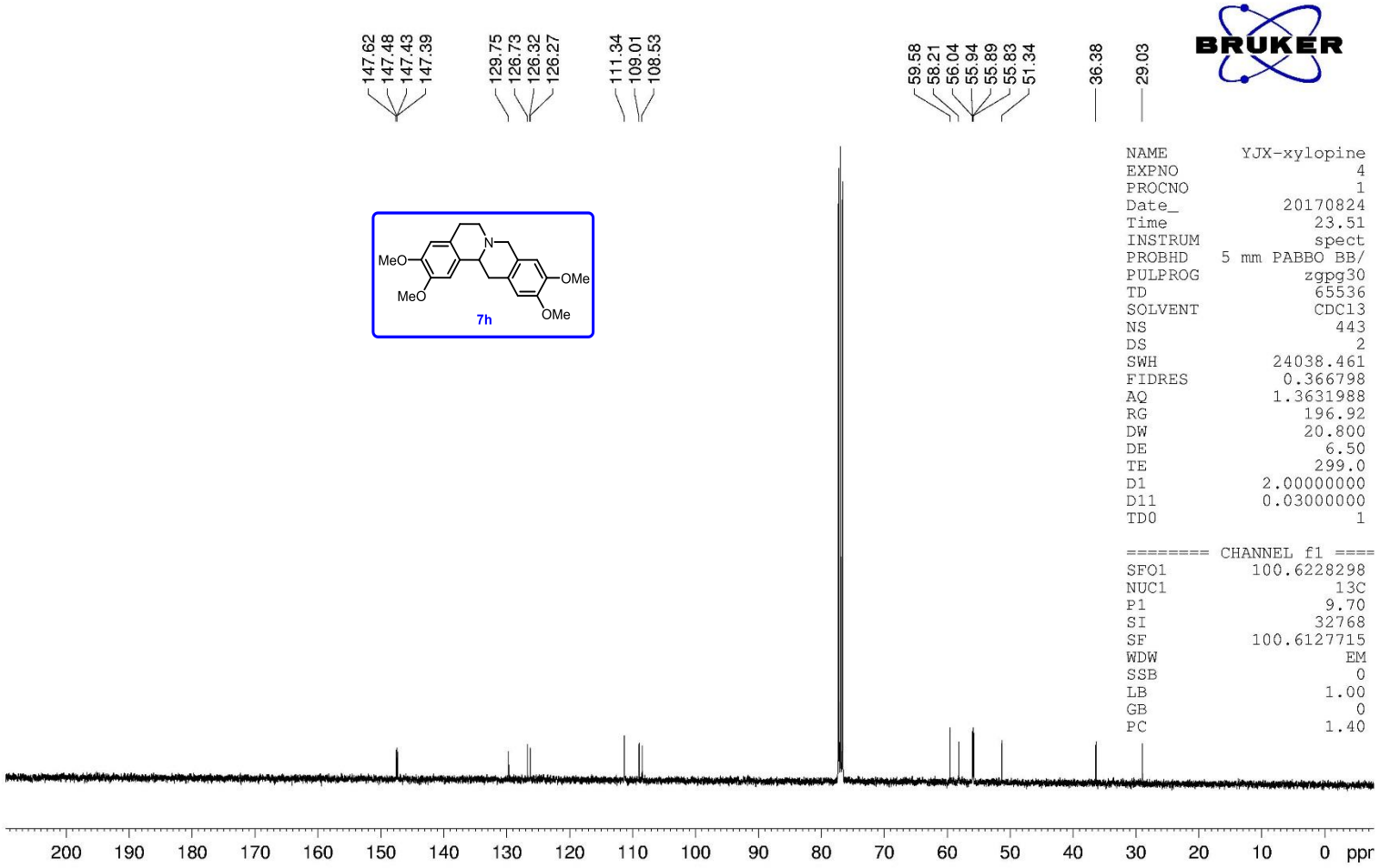
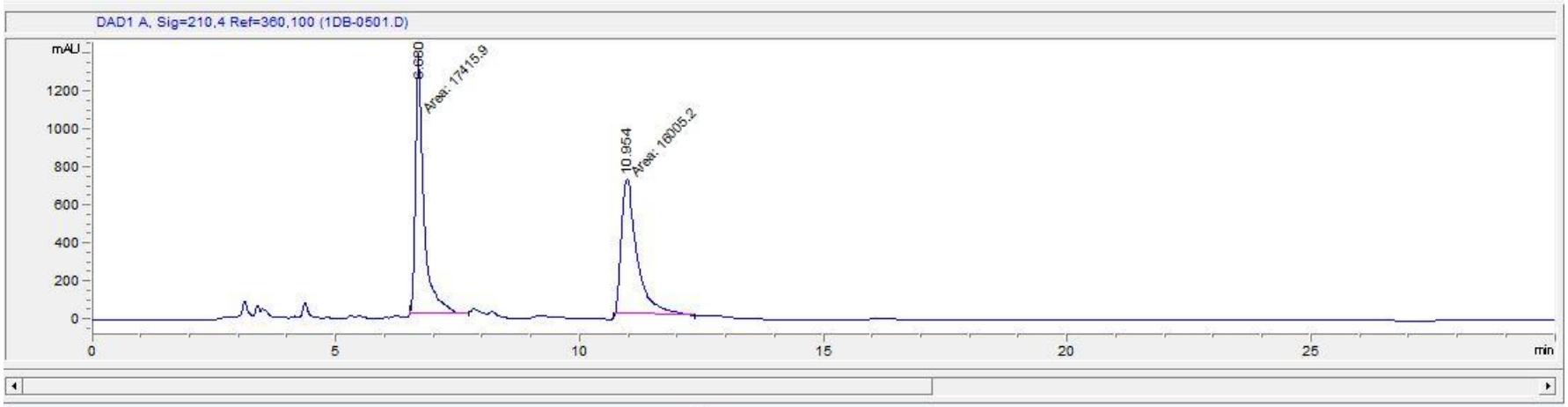
6.8598
6.7861
6.7652
6.7266
6.6093
4.2553
4.2159
3.8788
3.8558
3.8446
3.8344
3.5509
3.5134
3.2837
3.2751
3.2441
3.2354
3.2094
3.1990
3.1874
3.1735
3.1372
3.1096
3.0944
2.8540
2.8252
2.8154
2.7864
2.6808
2.6593
2.6458
2.6307
2.6222
2.6018
BRUKER
MeO
MeO
MeO
OMe
OMe
N
7g
NAME YJX-tetrahydropalmatir
EXPNO 5
PROCNO 1
Date_ 20170824
Time 23.23
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 17
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 196.92
DW 62.400 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 usec
SI 65536
SF 400.1300090 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.00
1.02
1.00
1.00
1.02
12.17
1.99
3.01
1.01
1.97


150.27
147.46
147.42
145.06
129.72
128.70
127.74
126.80
123.88
111.33
110.92
108.58
60.17
59.33
56.07
55.86
55.84
54.03
51.54
36.37
29.13
BRUKER
MeO
MeO
N
OMe
OMe
7g
NAME YJX-tetrahydropalm
EXPNO 6
PROCNO 1
Date_ 20170824
Time 23.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 117
DS 2
SWH 24038.461 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 196.92
DW 20.800 use
DE 6.50 use
TE 298.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 =======
SFO1 100.6228298 MHz
NUC1 13C
P1 9.70 use
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr

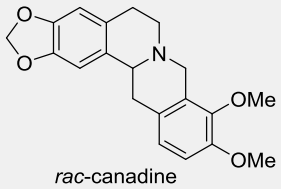

6.7428
6.6658
6.6203
6.5788
3.9697
3.9333
3.8927
3.8718
3.8602
3.8537
3.7024
3.6665
3.6165
3.6077
3.5882
3.5797
3.5488
3.2734
3.2642
3.2337
3.2245
3.1764
3.1666
3.1565
3.1443
3.1188
3.1027
2.8761
2.8469
2.8371
2.8083
2.6914
2.6561
2.6310
2.6223
2.6075
2.5910
BRUKER
MeO
MeO
OMe
OMe
7h
NAME YJX-xylopine
EXPNO 1
PROCNO 1
Date_ 20170824
Time 23.47
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 18
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 196.92
DW 62.400 use
DE 6.50 use
TE 298.4 K
D1 1.00000000 sec
TD0 1
======== CHANNEL f1 =======
SFO1 400.1324710 MHz
NUC1 1H
P1 14.50 use
SI 65536
SF 400.1300089 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 ppm
1.00
1.01
2.05
1.39
12.19
3.00
1.12
2.03
1.07
2.10


147.62
147.48
147.43
147.39
129.75
126.73
126.32
126.27
111.34
109.01
108.53
59.58
58.21
56.04
55.94
55.89
55.83
51.34
36.38
29.03
BRUKER
MeO
MeO
OMe
OMe
N
7h
NAME YJX-xylopine
EXPNO 4
PROCNO 1
Date_ 20170824
Time 23.51
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 443
DS 2
SWH 24038.461
FIDRES 0.366798
AQ 1.3631988
RG 196.92
DW 20.800
DE 6.50
TE 299.0
D1 2.00000000
D11 0.03000000
TD0 1
======== CHANNEL f1 ====
SFO1 100.6228298
NUC1 13C
P1 9.70
SI 32768
SF 100.6127715
WDW EM
SSB 0
LB 1.00
GB 0
PC 1.40
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppr

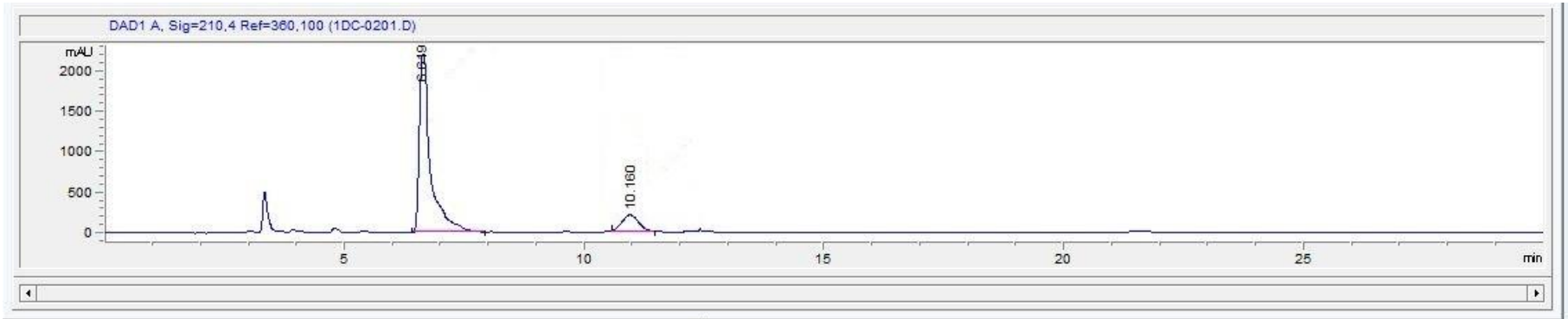


File Information	
LC-File	1DB-0501.D
File Path	C:\CHEM32\1\DATA\
Date	15-Aug-17, 03:42:35
Sample	YJX834-1-1r
Sample Info	
Barcode	
Operator	LLX
Method	AD-20-50.M
Analysis Time	50 min
Sampling Rate	0.0067 min (0.402 sec), 7501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	6.68	17415.9	1366.3	0.2124	52.111	0.526
2	10.954	16005.2	710.4	0.3755	47.889	0.489

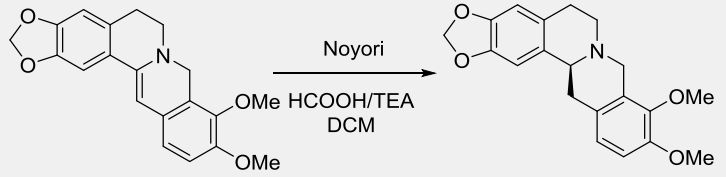


rac-canadine

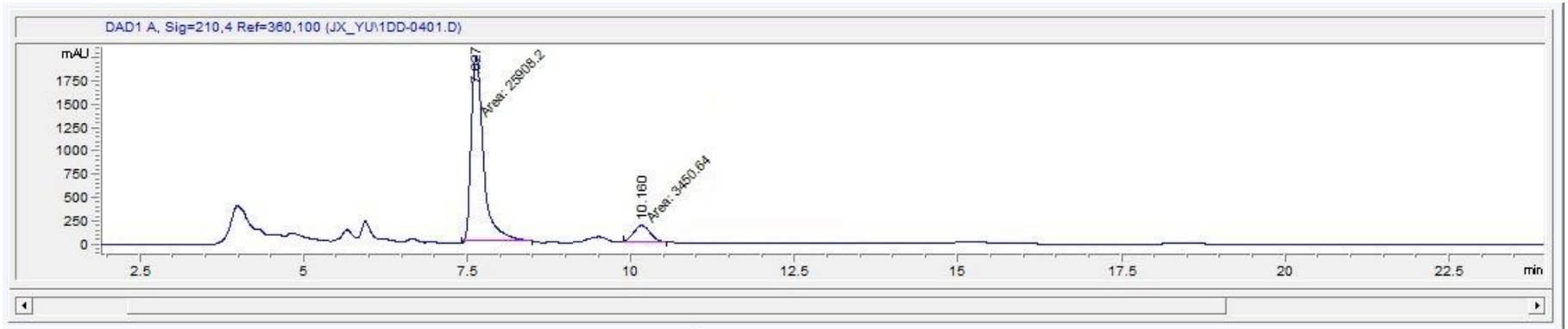


File Information	
LC-File	1DC-0201.D
File Path	C:\CHEM32\1\DATA\
Date	15-Aug-17, 13:25:44
Sample	YJX834-1-1a
Sample Info	
Barcode	
Operator	LLX
Method	AD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	6.619	36325.3	2210	0.274	89.985	0.418
2	10.74	4448.1	727.5	0.1706	11.015	0.468

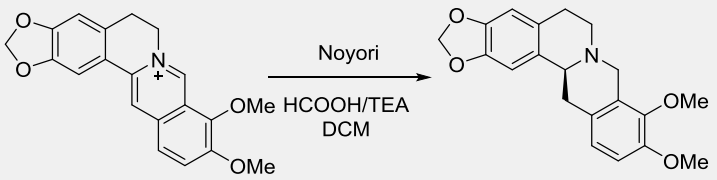


7a: (-)-canadine (77 ee%)

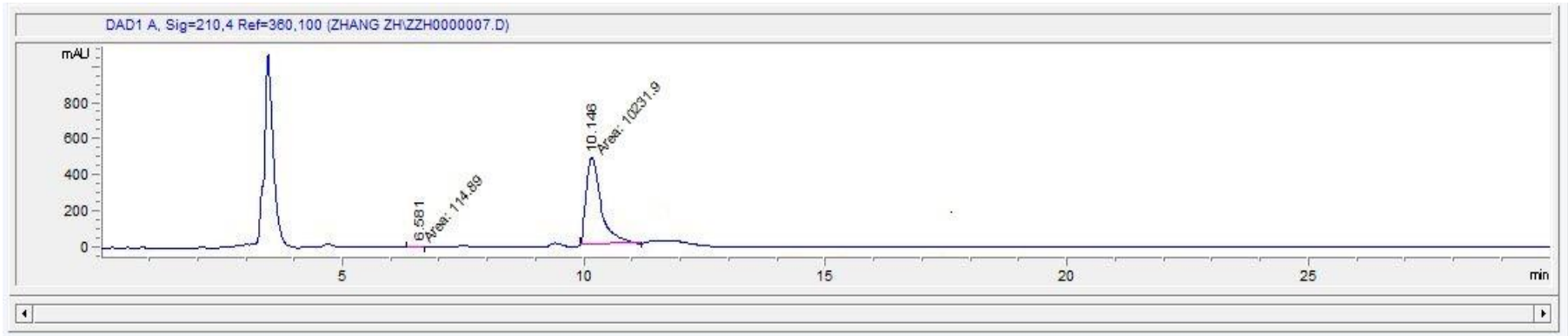


File Information	
LC-File	1DD-0401.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	25-Aug-17, 15:07:32
Sample	YJX834-1-1sa
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.627	25908.2	1983.8	0.2177	88.247	0.62
2	10.16	3450.6	184.9	0.3111	11.753	0.947

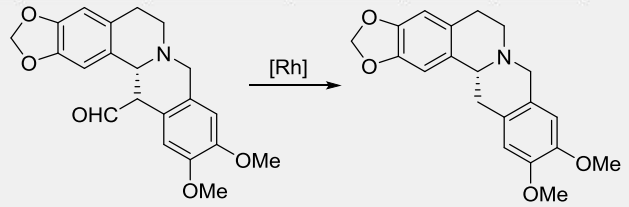


7a: (-)-canadine (78 ee%)

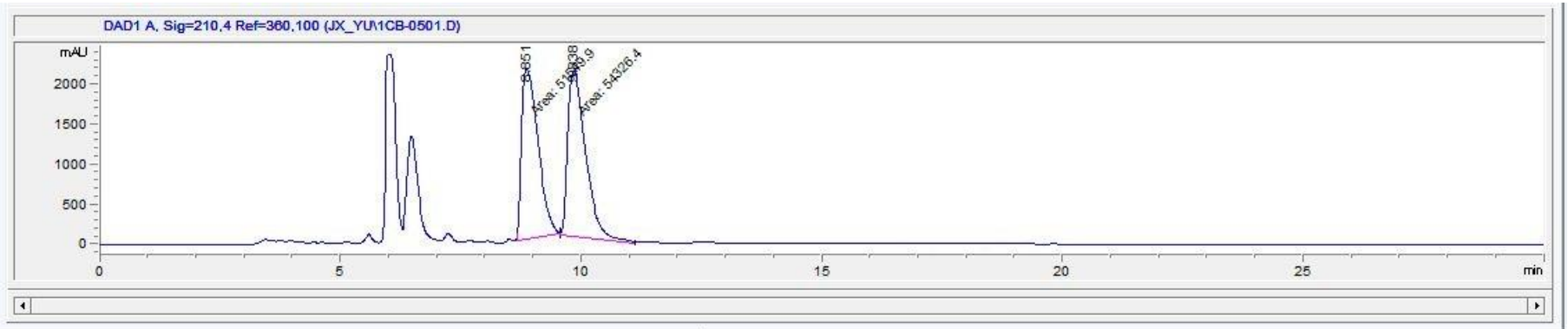


File Information	
LC-File	ZZH0000007.D
File Path	C:\CHEM32\1\DATA\ZHANG ZH\
Date	16-Aug-17, 18:58:18
Sample	zz-168-02
Sample Info	
Barcode	
Operator	ZZH
Method	AD-20-30.M
Analysis Time	30 min
Sampling Rate	0.0067 min (0.402 sec), 4501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	6.581	114.9	6	0.3173	1.110	0.254
2	10.146	10231.9	482.1	0.3538	98.890	0.542



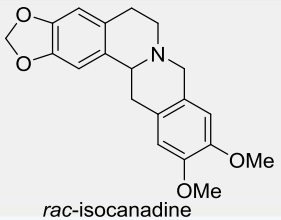
7b: (+)-isocanadine (97 ee%)



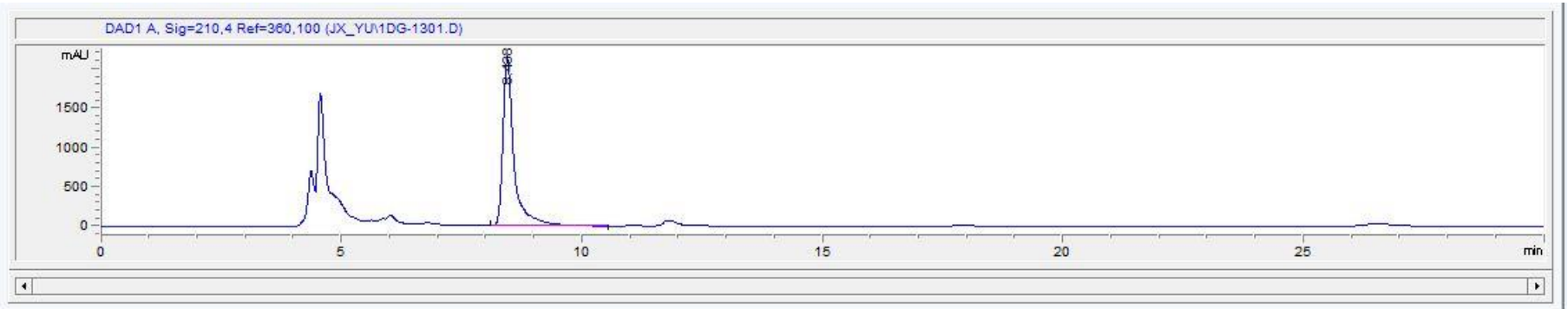
File Information

LC-File	1CB-0501.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	19-Aug-17, 15:54:28
Sample	YJX877-1-1r
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	8.851	51549.9	2134.9	0.4024	48.689	0.419
2	9.838	54326.4	2064	0.4387	51.311	0.463

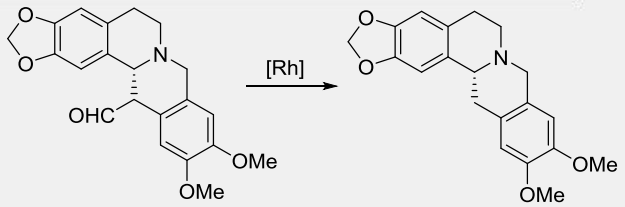


rac-isocanadine

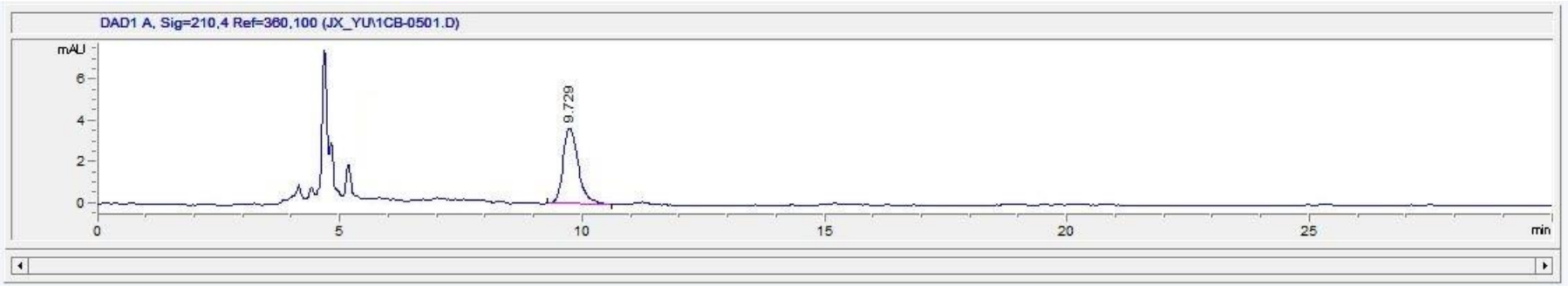


File Information	
LC-File	1DG-1301.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	22-Aug-17, 21:46:53
Sample	ZZ-06-180-01
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	8.438	35379.9	2153.8	0.2456	100.000	0.587

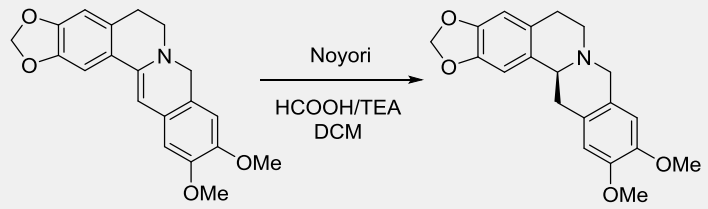


7b: (+)-isocanadine (99 ee%)

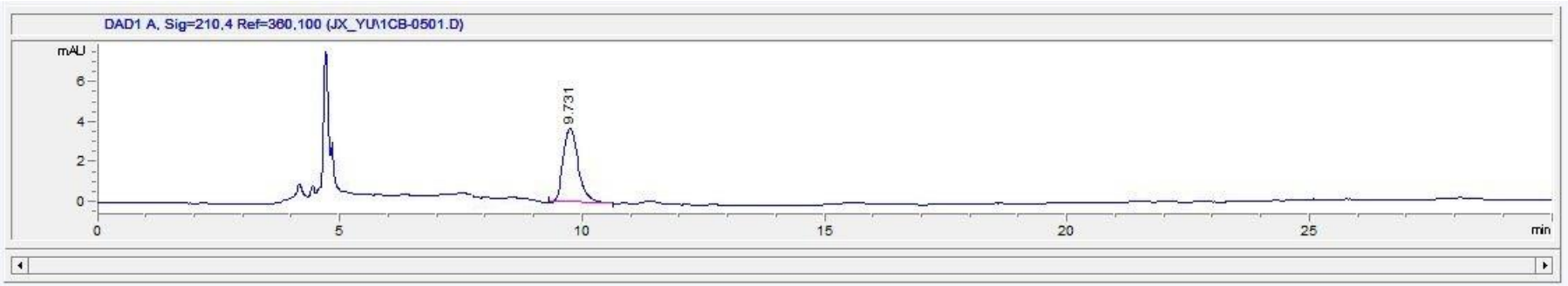


File Information	
LC-File	1DC-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	26-Aug-17, 14:00:57
Sample	YJX849-1-1
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	30 min
Sampling Rate	0.0067 min (0.402 sec), 4501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	9.729	79.5	3.7	0.3099	100.000	0.746



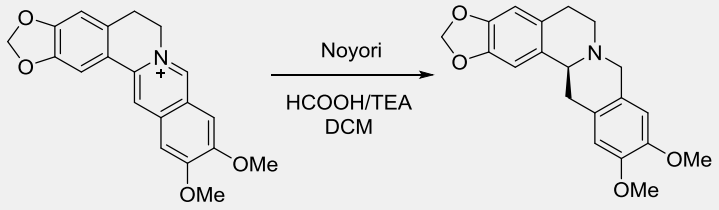
7b: (-)-isocanadine (99 ee%)



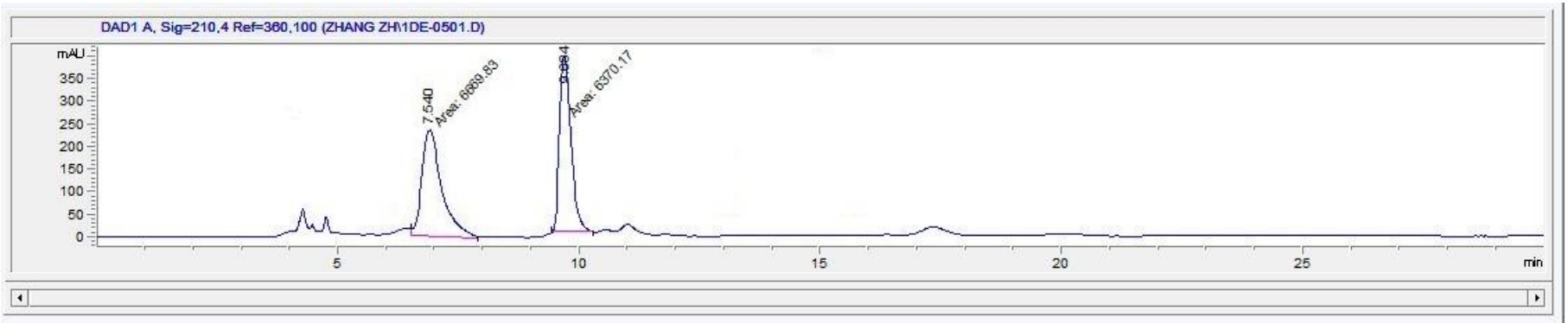
File Information

LC-File	1DC-0401.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	26-Aug-17, 15:02:53
Sample	YJX849-1-1sa
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	9.731	81.6	3.7	0.3301	100.000	0.738



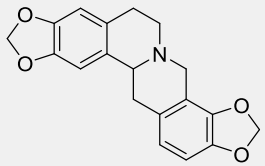
7b: (-)-isocanadine (99 ee%)



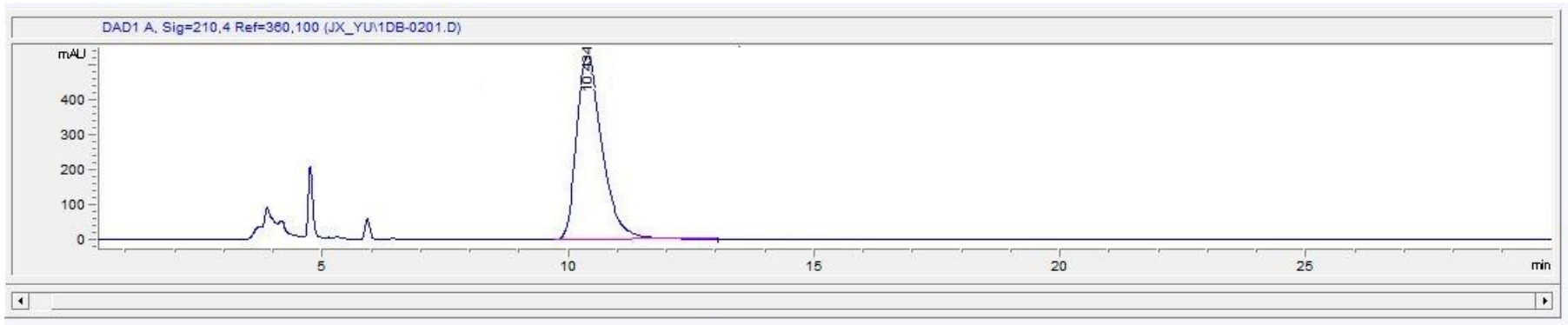
File Information

LC-File	1DE-0501.D
File Path	C:\CHEM32\1\DATA\ZHANG ZH\
Date	21-Aug-17, 22:03:41
Sample	ZZ-06-138-R
Sample Info	
Barcode	
Operator	ZZH
Method	OD-20-30.M
Analysis Time	30 min
Sampling Rate	0.0067 min (0.402 sec), 4501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.540	6669.8	234.4	0.4743	51.149	0.678
2	9.684	6370.2	391.9	0.2709	48.851	0.59

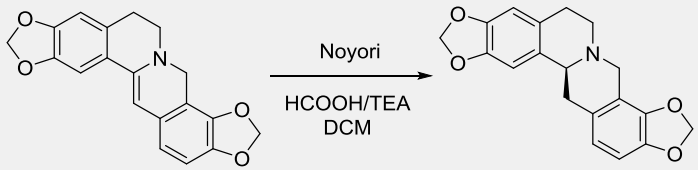


rac-stylopine

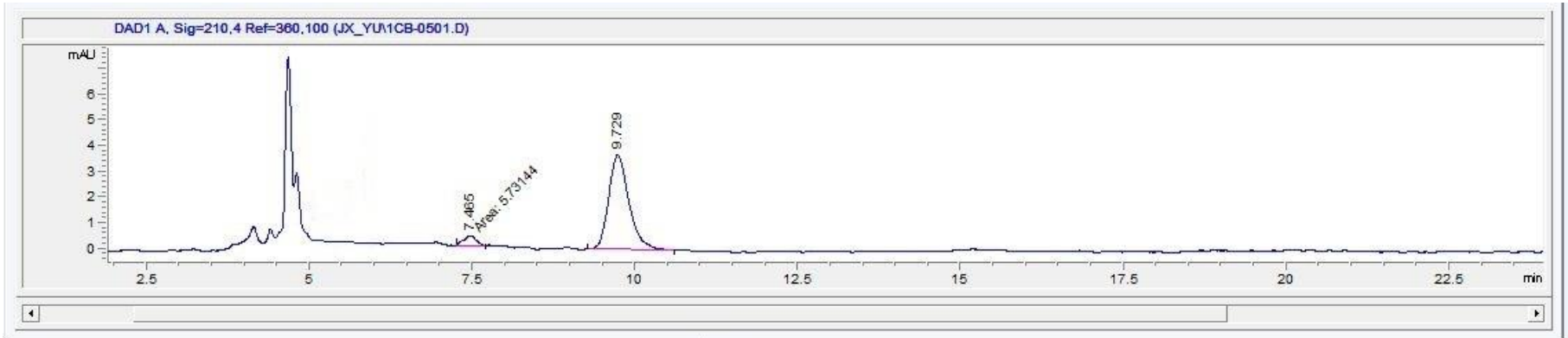


File Information	
LC-File	1DB-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	26-Aug-17, 22:59:12
Sample	YJX849-1-1a
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	10.434	19234.1	528.8	0.5483	100.000	0.649

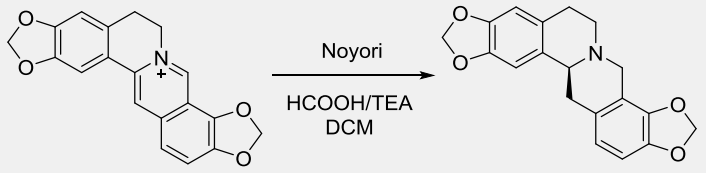


7c: (-)-stylopine (99 ee%)

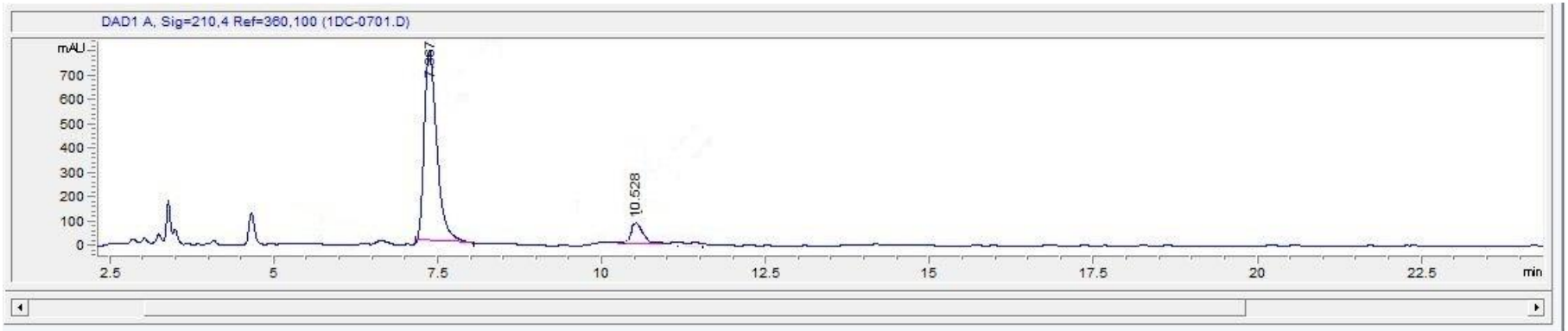


File Information	
LC-File	1DC-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	26-Aug-17, 14:00:57
Sample	YJX849-1-1
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	30 min
Sampling Rate	0.0067 min (0.402 sec), 4501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.465	5.7	4.2E-1	0.2268	6.725	1.058
2	9.729	79.5	3.7	0.3099	93.275	0.746

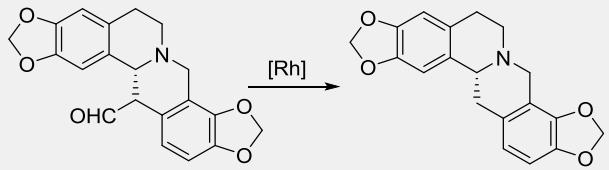


7c: (-)-stylopine (87 ee%)

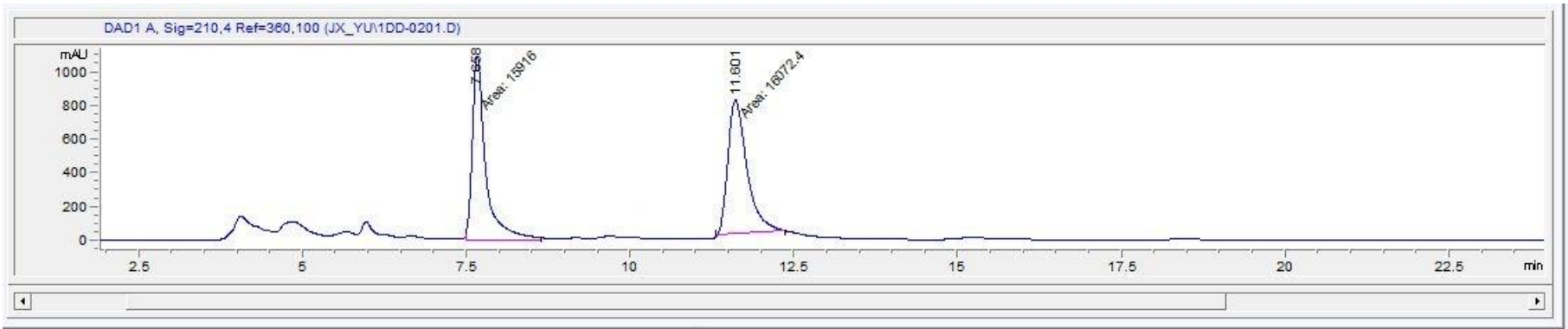


File Information	
LC-File	1DC-0701.D
File Path	C:\CHEM32\1\DATA\
Date	17-Aug-17, 18:15:43
Sample	ZZ138-2
Sample Info	
Barcode	
Operator	ZZH
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.367	10498.5	783.1	0.2235	88.466	0.657
2	10.528	1369	121.2	0.3882	11.534	0.668

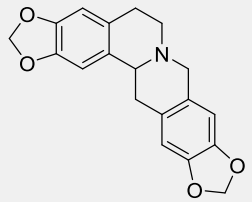


7c: (+)-stylopine (77 ee%)

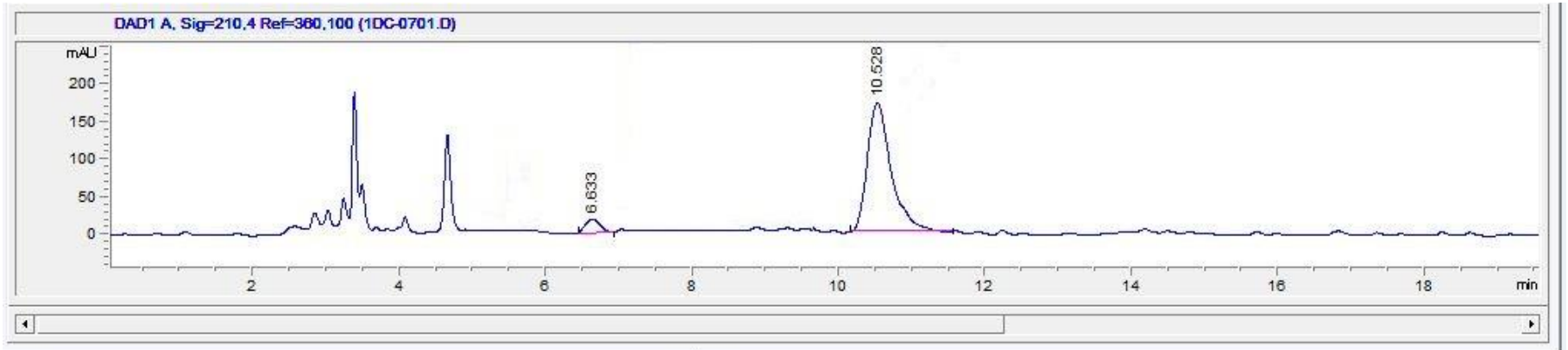


File Information	
LC-File	1DD-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	25-Aug-17, 14:05:36
Sample	YJX834-1-1a
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.658	15916	1095.9	0.242	49.756	0.525
2	11.601	16072.4	794.2	0.3373	50.244	0.622

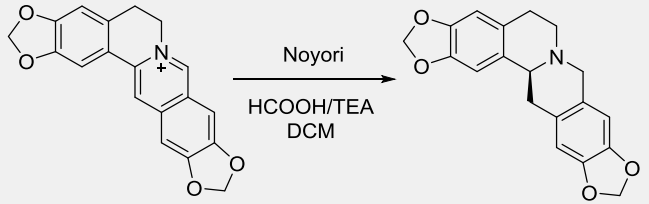


rac-tetrahydropseudocoptisine

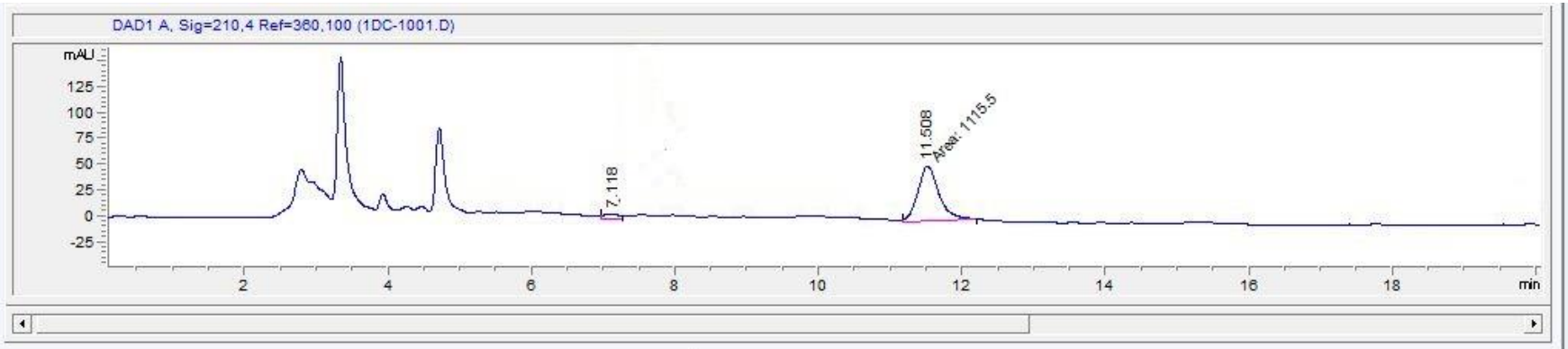


File Information	
LC-File	1DC-0701.D
File Path	C:\CHEM32\1\DATA\
Date	17-Aug-17, 18:15:43
Sample	ZZ138-2
Sample Info	
Barcode	
Operator	ZZH
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	6.633	281.7	19.2	0.2451	6.834	0.955
2	10.528	3840.6	171.4	0.3734	93.166	0.726

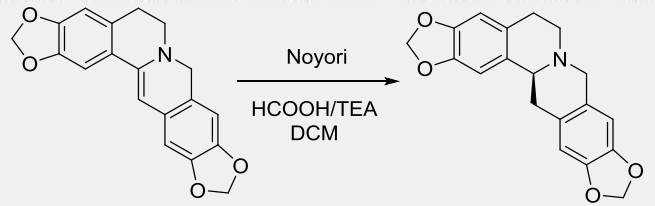


7d: (-)-tetrahydropseudocoptisine (86 ee%)

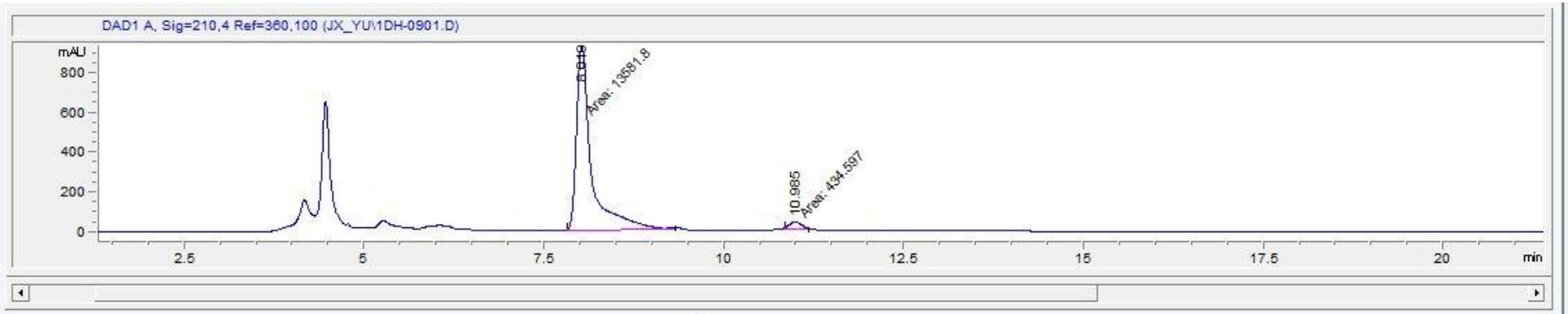


File Information	
LC-File	1DC-1001.D
File Path	C:\CHEM32\1\DATA\
Date	17-Aug-17, 19:48:40
Sample	ZZ138-2
Sample Info	
Barcode	
Operator	ZZH
Method	AD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.118	71.3	5.1	0.2345	6.011	0.974
2	11.508	1115.5	53.6	0.3471	93.989	0.752

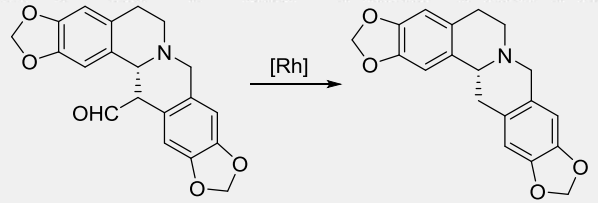


7d: (-)-tetrahydropseudocoptisine (87 ee%)

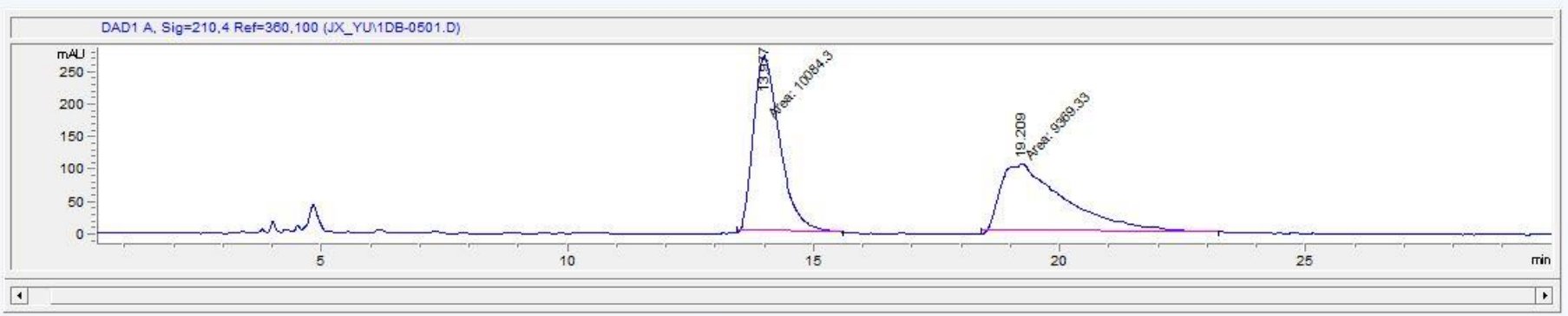


File Information	
LC-File	1DH-0901.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	22-Aug-17, 19:42:41
Sample	ZZ-06-169-02
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	8.019	13581.8	926.4	0.2444	96.899	0.496
2	10.985	434.6	36.5	0.1984	3.101	0.834

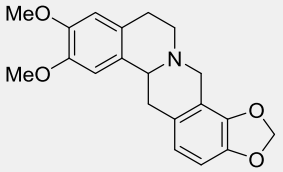


7d: (+)-tetrahydropseudocoptisine (93 ee%)

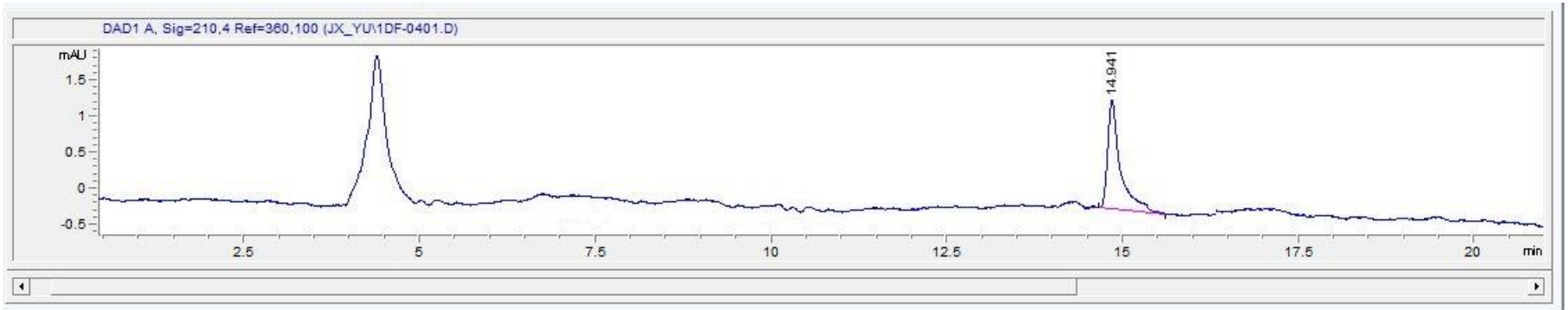


File Information	
LC-File	1DB-0501.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	21-Aug-17, 15:59:26
Sample	YJX840-1-1r
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	13.977	10084.3	270.7	0.6209	51.838	0.645
2	19.209	9369.3	104.1	1.4993	48.162	0.245



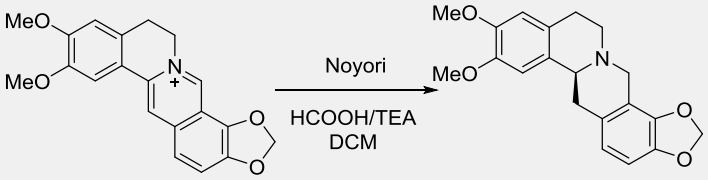
rac-sinactine



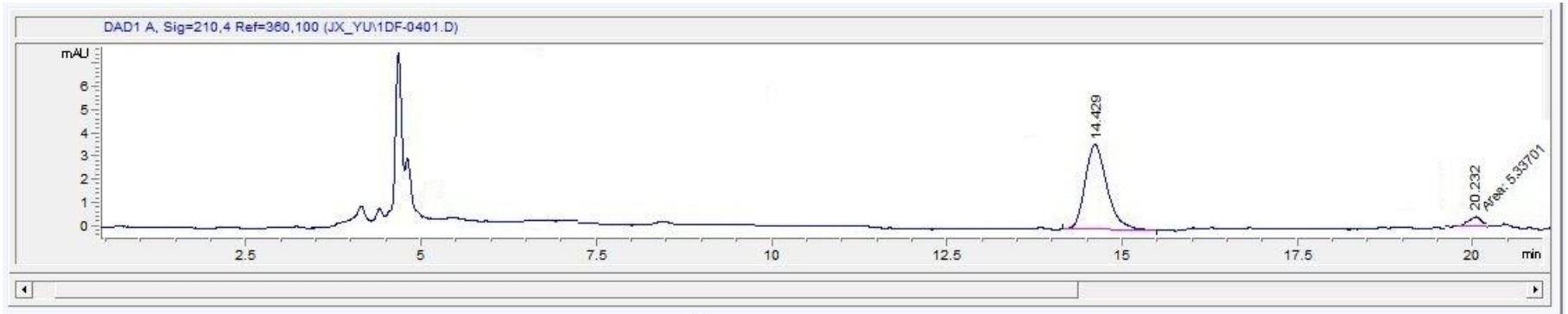
File Information

LC-File	1FB-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	24-Aug-17, 10:43:22
Sample	YJX877-1-1a
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	6.241	19.4	1.5	0.18	100.000	0.45

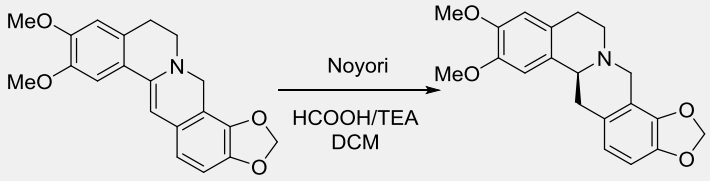


7e: (-)-sinactine (99 ee%)

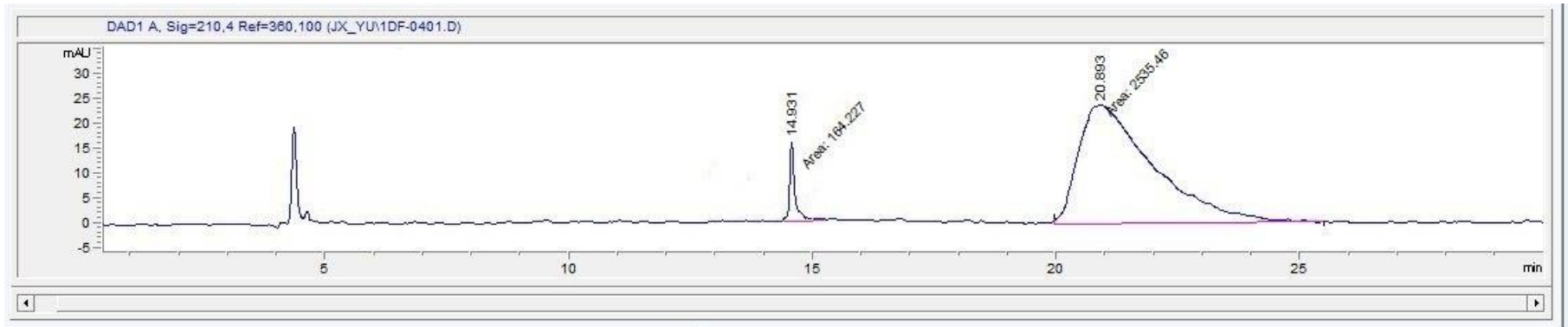


File Information	
LC-File	1DC-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	26-Aug-17, 14:00:57
Sample	YJX849-1-1
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	30 min
Sampling Rate	0.0067 min (0.402 sec), 4501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	5.732	5.3	1.7	0.0508	6.291	1.387
2	9.729	79.5	3.7	0.3099	93.709	0.746

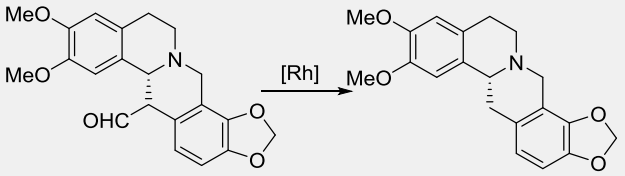


7e: (-)-sinactine (88 ee%)

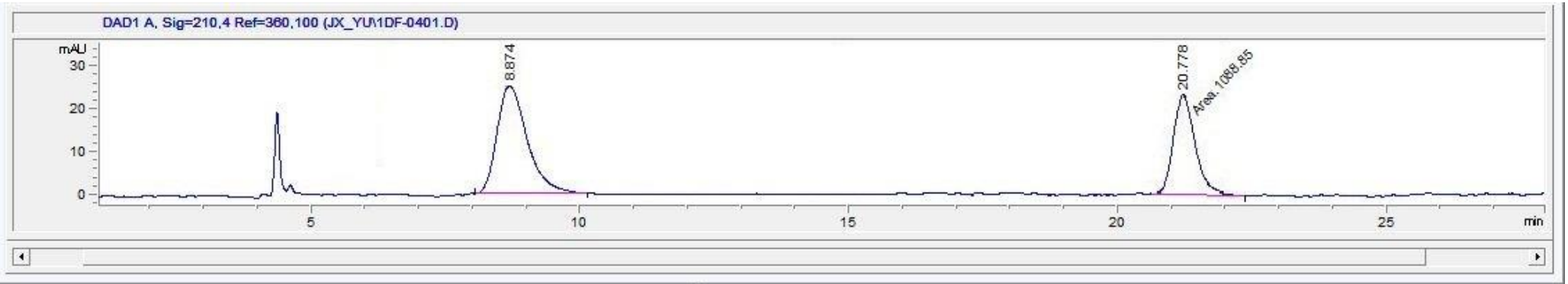


File Information	
LC-File	1DF-0401.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	22-Aug-17, 17:07:37
Sample	ZZ-06-148-1
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	14.931	164.2	8.8	0.3127	6.083	0.833
2	20.893	2535.5	23.8	1.7771	93.917	0.399

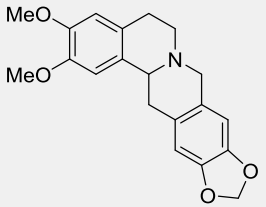


7e: (+)-sinactine (88 ee%)

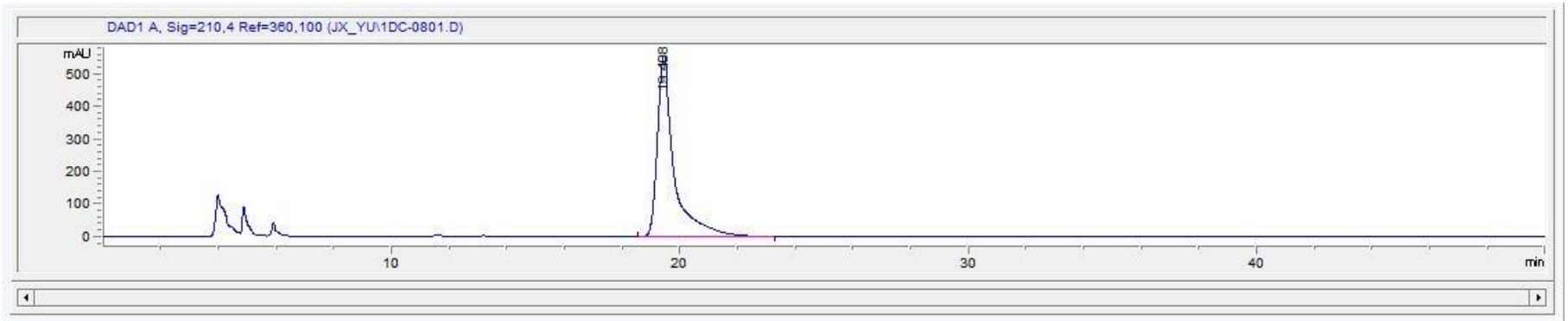


File Information	
LC-File	1DF-0401.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	22-Aug-17, 17:07:37
Sample	ZZ-06-148-1
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	8.874	982.5	25.1	0.5722	47.432	0.666
2	20.778	1088.8	17.8	1.0181	52.568	0.468

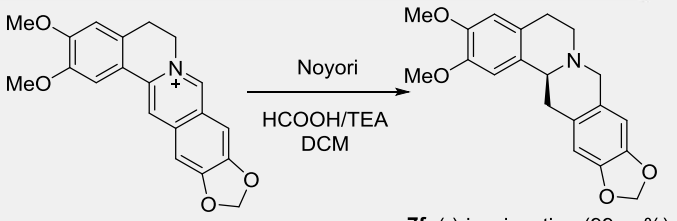


rac-isosinactine

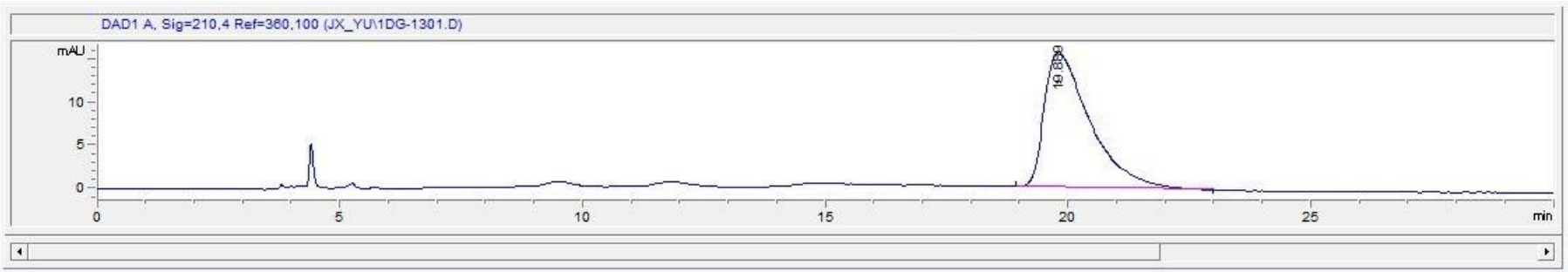


File Information	
LC-File	1DC-0801.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	24-Aug-17, 03:07:01
Sample	YJX880-1-1a
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	50 min
Sampling Rate	0.0067 min (0.402 sec), 7501 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	19.408	23301.8	557.8	0.6094	100.000	0.517



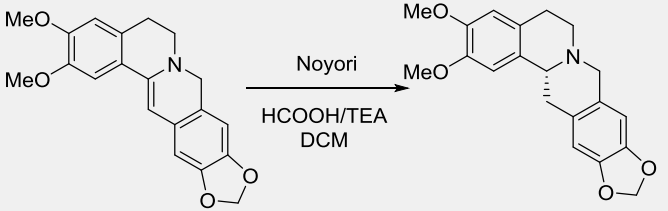
7f: (-)-isosinactine (99 ee%)



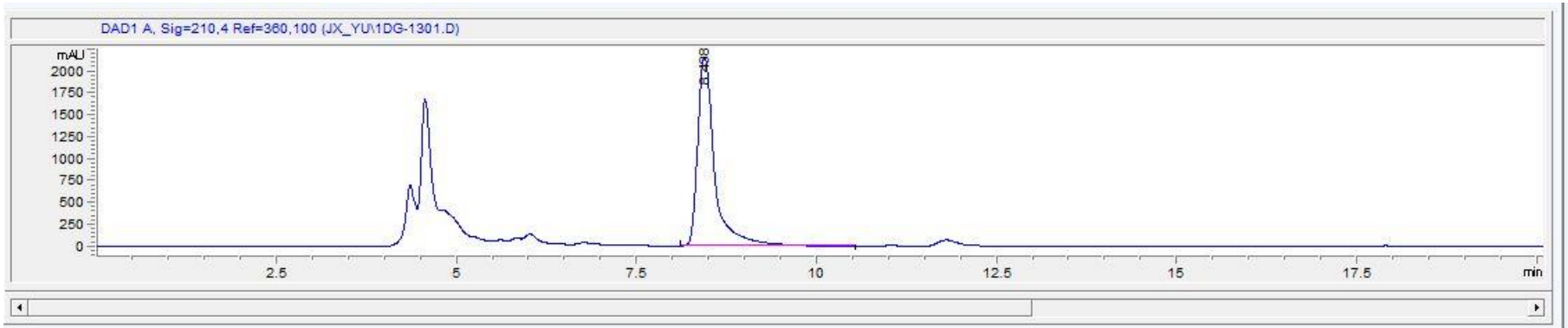
File Information

LC-File	1CD-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	28-Aug-17, 14:59:08
Sample	YJX881-1-1r
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-40.M
Analysis Time	39.993 min
Sampling Rate	0.0067 min (0.402 sec), 6000 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	19.889	1022.2	15.7	0.8899	100.000	0.418



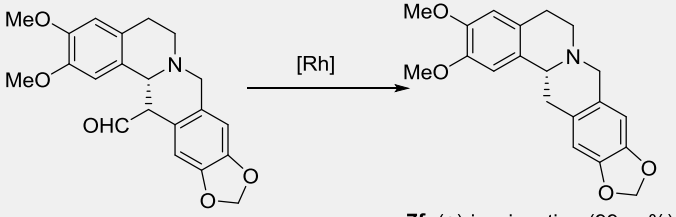
7f: (-)-isosinactine (99 ee%)



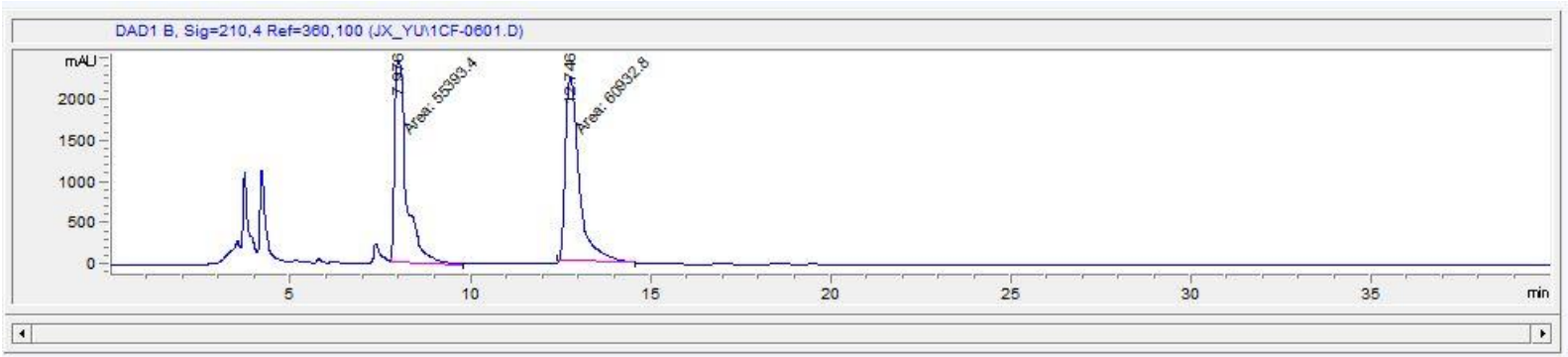
File Information

LC-File	1DG-1301.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	22-Aug-17, 21:46:53
Sample	ZZ-06-180-01
Sample Info	
Barcode	
Operator	YJX
Method	OD-20-30.M
Analysis Time	29.993 min
Sampling Rate	0.0067 min (0.402 sec), 4500 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	8.438	35379.9	2153.8	0.2456	100.000	0.587

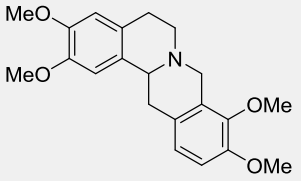


7f: (+)-isosinactine (99 ee%)

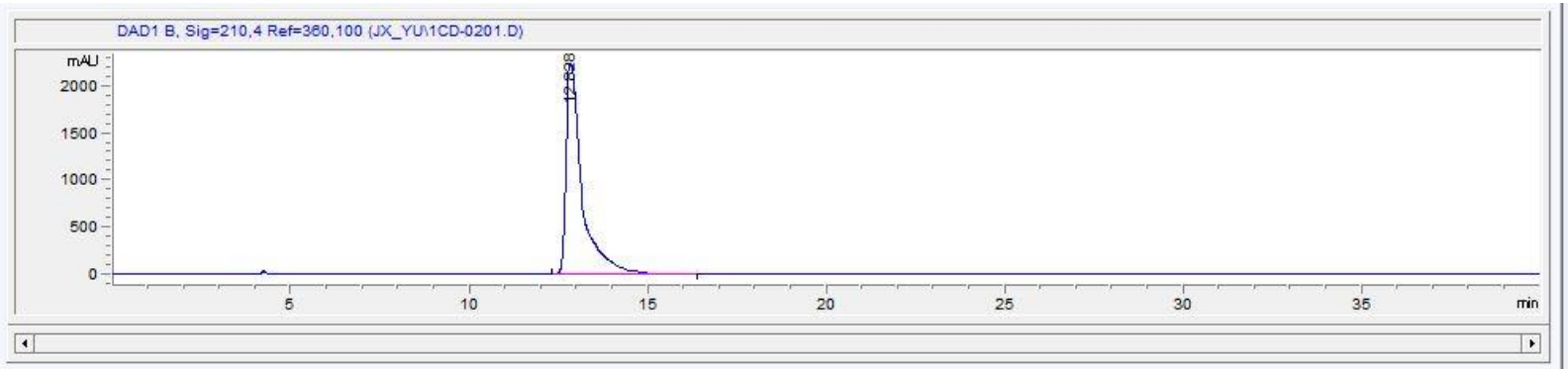


File Information	
LC-File	1CF-0601.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	29-Aug-17, 01:24:36
Sample	YJX881-1-1a
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-40_(A1+B2).M
Analysis Time	39.993 min
Sampling Rate	0.0067 min (0.402 sec), 6000 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	7.976	55393.4	2425.6	0.3806	47.619	0.408
2	12.746	60932.8	2242.8	0.4528	52.381	0.517

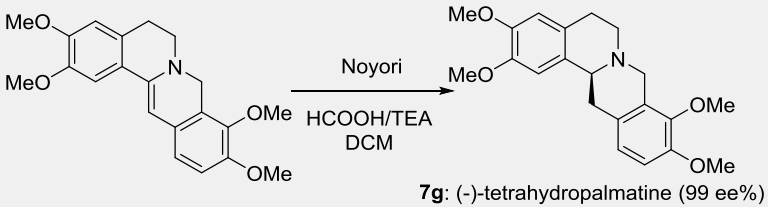


rac-tetrahydropalmatine

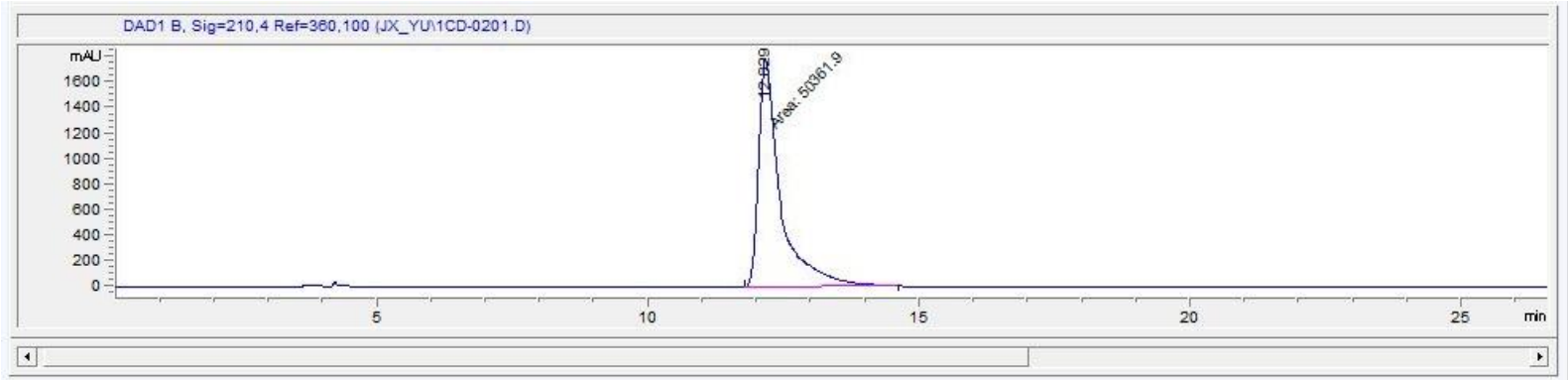


File Information	
LC-File	1CD-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	28-Aug-17, 22:41:41
Sample	YJX881-1-1r
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-40_(A1+B2).M
Analysis Time	39.993 min
Sampling Rate	0.0067 min (0.402 sec), 6000 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	12.828	70961.3	2245.4	0.4647	100.000	0.388



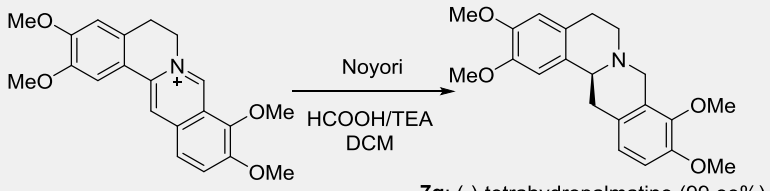
7g: (-)-tetrahydropalmatine (99 ee%)



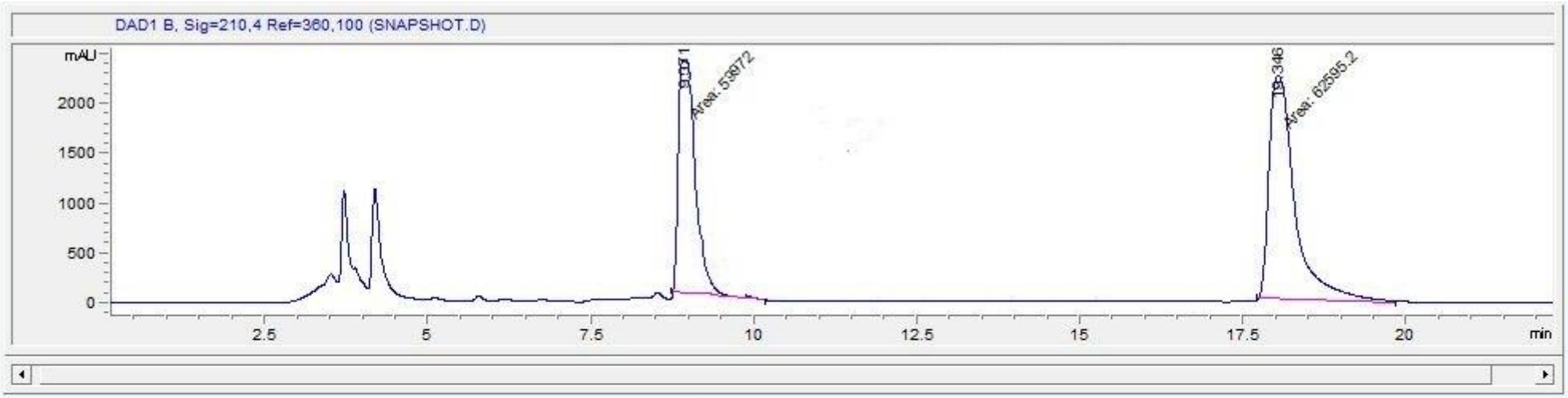
File Information

LC-File	1CD-0201.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	28-Aug-17, 22:41:41
Sample	YJX881-1-1sa
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-40_(A1+B2).M
Analysis Time	39.993 min
Sampling Rate	0.0067 min (0.402 sec), 6000 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	12.029	50361.9	1783.6	0.4706	100.000	0.441

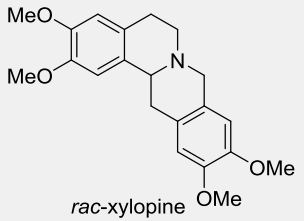


7g: (-)-tetrahydropalmatine (99 ee%)

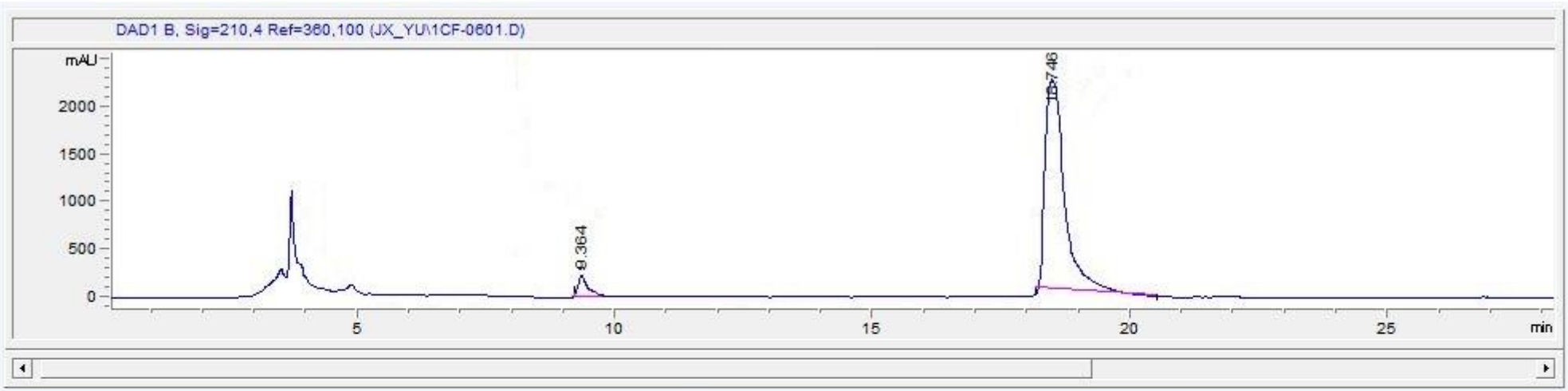


File Information	
LC-File	SNAPSHOT.D
File Path	C:\CHEM32\1\DATA\
Date	29-Aug-17, 01:24:36
Sample	YJX882-1-1r
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-40_(A1+B2).M
Analysis Time	22.887 min
Sampling Rate	0.0067 min (0.402 sec), 3434 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	9.071	59972	2357.3	0.3533	48.926	0.439
2	18.346	62595.2	2255.2	0.4626	51.073	0.508

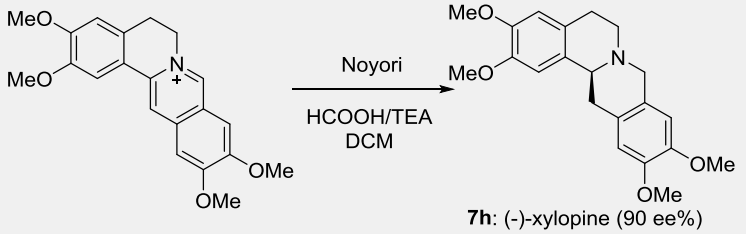


rac-xylopine

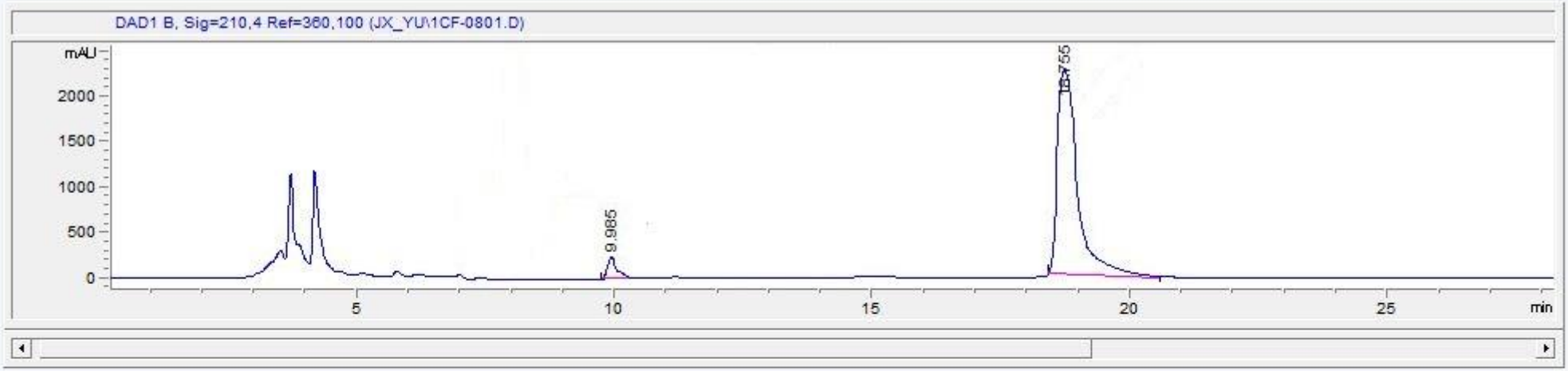


File Information	
LC-File	1CF-0602.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	29-Aug-17, 02:34:36
Sample	YJX882-1-1a
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-40_(A1+B2).M
Analysis Time	39.993 min
Sampling Rate	0.0067 min (0.402 sec), 6000 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	9.364	2950.3	228.9	0.2148	4.863	0.505
2	18.746	57719.6	2200.8	0.4371	95.137	0.531

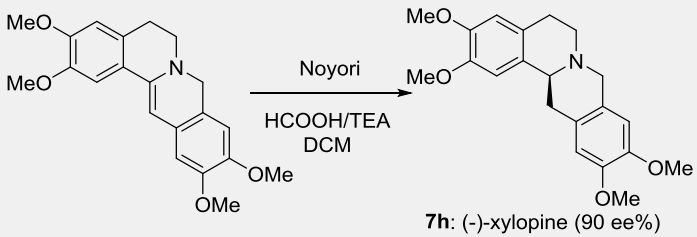


7h: (-)-xylopine (90 ee%)



File Information	
LC-File	1CF-0802.D
File Path	C:\CHEM32\1\DATA\JX_YU\
Date	29-Aug-17, 04:17:02
Sample	YJX882-1-1sa
Sample Info	
Barcode	
Operator	YJX
Method	AD-20-40_(A1+B2).M
Analysis Time	39.993 min
Sampling Rate	0.0067 min (0.402 sec), 6000 datapoints

#	Time	Area	Height	Width	Area%	Symmetry
1	9.985	3222	238.8	0.2249	4.917	0.542
2	18.755	62306.9	2265	0.4585	95.083	0.52



7h: (-)-xylopine (90 ee%)