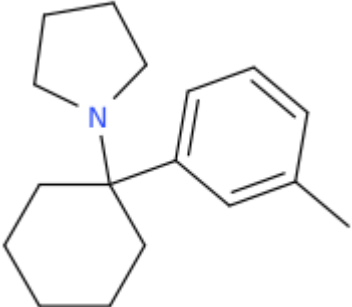


ANALYTICAL REPORT¹3-Me-PCPY (C₁₇H₂₅N)

1-[1-(3-methylphenyl)cyclohexyl]pyrrolidine

Remark – other NPS detected:

Sample ID:	3056-22
Sample description:	powder
Sample type:	test purchase /NFL- purchasing
Date of entry (DD/MM/YYYY) into NFL database:	23/05/2022
Report updates (if any) will be published here:	http://www.policija.si/apps/nfl_response_web/seznam.php

Substance identified - structure ² (base form)	
Systematic name	1-[1-(3-methylphenyl)cyclohexyl]pyrrolidine
Other names	3-methyl Rolicyclidine
Formula (per base form)	C ₁₇ H ₂₅ N
M _w (g/mol)	243,39
Salt form/anions detected	HCl
StdInChIKey (per base form)	JZVMREFYFTZXGN-UHFFFAOYSA-N
Other NPS detected	
Additional info (purity..)	>97% purity of a sample based on 1H NMR spectrum

¹ Approved by: dr. Sonja Klemenc² Created by OPSIN free tool: <http://opsin.ch.cam.ac.uk/> DOI: 10.1021/ci100384d

Report updates

date	comments (explanation)

Instrumental methods (if applied) in NFL

1. GC-MS (Agilent): GC-method is RT locked to tetracosane (9.258 min). Injection volume 1 μ l and split mode (1:50). Injector temperature: 280 °C. Chromatographic separation: on column HP1-MS (100% dimethylpolysiloxane), length 30 m, internal diameter 0.25 mm, film thickness 0.25 μ m. Carrier gas He: flow-rate 1.2 ml/min. GC oven program: 170 °C for 1 min, followed by heating up to 190 °C at rate 8 °C/min, then heating up to 293 °C at a rate of 18 °C/min, hold for 6.1 min, then heating at 50 °C/min up to 325 °C and finally 9.1 min isothermal. MSD source EI = 70 eV. GC-MS transfer line T= 235°C, source and quadropole temperatures 280°C and 180°C, respectively. Scan range m/z scan range: from 50 (30 until 6 min.) to 550 (300 until 6 min) amu.

2. HPLC-TOF (Agilent): 6230B TOF with Agilent 1260 Infinity HPLC with binary pump, column: Zorbax Eclipse XDB-C18, 50 x 4.6 mm, 1.8 micron. Mobile phases (A) 0.1% formic acid and 1mM ammonium formate in water; (B) 0.1% formic acid in methanol (B). Gradient: starting at 5% B, changing to 40% B over 4 min, then to 70% over 2 min and in 5 min to 100%, hold 1 min and back to 5%, equilibration for 1.7 min. The flow rate: 1.0 ml/min; Injection volume 1 μ l. MS parameters: 2GHz, Extended Dynamic range mode to a maximum of 1700 amu, acquisition rate 1.30 spectra/sec. Sample ionisation: by Agilent Jet Stream technology (Dual AJS ESI). Ion source: positive ion scan mode with mass scanning from 82 to 1000 amu. Other TOF parameters: drying gas (N₂) and sheath temperature 325 °C; drying gas flow rate 6 l/min; sheath gas flow rate 8 l/min; nebulizer 25 psig; Vcap. 4000 V; nozzle 2000 V; skimmer 65 V; fragmentor 175 V and Octopole RF 750 V.

3. FTIR-ATR (Perkin Elmer): scan range 4000-400 cm⁻¹; resolution 4cm⁻¹

4. GC- (MS)-IR condensed phase (GC-MS (Agilent) & IR (Spectra analyses-Danny)

GC-method: Injection volume 1 μ l and split mode (1:5). Injector temperature 280 °C. Chromatographic separation as above (1). Split MS : IR = 1: 9.

MSD source EI = 70 eV. GC-MS transfer line T= 235°C, source and quadropole temperatures 280°C and 180°C, respectively. Scan range m/z scan range: from 50 (30 until 6 min.) to 550 (300) amu.

IR (condensed (solid) phase): IR scan range 4000 to 650, resolution 4 cm⁻¹.

5. IC (anions) (Thermo Scientific, Dionex ICS 2100), Column: IonPac AS19, 2 x 250mm; Eluent: 10mM KOH from 0 to 10 min, 10-58 mM from 10 to 40min; Flow rate: 0.25 ml/min; Temperature: 30°C; Suppressor: AERS 500 2mm, suppressor current 13mA; Inj. Volume: 25 μ l

Supporting information

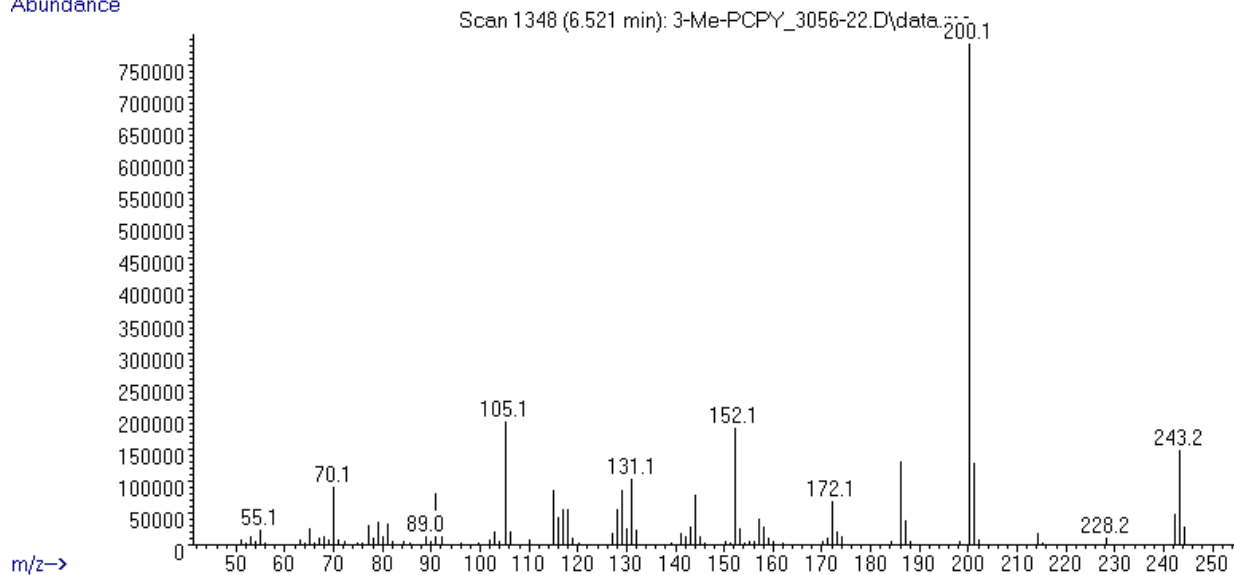
Solubility in	result/remark
CH ₂ Cl ₂	soluble
MeOH	soluble
H ₂ O	soluble

Analytical technique:	applied	remarks
GC-MS (EI ionization)	+	NFL GC-RT (min): 6,52 BP(1): 200; BP(2): 105, BP(3) :152,
HPLC-TOF	+	Exact mass (theoretical): 243,1987; measured value Δppm:-0,61; formula:C17H25N
FTIR-ATR	+	direct measurement (sample as received)
FTIR (solid phase) always as base form	+	
IC (anions)	+	
NMR (in FKKT)	+	
validation		
other		

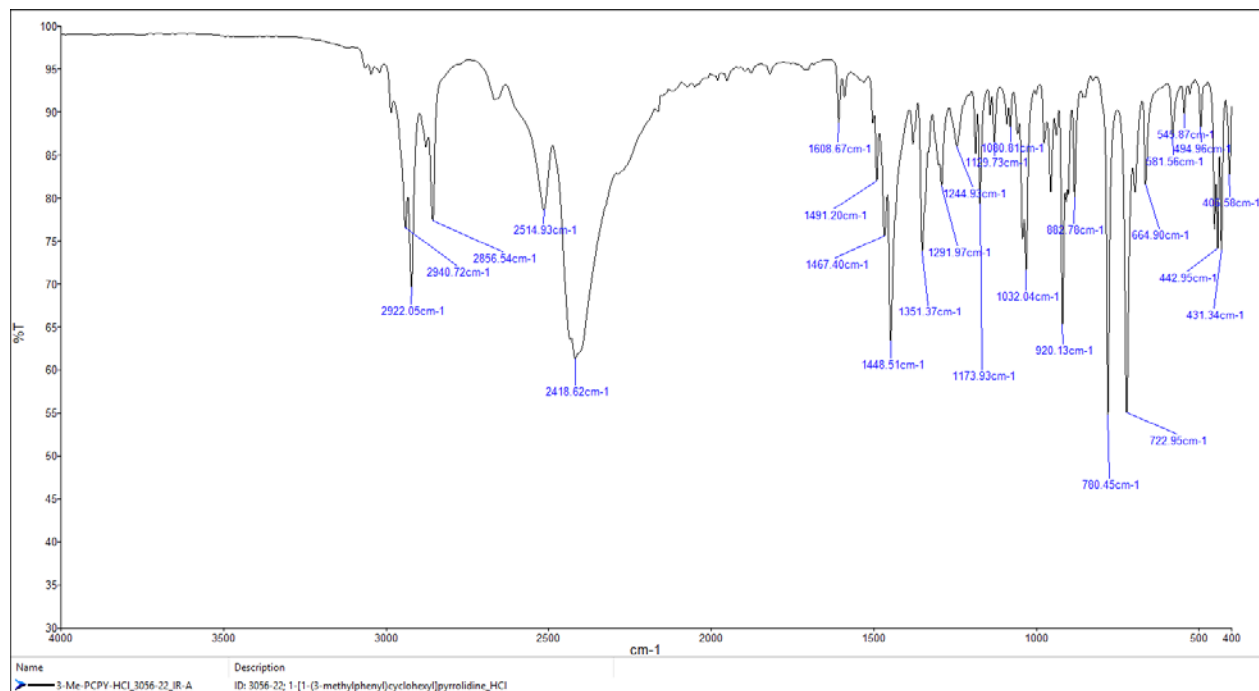
ANALYTICAL RESULTS

MS (EI)

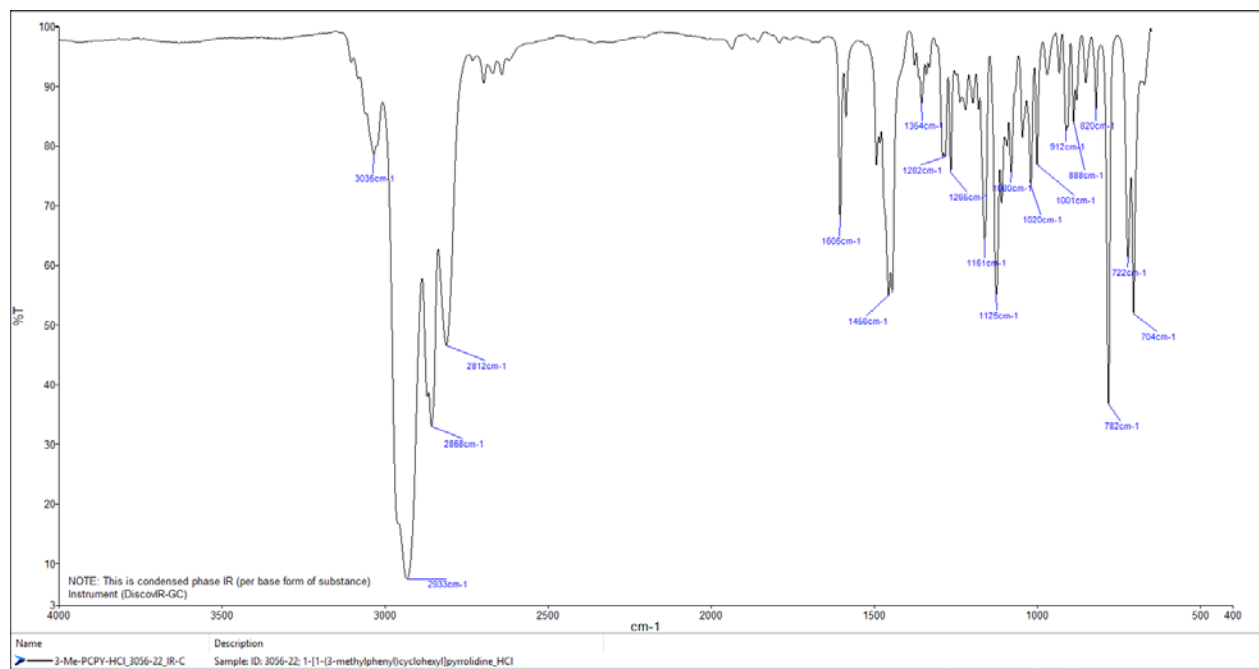
Abundance



FTIR-ATR - direct measurement (sample as received)



IR (solid phase – after chromatographic separation)



TOF REPORT

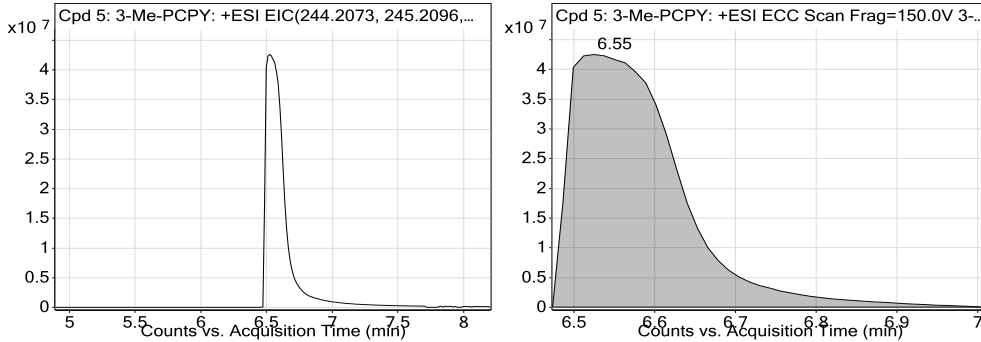
Data File	3-Me-PCPY_3056-22.d	Sample Name	ID-3056-22
Sample Type	Sample	Position	P1-B3
Instrument Name	6230B TOF LC-MS	User Name	TG
Acq Method	general-15_01_2020-XDB-C18-ESI+.m	Acquired Time	2/28/2022 3:38:35 PM
IRM Calibration Status	Success	DA Method	0-NPS in sorodne snovi.m
Comment	extract in MeOH		

Compound Table

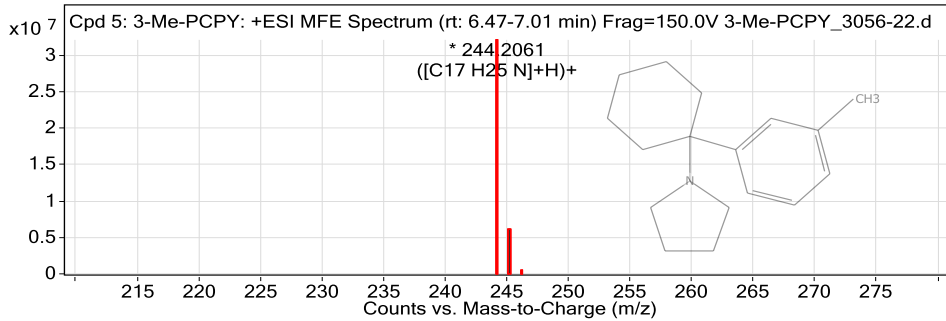
Label	Compound Name	MFG Formula	Obs. RT	Obs. Mass
Cpd 5: 3-Me-PCPY	3-Me-PCPY	C17 H25 N	6.55	243.1988

Name	Obs. m/z	Obs. RT	Obs. Mass	DB RT	DB Formula	DB Mass	DB Mass Error (ppm)
3-Me-PCPY	244.2061	6.55	243.1988	6.55	C17 H25 N	243.1987	-0.61

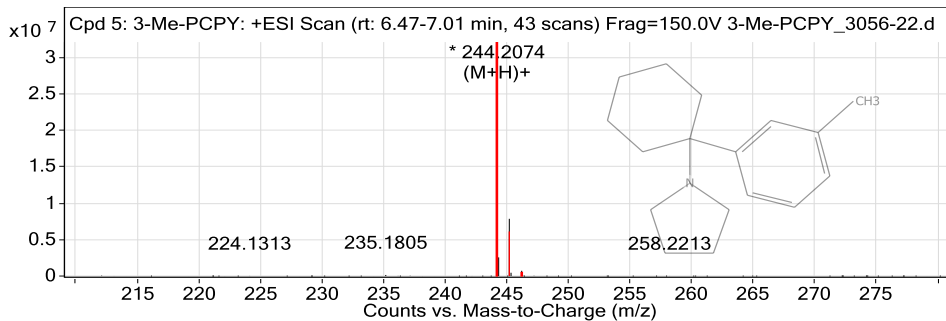
Compound Chromatograms



MFE MS Zoomed Spectrum



MS Zoomed Spectrum



MS Spectrum Peak List

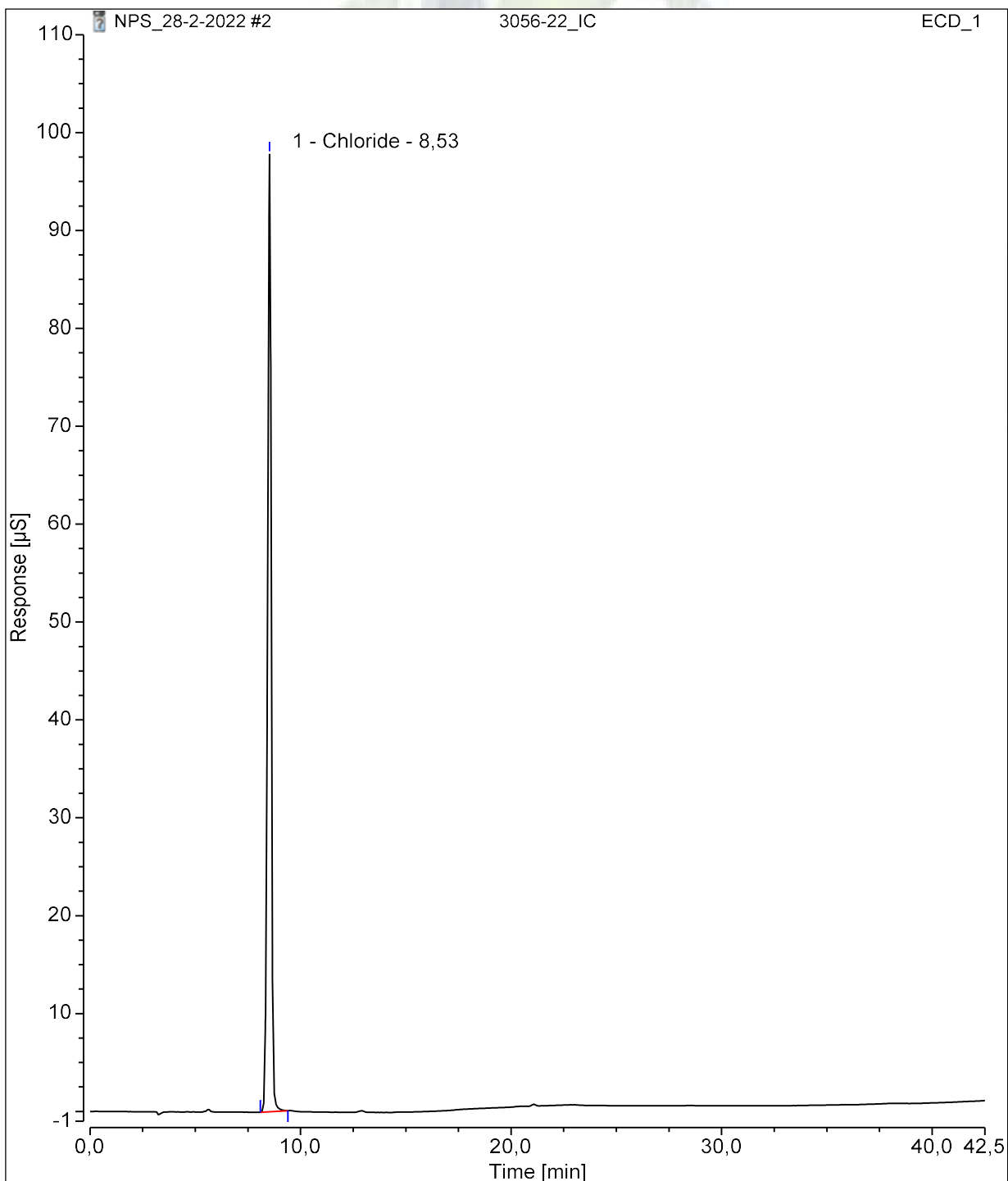
Obs. m/z	Charge	Abund	Formula	Ion/Isotope
244.2061	1	32131812	C17 H25 N	(M+H)+
245.2094	1	6205907.27	C17 H25 N	(M+H)+
246.2134	1	504961.95	C17 H25 N	(M+H)+

--- End Of Report ---

Peak Integration Report

Sample Name:	3056-22_IC	Inj. Vol.:	25,00
Injection Type:	Unknown	Dilution Factor:	1,0000
Program:	ANIONI	Operator:	Admin
Inj. Date / Time:	28-Feb-2022 / 16:00	Run Time:	43,00

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount mg/L
1	8,53	Chloride	BMB	19,779	97,815	n.a.
TOTAL:				19,78	97,82	0,0



University
of Ljubljana

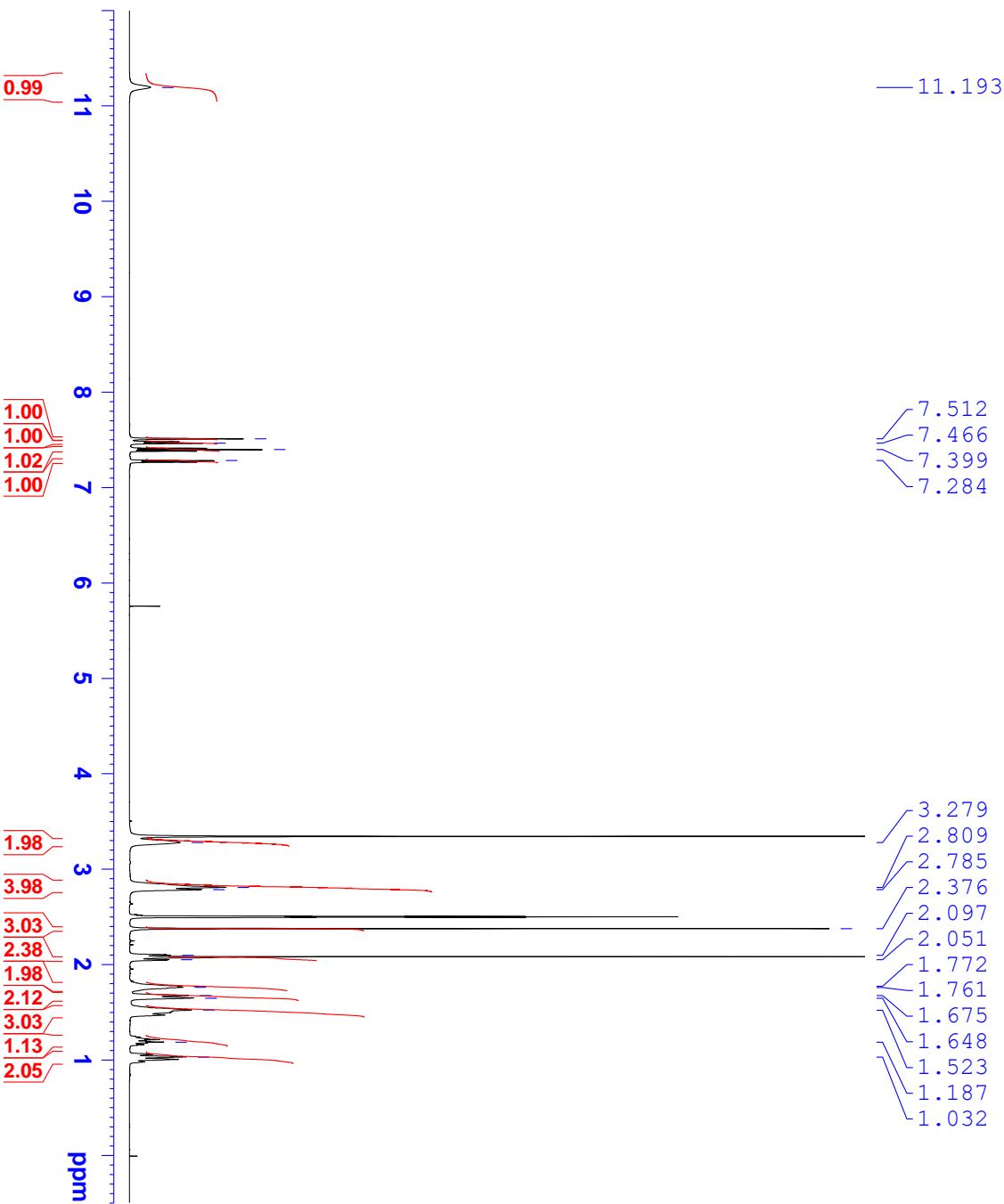
Faculty of Chemistry
and Chemical Technology



R E P O R T

Contract No.	C1714-21-460153 (Republic of Slovenia, Ministry of the Interior, POLICE)
Sample ID:	3056-22
Received date:	March 14, 2022
Our notebook code:	NFL-3056-22
NMR sample preparation:	22.1 mg dissolved in 0.7 mL DMSO- <i>d</i> ₆
NMR experiments:	¹ H, ¹³ C, ¹ H- ¹ H <i>gs</i> -COSY, ¹ H- ¹³ C <i>gs</i> -HSQC, ¹ H- ¹³ C <i>gs</i> -HMBC, ¹ H- ¹⁵ N <i>gs</i> -HMBC
Proposed structure with formula, exact mass, molecular weight:	<div style="display: flex; align-items: center; justify-content: space-around;"><div style="text-align: center;"><p>Chemical Formula: C₁₇H₂₆N⁺ Exact Mass: 244,2060 Molecular Weight: 244,4015</p></div></div>
Chemical name:	<i>N</i> -protonated 1-(1-(<i>m</i> -tolyl)cyclohexyl)pyrrolidine
Comments:	<ul style="list-style-type: none">- Structure elucidation based on 1D and 2D NMR spectra and HRMS.- Traces of acetone could be detected in the sample.->97% purity of a sample based on ¹H NMR spectrum.
Supporting information:	Copies of ¹ H and ¹³ C NMR spectra, ¹ H and ¹³ C FIDs.
Principal investigator:	Prof. Dr. Janez Košmrlj
Date of report:	April 3, 2022

NFL-3056-22
1H



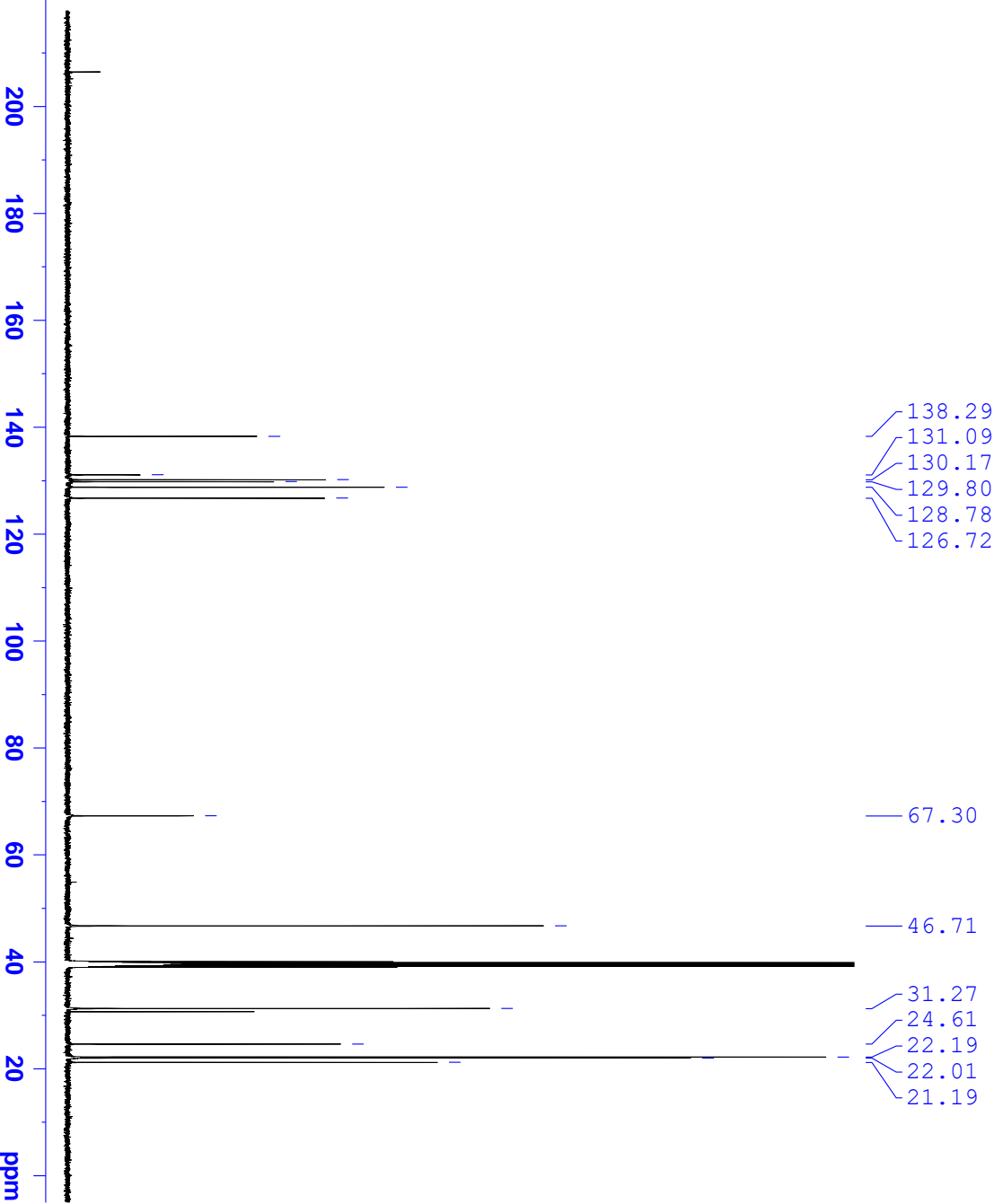
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Current Data Parameters
NAME          NFL-3056-22
EXPNO        11
PROCNO       1

F2 - Acquisition Parameters
Date_        20230318
Time_        17.05
INSTRUM      5 mm PABBO BB-
PROBHD       zg30
PULPROG      zgpg30
TD           65536
SOLVENT      DMSO
NS           32
DS           2
SWH          10000.000 Hz
FIDRES      0.152588 Hz
AQ          3.2767999 sec
RG          71.8
DW          50.000 usec
DE          6.50 usec
TE          298.2 K
D1          1.00000000 sec
TD0         1

===== CHANNEL f1 =====
SFO1        500.1330885 MHz
NUC1        1H
P1          8.70 usec
PLW1        26.00000000 W

F2 - Processing parameters
SI          65536
SF          500.1300039 MHz
WDW         EM
SSB         0
LB          0.30 Hz
GB          0
PC          1.00
  
```



Current Data Parameters
 NAME NFL-3056-22
 EXPNO 12
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20220318
 Time 18.58
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zgpg30
 TD 65536
 SOLVENT DMSO
 NS 3072
 DS 4
 SWH 29761.904 Hz
 FIDRES 0.454131 Hz
 AQ 1.1010048 sec
 RG 2050
 DW 16.800 usec
 DE 6.50 usec
 TE 299.0 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

==== CHANNEL f1 =====
 SFO1 125.7703637 MHz
 NUC1 13C
 P1 8.70 usec
 PLW1 122.00000000 W

==== CHANNEL f2 =====
 SFO2 500.1320005 MHz
 NUC2 1H
 CPDPRG12 waltz16
 PCPD2 80.00 usec
 PLW2 26.00000000 W
 PLW12 0.30046001 W
 PLW13 0.15113001 W

F2 - Processing parameters
 SI 32768
 SF 125.7578499 MHz
 WDW EM
 SSB 0
 TB 1.00 Hz
 GB 0
 PC 1.40