



## CERTIFICATE OF ANALYSIS

Catalog Number: H-001

Product Name: **HARMALINE**

CAS Number: [304-21-2]

Lot Number: 2004431

Chemical Formula: C<sub>13</sub>H<sub>14</sub>N<sub>2</sub>O

Molecular Weight: 214.27

Melting Point: 232-234°C

Appearance: Off-white powder

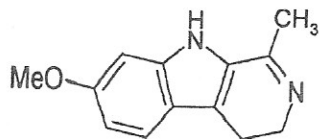
Solubility: Soluble in DMSO

TLC: Chloroform: Methanol (9:1)

NMR Spectrum: Enclosed

Storage: Store in a cool, dry place

Purity(HPLC): 99.26%



Prepared by  
Ramesh Mandadi  
Ramesh Mandadi  
Director of Operations

Reviewed and Approved by  
Sujata Moton  
Sujata Moton  
VP



# INDOFINE Chemical Company, Inc.

121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

Phone: (908) 359-6778 • FAX: (908) 359-1179

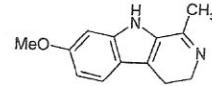
website: [www.indofinechemical.com](http://www.indofinechemical.com)

e-mail: [chemical@indofinechemical.com](mailto:chemical@indofinechemical.com)

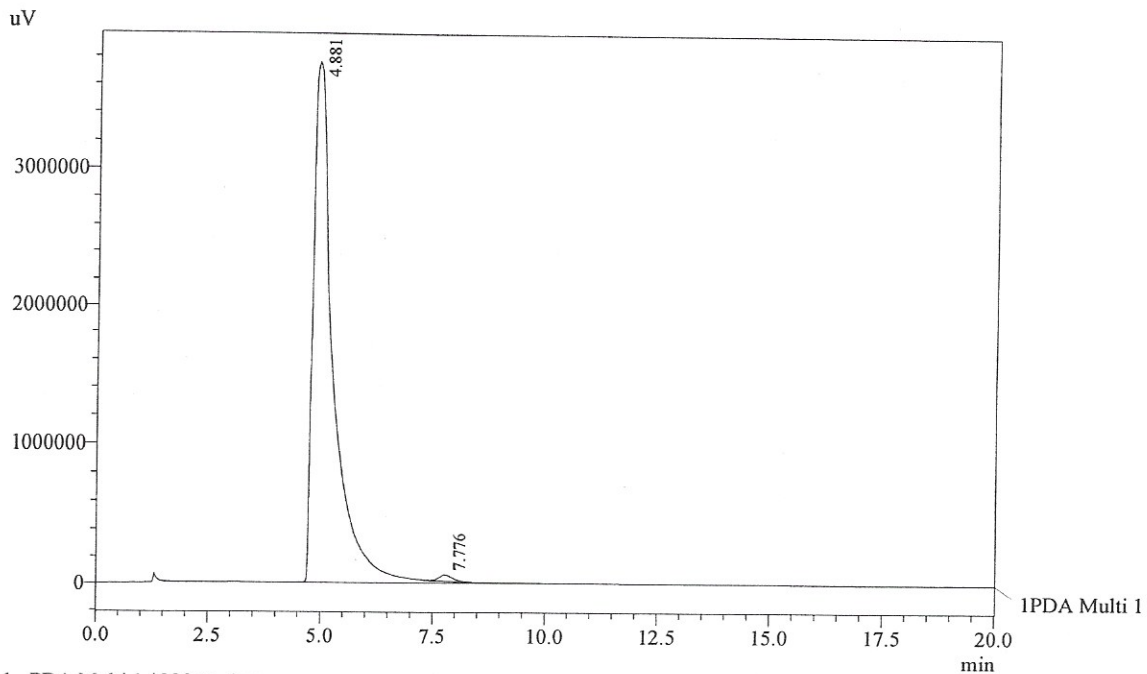
## HPLC ANALYSIS

Acquired by : Admin  
Sample Name : HARMALINE  
Sample ID : # 10 KG  
Injection Volume : 20 uL  
Data Filename : 280220F.lcd  
Method Filename : HMN.lcm  
Report Filename : Default.lcr

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Lot No.: 2004431



Chromatogram



1 PDA Multi 1 / 220nm 4nm

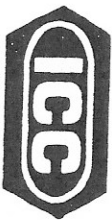
PeakTable

PDA Ch1 220nm 4nm

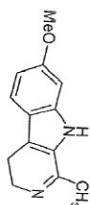
Peak#	Name	Ret. Time	Height	Area %	Relative Retention Time
1	RT:4.881	4.881	3750701	99.26	1.00
2	RT:7.776	7.776	47574	0.74	1.59
Total			3798275	100.00	

Prepared by  
Ramesh Mandadi  
Ramesh Mandadi  
Director of Operations

Reviewed and Approved by  
Sujata Moton  
Sujata Moton  
VP



**INDOFINE Chemical Company, Inc.**  
 121 STRYKER LANE  
 BLDG. 30, SUITE 1  
 HILLSBOROUGH, NJ 08844



Catalog No.: H-001  
 Product Name: Harmaline  
 Lot No.: 2004431

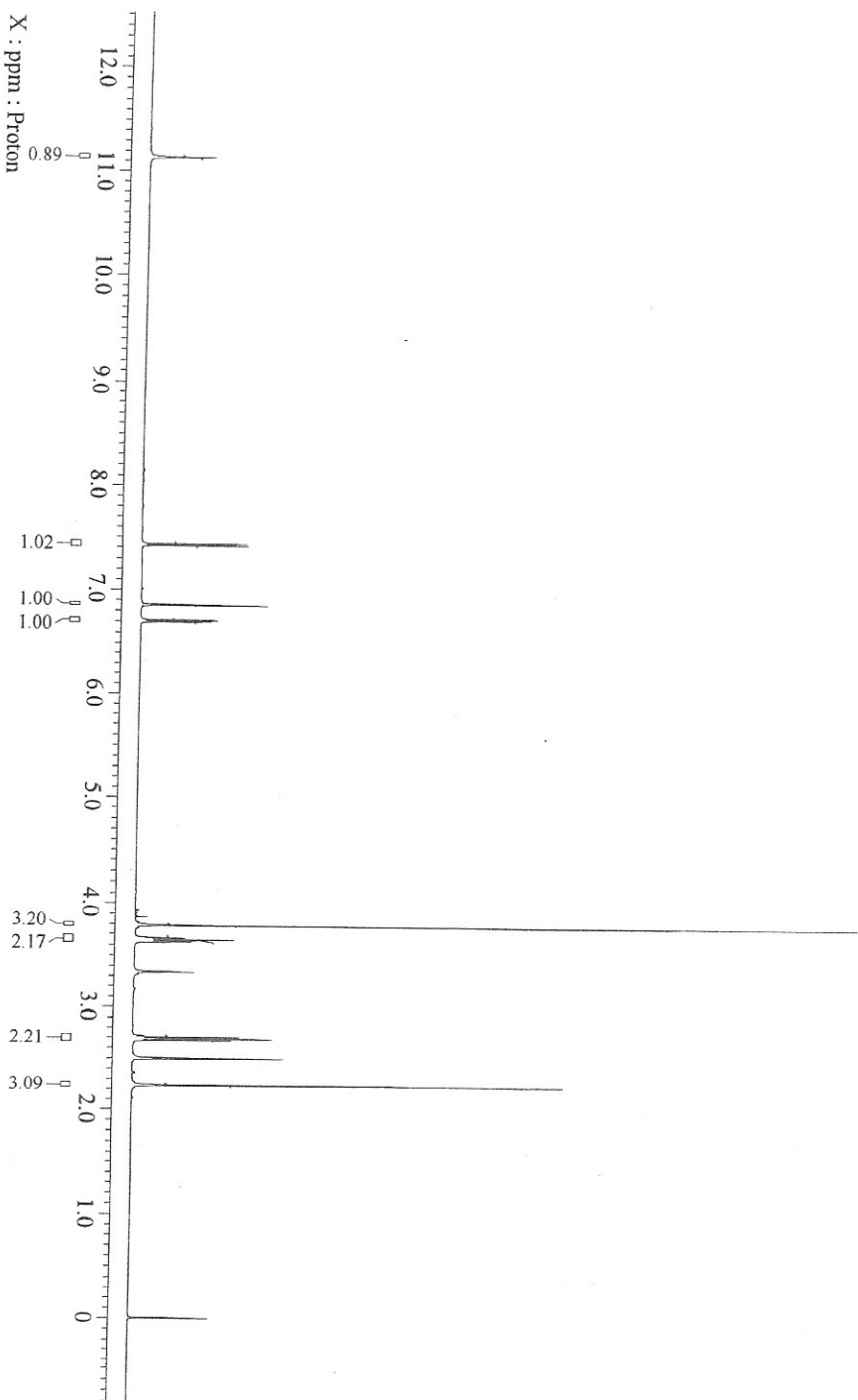
HRLN.10Kg  
 015423

\_proton-1-2-jdf

11.138

7.434  
 7.418  
 6.856  
 6.852  
 6.716  
 6.711  
 6.699  
 6.694

3.787  
 3.659  
 3.644  
 3.629  
 3.626  
 2.704  
 2.686  
 2.669  
 2.240



```

---- PROCESSING PARAMETERS ----
sexp( 0.2[Hz], 0.0[s] )
trapzord( 0[%], 0[%], 80[%], 100[%] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
pvm
auto_reference( 5[%], TRUE )
phase( 0.59451, -1.57498, 89.02793[%] )
  
```

```

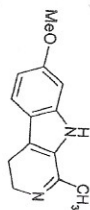
Filename           = HRLN.10Kg
Instrument          = NMR-500MHz (JEOL)
Instrument Id      = NMR-02
Author             = msn1385
Reviewed by       = Ramesh
Solvent            = DMSO-D6
Spectrometer       = JNM-ECZ500R/51
Experiment         = proton.jxp
  
```

```

Acquisition Parameter
X_Domain           = Proton
X_Offset          = 7.0 [ppm]
X_Sweep            = 11.28158845 [kHz]
Scans              = 16
Relaxation_Delay  = 2[s]
  
```



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HRLN.10Kg  
 015423

\_proton-1-2.jdf

7.434  
 7.418

6.856  
 6.852

6.716  
 6.711  
 6.699  
 6.694

```

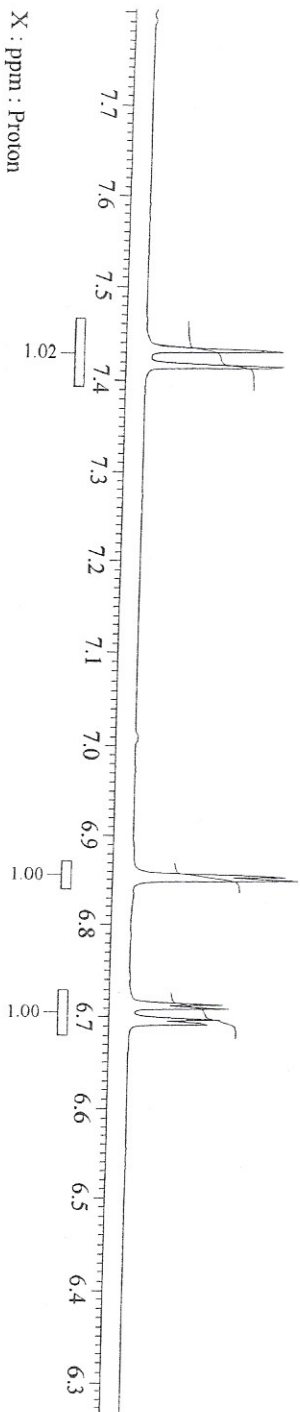
---- PROCESSING PARAMETERS ----
secp ( 0.2[Hz], 0.0[s] )
trapezoid( 0[%], 0[%], 80[%], 100[%] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
ppm
auto_reference( 5[%], TRUE )
phase( 0.59451, -1.57498, 89.02793[%] )
  
```

```

Filename      = HRLN.10Kg
Instrument     = NMR-500MHz (JEOL)
Instrument id  = NMR-02
Author        = msn1385
Reviewed by   = Ramesh
Solvent       = DMSO-D6
Spectrometer  = JNM-ECZ500R/S1
Experiment    = proton.jxp
  
```

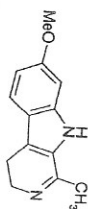
```

Acquisition Parameter
X Domain           = Proton
X Offset           = 7.0[ppm]
X Sweep           = 11.28158845[kHz]
Scans             = 16
Relaxation_Delay  = 2[s]
  
```





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 Product Name: Harmaline  
 Lot No.: 2004431

HRLN.10Kg  
 015423

\_proton-1-2.jdf

3.787  
 3.659  
 3.644  
 3.629  
 3.626

2.704  
 2.686  
 2.669

2.240

```

---- PROCESSING PARAMETERS ----
sexp( 0.21Hz, 0.01s )
trapozoid( 0[8], 0[8], 80[1], 100[8] )
zerofill( 1 )
fft( 1, TRUE, TRUE )
machinephase
pnm
auto_reference( 51[ ], TRUE )
phase( 0.59451, -1.57498, 89.027931[ ] )
  
```

```

Filename           = HRLN.10Kg
Instrument          = NMR-500MHz(JBOJ)
Instrument id      = NMR-02
Author            = ms1385
Reviewed by       = Ramesh
Solvent           = DMSO-d6
Spectrometer      = JNM-EZ500R/SI
Experiment        = proton.jxp
  
```

```

Acquisition Parameter
X_Domain           = Proton
X_Offset          = 7.0[ppm]
X_Sweep           = 11.28158845[kHz]
Scans             = 16
Relaxation_Delay  = 2[s]
  
```

