



# INDOFINE Chemical Company, Inc.

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

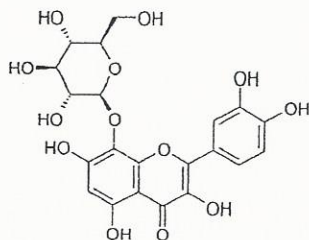
Phone: (908) 359-6778 • FAX: (908) 359-1179

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

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

## CERTIFICATE OF ANALYSIS

<u>Catalog Number:</u>	G-002
<u>Product Name:</u>	<b>GOSSYPIN</b>
<u>CAS Number:</u>	[652-78-8]
<u>Lot Number:</u>	1508652
<u>Chemical Formula:</u>	$C_{21}H_{20}O_{13}$
<u>Molecular Weight:</u>	480.38
<u>Melting Point:</u>	217°C (dec)
<u>Appearance:</u>	Pale yellow powder
<u>TLC:</u>	n-Butanol:Acetic acid (1:1)
<u>Solubility:</u>	Soluble in DMSO
<u>NMR Spectrum:</u>	Enclosed (conforms to the structure)
<u>C<sup>13</sup> NMR Spectrum:</u>	Enclosed (conforms to the structure)
<u>Storage:</u>	Store in a cool, dry place
<u>Purity(HPLC):</u>	98.5%





# INDOFINE Chemical Company, Inc.

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

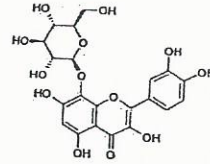
Phone: (908) 359-6778 • FAX: (908) 359-1179

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

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

## TEST RESULTS

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



TEST	SPECIFICATION	RESULTS
<b>Heavy Metals</b>		
Copper	Not more than 50ppm	1.3ppm
Iron	Not more than 50ppm	1.2ppm
Aluminum	Not more than 50ppm	1.6ppm
<b>Residual solvents by GC:</b>		
Methanol	Not more than 3000ppm	BDL
Isopropyl Ether	Not more than 5000ppm	BDL

Authorized by:

The sample complies with respect to the above specification.

\*\*BDL=Below Detectable Limit



# 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)

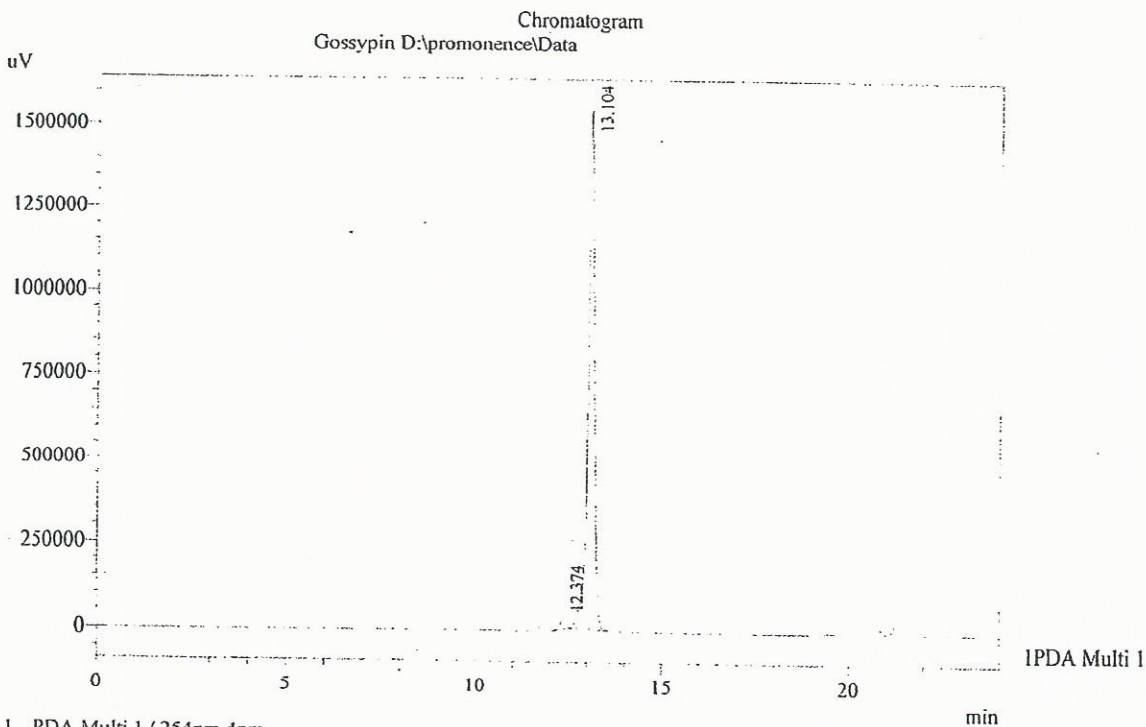
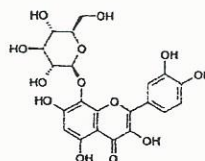
## HPLC ANALYSIS

Acquired by : Admin  
Sample Name : Gossypin  
Injection Volume : 20 µL  
Data Filename : 180815K.lcd  
Method Filename : GSP-1.lcm

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652

Column : Inertsil-ODS-3V, (150mm x4.6mm 5.0µ)  
Flow : 1.000 mL/min.  
Mobile Phase : A(0.05% TFA in Water) B(Acetonitrile)  
0.01 90 10  
1.0 90 10  
7.0 68 32  
14.0 68 32  
18.0 10 90  
20.0 10 90  
22.0 90 10  
25.0 90 10

Diluent : Mobilephase



1 IPDA Multi 1 / 254nm 4nm

PeakTable

Peak#	Name	Ret. Time	Area	Area %	Relative Retention Time
1	Hibifolin	12.374	279835	1.50	0.94
2	GSP	13.104	18427542	98.50	1.00
Total			18707376	100.00	



# INDOFINE Chemical Company, Inc.

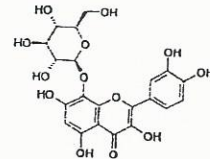
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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

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

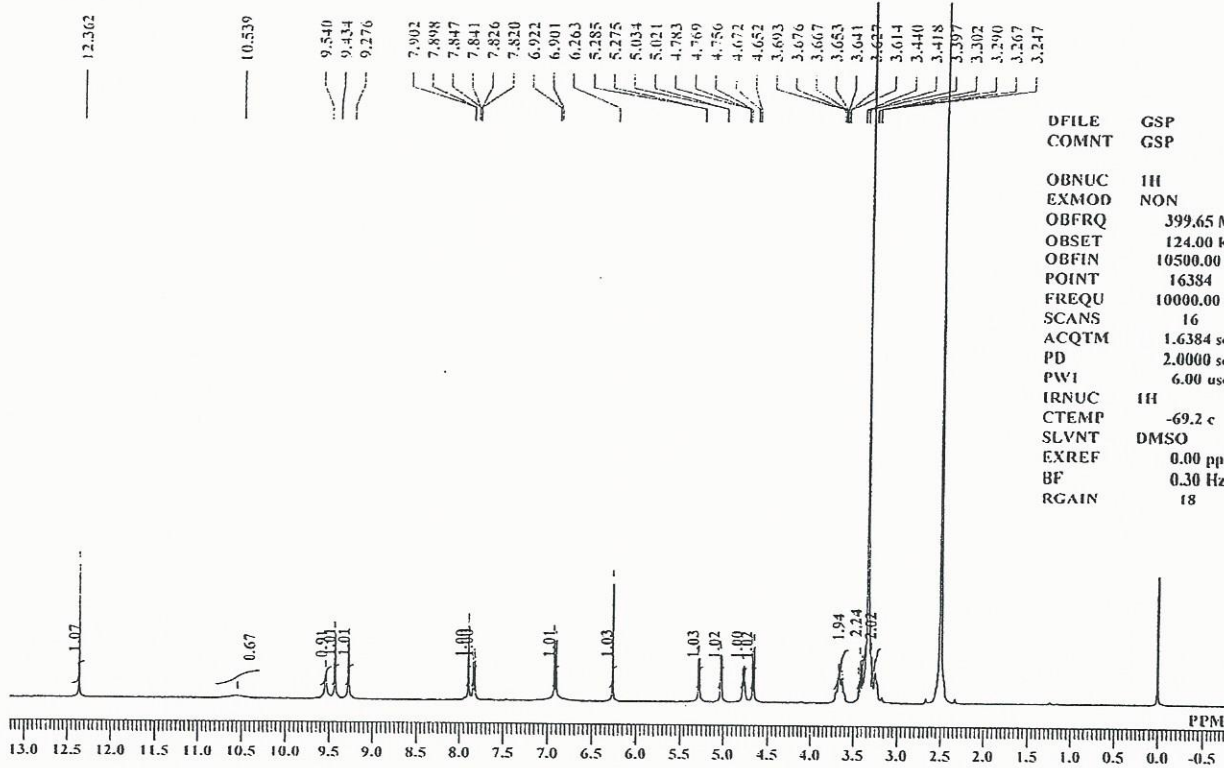
e-mail: [chemical@indofinechemical.com](mailto:chemical@indofinechemical.com)

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



<sup>1</sup>H NMR DMSO-d<sub>6</sub>

Analysed By : GRM



DFILE	GSP	<sup>1</sup> H.als
COMNT	GSP	<sup>1</sup> H NMR DMSO-d
OBNUC	<sup>1</sup> H	
EXMOD	NON	
OBFRQ	399.65 MHz	
OBSET	124.00 KHz	
OBFIN	10500.00 Hz	
POINT	16384	
FREQU	10000.00 Hz	
SCANS	16	
ACQTM	1.6384 sec	
PD	2.0000 sec	
PW1	6.00 usec	
IRNUC	<sup>1</sup> H	
CTEMP	-69.2 c	
SUVNT	DMSO	
EXREF	0.00 ppm	
BF	0.30 Hz	
RGAIN	18	

# ICC **INDOFINE Chemical Company, Inc.**

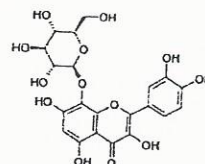
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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

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

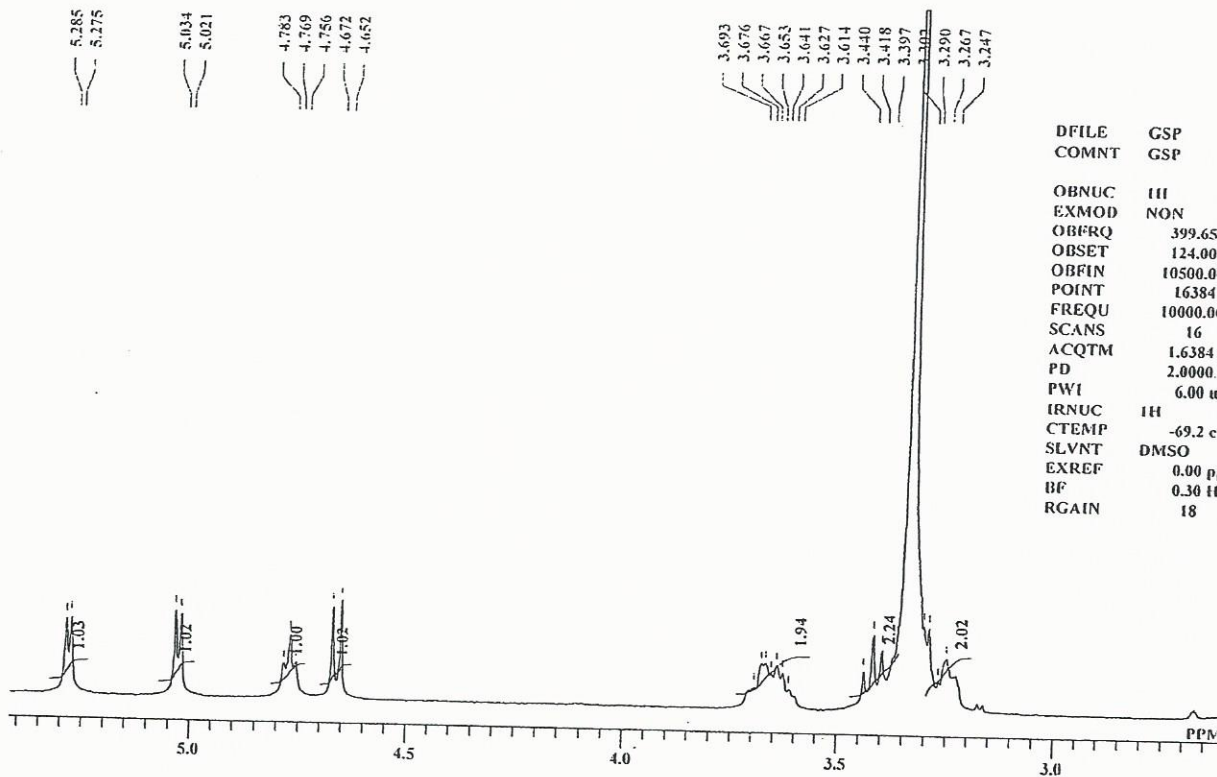
e-mail: [chemical@indofinechemical.com](mailto:chemical@indofinechemical.com)

Catalog No.: G-002  
 Product Name: Gossypin  
 Lot No.: 1508652



<sup>1</sup>H NMR DMSO-d<sub>6</sub>

Analysed By : GRM



DFILE	GSP	<sup>1</sup> H.als
COMNT	GSP	<sup>1</sup> H NMR DMSO-d
OBNUC	<sup>1</sup> H	
EXMOD	NON	
OBFRQ	399.65 MHz	
OBSET	124.00 KHz	
OBFIN	10500.00 Hz	
POINT	16384	
FREQU	10000.00 Hz	
SCANS	16	
ACQTM	1.6384 sec	
PD	2.0000 sec	
PWI	6.00 usec	
IRNUC	<sup>1</sup> H	
CTEMP	-69.2 c	
SLVNT	DMSO	
EXREF	0.00 ppm	
BF	0.30 Hz	
RGAIN	18	



# INDOFINE Chemical Company, Inc.

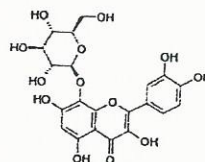
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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)

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



<sup>1</sup>H NMR DMSO-d<sub>6</sub>

Analysed By : GRM

9.540  
9.434  
9.276

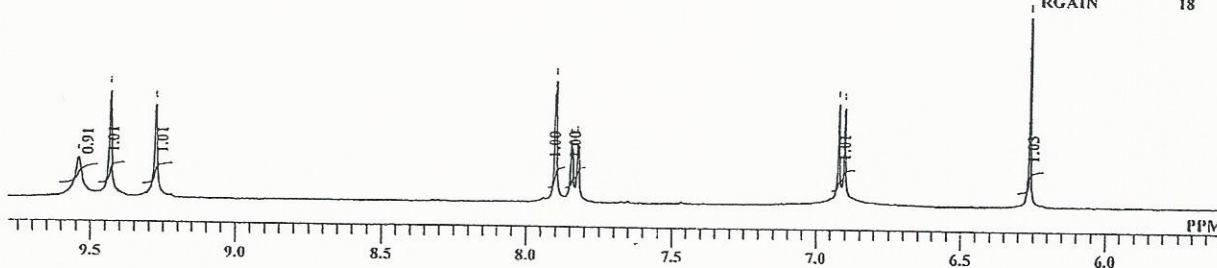
7.902  
7.898  
7.847  
7.841  
7.826  
7.820

6.922  
6.901

6.263

DFILE GSP IH.ats  
COMNT GSP IH NMR DMSO-d

OBNUC IH  
EXMOD NON  
OBFREQ 399.65 MHz  
OBSET 124.00 KHz  
OBFIN 10500.00 Hz  
POINT 16384  
FREQU 10000.00 Hz  
SCANS 16  
ACQTM 1.6384 sec  
PD 2.0000 sec  
PW1 6.00 usec  
IRNUC IH  
CTEMP -69.2 c  
SLVNT DMSO  
EXREF 0.00 ppm  
BF 0.30 Hz  
RGAIN 18



# ICG **INDOFINE Chemical Company, Inc.**

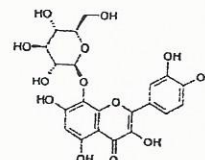
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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

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

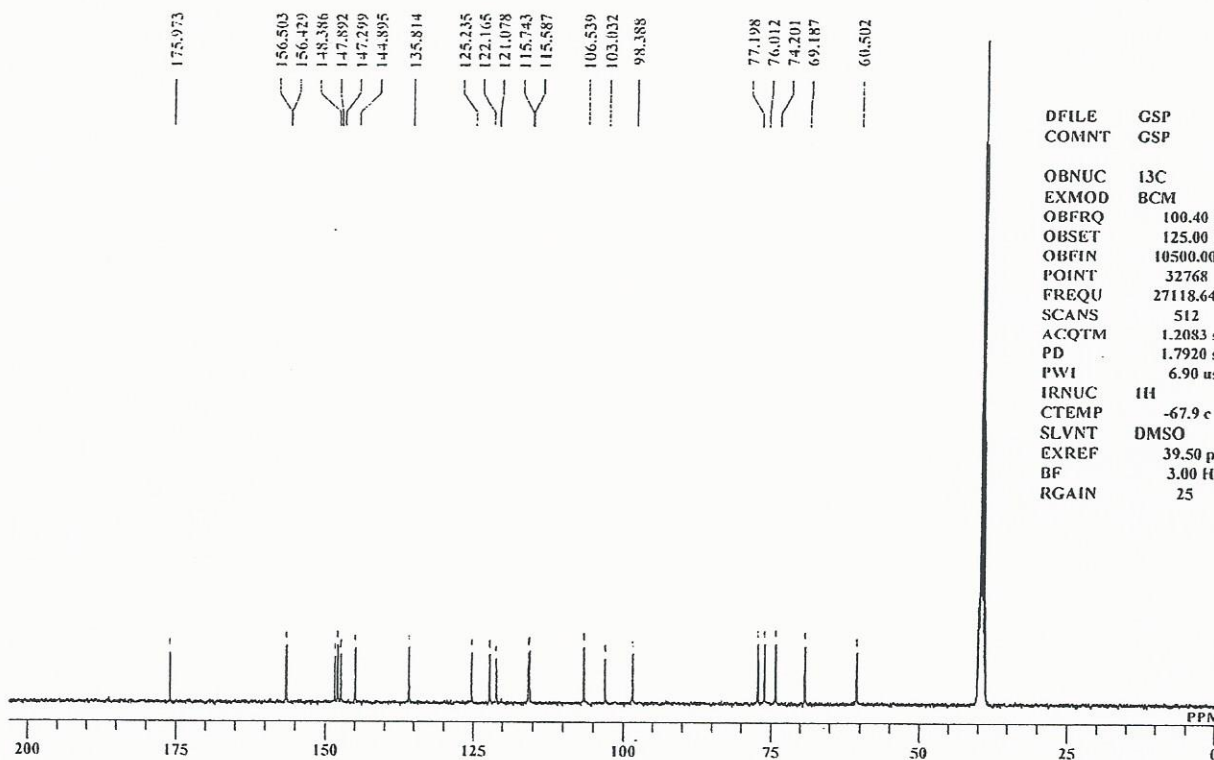
e-mail: [chemical@indofinechemical.com](mailto:chemical@indofinechemical.com)

Catalog No.: G-002  
 Product Name: Gossypin  
 Lot No.: 1508652



<sup>13</sup>C NMR DMSO-d<sub>6</sub>

Analysed By : GRM



DFILE	GSP	I3C.at5
COMNT	GSP	I3C NMR DMSO-d <sub>6</sub>
OBNUC	I3C	
EXMOD	BCM	
OBFRQ	100.40 MHz	
OBSET	125.00 KHz	
OBFIN	10500.00 Hz	
POINT	32768	
FREQU	27118.64 Hz	
SCANS	512	
ACQTM	1.2083 sec	
PD	1.7920 sec	
PWI	6.90 usec	
IRNUC	1H	
CTEMP	-67.9 c	
SLVNT	DMSO	
EXREF	39.50 ppm	
BF	3.00 Hz	
RGAIN	25	



# INDOFINE Chemical Company, Inc.

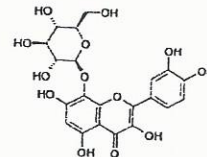
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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

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

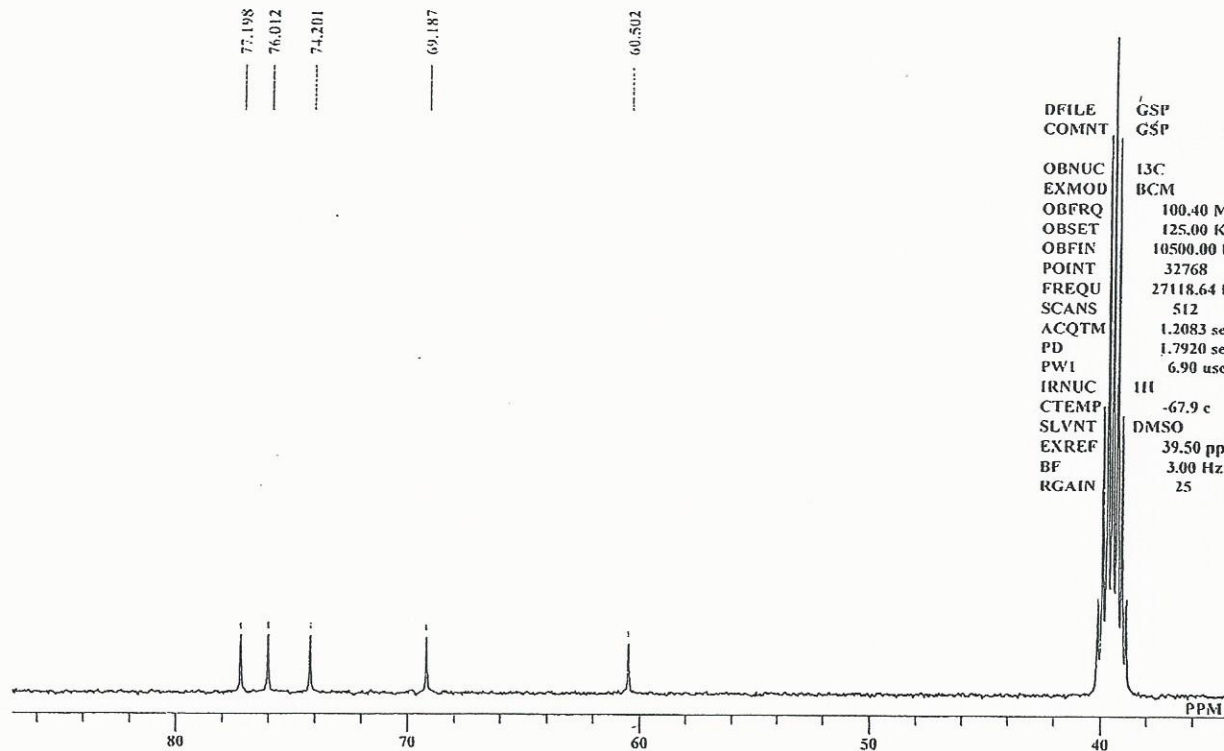
e-mail: [chemical@indofinechemical.com](mailto:chemical@indofinechemical.com)

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



<sup>13</sup>C NMR DMSO-d<sub>6</sub>

Analysed By : GRM



DFILE	GSP	I3C.als
COMNT	GSP	<sup>13</sup> C NMR DMSO-d <sub>6</sub>
OBNUC	I3C	
EXMOD	BCM	
OBFRQ	100.40 MHz	
OBSET	125.00 KHz	
OBFIN	10500.00 Hz	
POINT	32768	
FREQU	27118.64 Hz	
SCANS	512	
ACQTM	1.2083 sec	
PD	1.7920 sec	
PW1	6.90 usec	
IRNUC	III	
CTEMP	-67.9 c	
SLVNT	DMSO	
EXREF	39.50 ppm	
BF	3.00 Hz	
RGAIN	25	



# ICC INDOFINE Chemical Company, Inc.

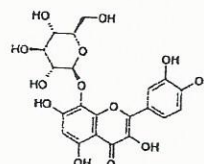
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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)

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



<sup>13</sup>C NMR DMSO-d<sub>6</sub>

Analysed By: GRM

125.235

122.165

121.078

115.743

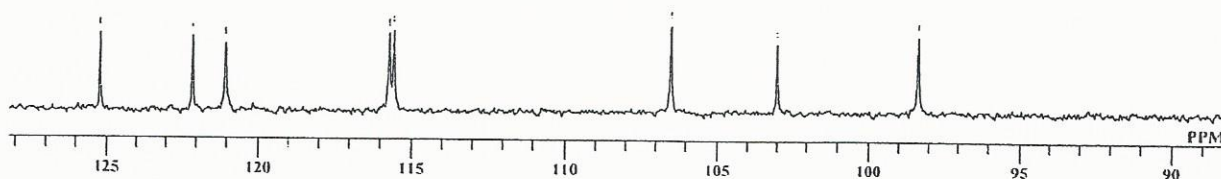
115.587

106.539

103.032

98.388

DFILE	GSP	13C.als
COMNT	GSP	13C NMR DMSO-d
OBNUC	13C	
EXMOD	BCM	
OBFRQ	100.40 MHz	
OBSET	125.00 KHz	
OBFIN	10500.00 Hz	
POINT	32768	
FREQU	27118.64 Hz	
SCANS	512	
ACQTM	1.2083 sec	
PD	1.7920 sec	
PW1	6.90 usec	
IRNUC	1H	
CTEMP	-67.9 c	
SLVNT	DMSO	
EXREF	39.50 ppm	
BF	3.00 Hz	
RGAIN	25	





# INDOFINE Chemical Company, Inc.

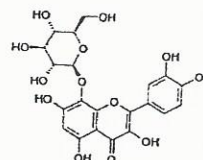
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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)

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



<sup>13</sup>C NMR DMSO-d<sub>6</sub>

Analysed By: GRM

156.803  
156.429

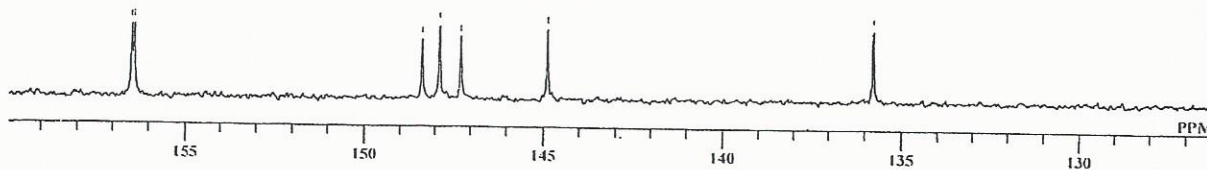
148.386  
147.892  
147.299

144.895

135.814

DFILE GSP 13C.atl  
COMNT GSP 13C NMR DMSO-d<sub>6</sub>

OBNUC 13C  
EXMOD BCM  
OBFRQ 100.40 MHz  
OBSET 125.00 KHz  
OBPFI 10500.00 Hz  
POINT 32768  
FREQU 27118.64 Hz  
SCANS 512  
ACQTM 1.2083 sec  
PD 1.7920 sec  
PWI 6.90 usec  
IRNUC III  
CTEMP -67.9 c  
SLVNT DMSO  
EXREF 39.50 ppm  
BF 3.00 Hz  
RGAIN 25



# ICC **INDOFINE Chemical Company, Inc.**

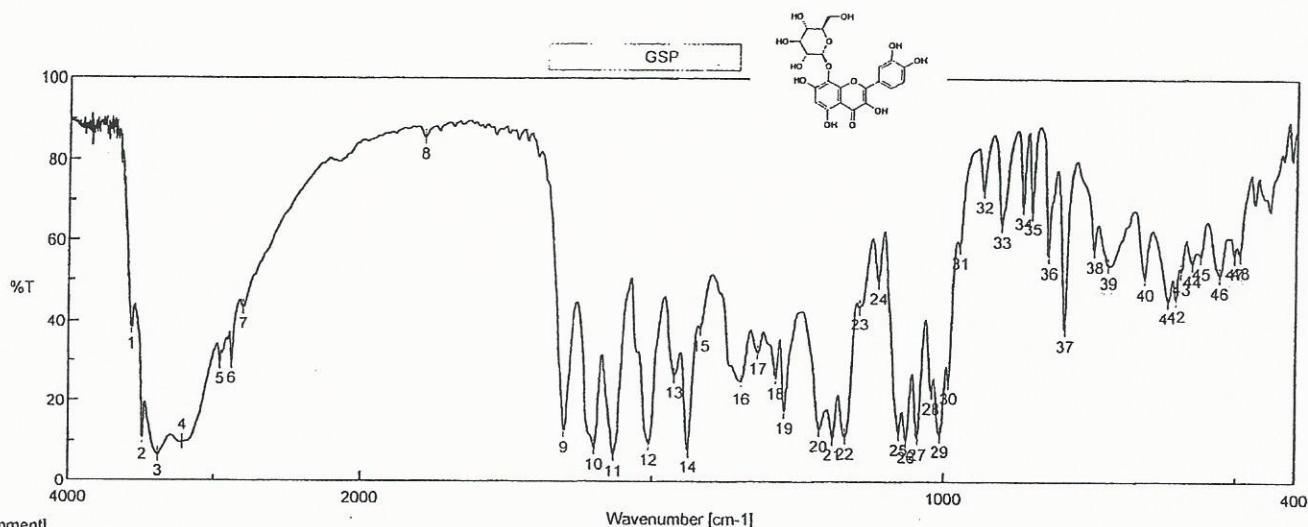
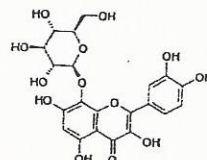
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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)

Catalog No.: G-002  
 Product Name: Gossypin  
 Lot No.: 1508652



[Comment]  
 Sample Name GSP  
 Comment KBr Pellet  
 User DRNP  
 Division QC

[Data Information]

		k Picking														
		No. Position	Intensity	No. Position	Intensity	No. Position	Intensity	No. Position	Intensity	No. Position	Intensity					
Data array type	Linear data array	1	3572.5	38.236	2	3495.3	10.796	3	3388.3	6.551	4	3218.6	9.733	5	2959.2	29.387
Horizontal	Wavenumber [cm-1]	6	2881.1	29.614	7	2802.1	43.501	8	1890.9	85.631	9	1650.8	12.826	10	1600.6	8.530
Vertical	%T	11	1566.9	6.760	12	1506.1	9.640	13	1462.7	26.162	14	1438.6	7.907	15	1417.4	37.906
Start	349.053 cm-1	16	1348.0	24.620	17	1319.1	32.139	18	1288.2	25.948	19	1272.8	17.522	20	1213.0	13.154
End	7800.65 cm-1	21	1189.9	10.968	22	1168.7	11.307	23	1145.5	43.465	24	1112.7	49.901	25	1077.0	12.200
Data pitch	0.964233 cm-1	26	1064.5	10.380	27	1045.2	11.143	28	1022.1	22.355	29	1006.7	11.805	30	992.2	24.750
Data points	7729	31	973.9	58.475	32	933.4	72.538	33	902.5	63.790	34	865.9	68.470	35	850.5	67.054
		36	821.5	56.109	37	793.6	38.007	38	743.4	57.587	39	719.3	53.829	40	655.7	51.000
		41	616.1	45.184	42	602.6	45.667	43	594.0	52.542	44	575.6	54.239	45	561.2	56.173
		46	529.4	51.441	47	504.3	56.225	48	494.7	56.453						



# 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)

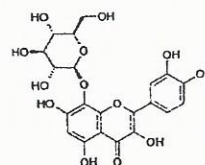
e-mail: [chemical@indofinechemical.com](mailto:chemical@indofinechemical.com)

## LC-MS ANALYSIS

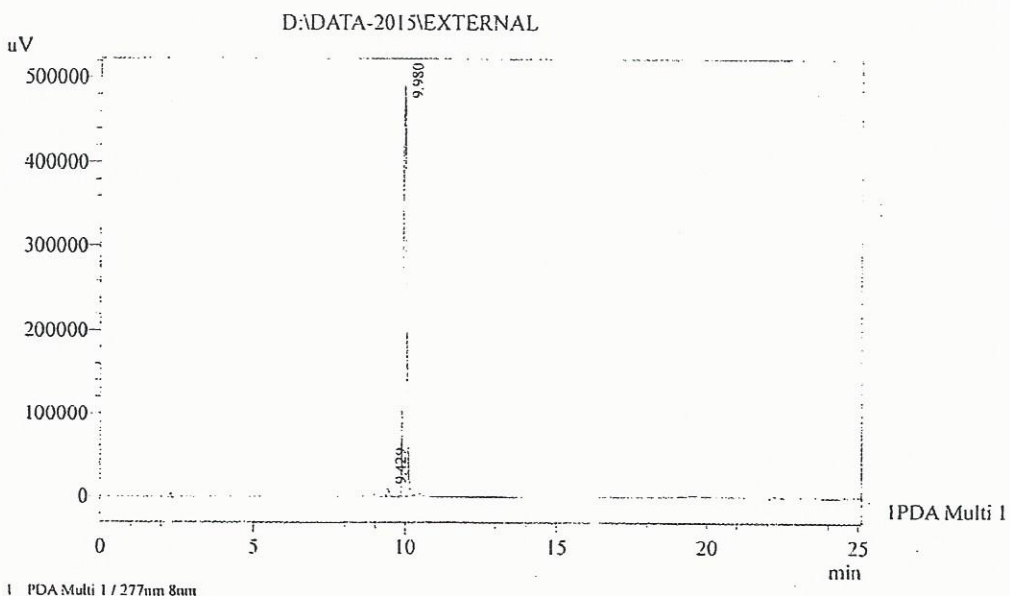
Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652

Sample Name :GSP  
AR Number :-  
User Id :TJR

Method :D:\Methods\External-2015  
Method Parameters :Column :Inertsil ODS-3V, 150 X 4.6 mm, 5.0 µm  
Mobile Phase: A:0.1% TFA in Water B: Acetonitrile Flow Rate: 1.0 mL/min  
T(min) : 0.01, 1.0, 7.0, 14.0, 18.0, 20.0, 22.0, 25.0.  
B(%) : 90, 90, 68, 68, 10, 10, 90, 90.  
Sample Preparation : In Mobile phase A:B (1:1)



LC-MS



PDA Ch1 277nm 8nm

Peak#	Ret. Time	Area	Resolution	Theoretical Plate#	Area %
1	9.429	68165	0.000	37590.937	1.739
2	9.980	3850782	2.646	32369.613	98.261
Total		3918947			100.000

# ICC **INDOFINE Chemical Company, Inc.**

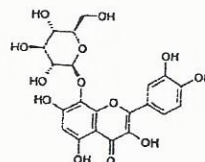
121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

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)

Catalog No.: G-002  
Product Name: Gossypin  
Lot No.: 1508652



Sample Information  
Sample Name : GSP  
AR Number : -  
Data File : GSP  
Acquired by : TJR

LC-MS

MS Spectrum Graph

