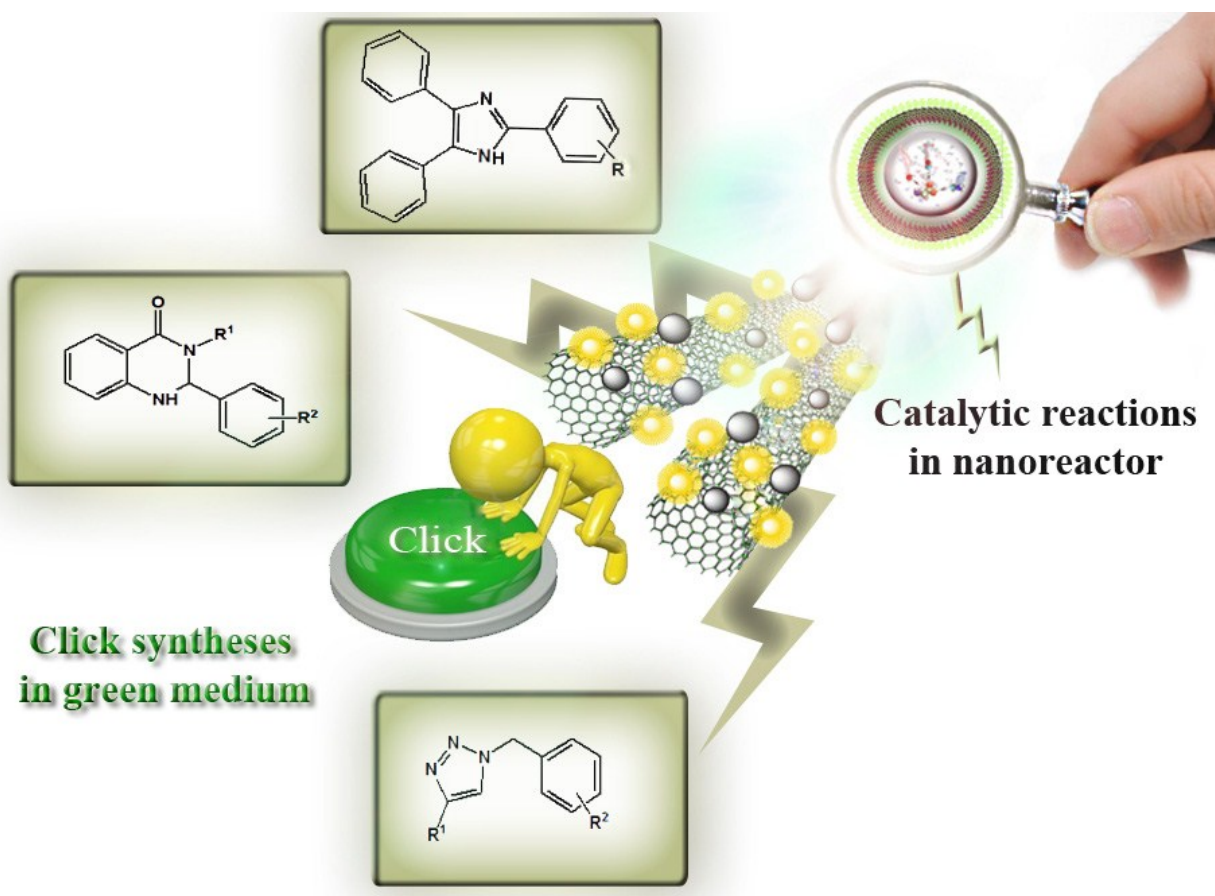


Supporting Information

The crosslinked chitosan nanoparticles-anchored magnetic multi-wall carbon nanotubes: A bio-nanoreactor with extremely high activity toward click-multi-component reactions

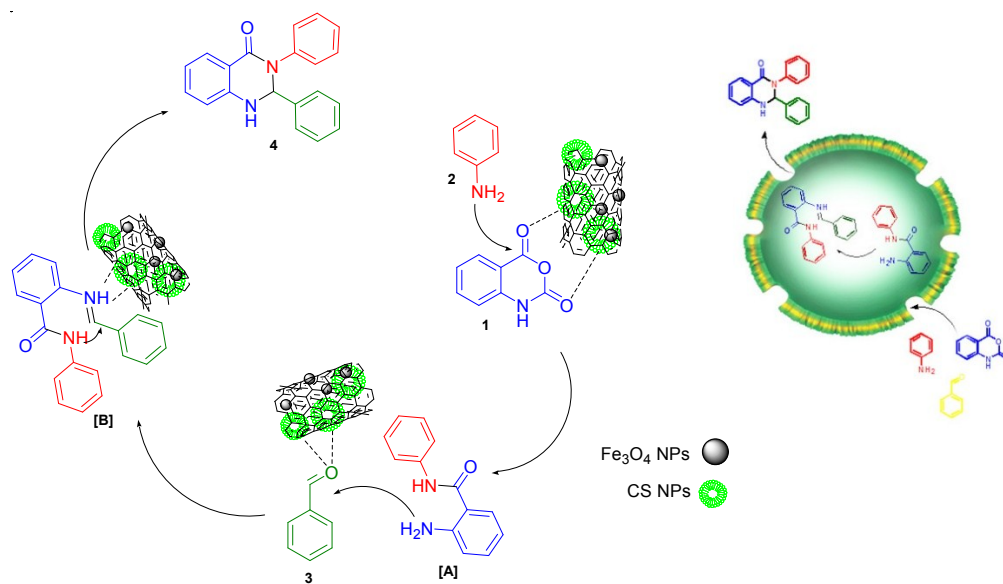
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Faculty of Chemistry, Shahid Beheshti University, G. C., P. O. Box 19396-4716, Tehran, Iran

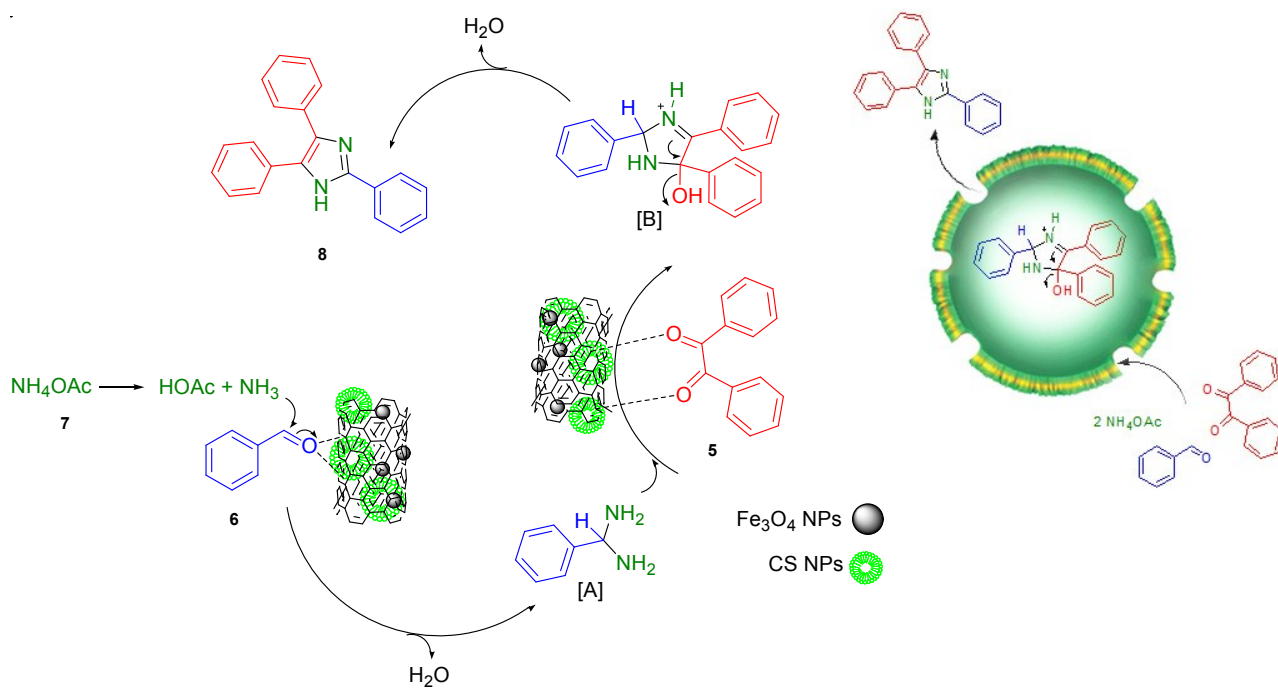


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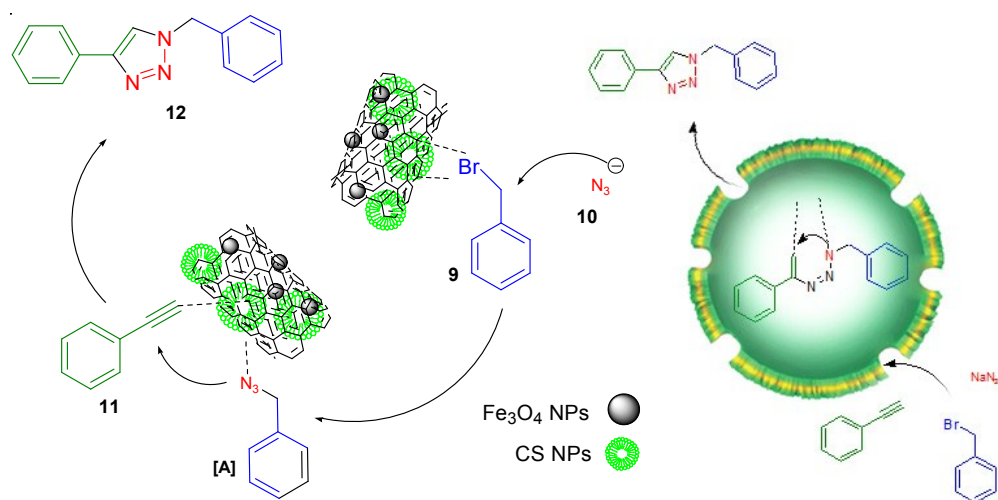
Proposed mechanism for the synthesis of 2,3-dihydroquinazolin-4(1*H*)-ones catalyzed by CS NPs/MWCNT@Fe₃O₄ bio-nanoreactor



Proposed mechanism for the synthesis of trisubstituted imidazoles catalyzed *via* CS NPs/MWCNT@Fe₃O₄ bio-nanoreactor



Proposed mechanism of the Huisgen 1,3-dipolar cycloaddition reaction with CS NPs/MWCNT@Fe₃O₄ bio-nanoreactor



Analytical data of the new compounds

{2-[3-(4-Methyl-benzyl)-4-oxo-1,2,3,4-tetrahydro-quinazolin-2-yl]-phenoxy}-acetic acid ethyl ester (4g).

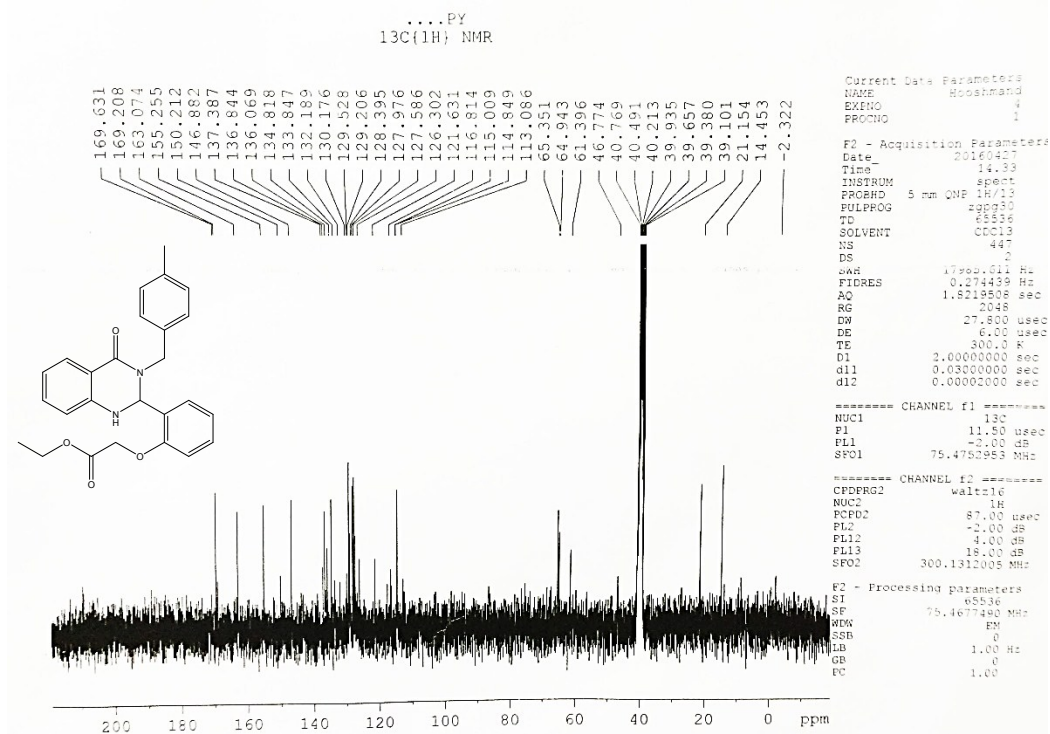
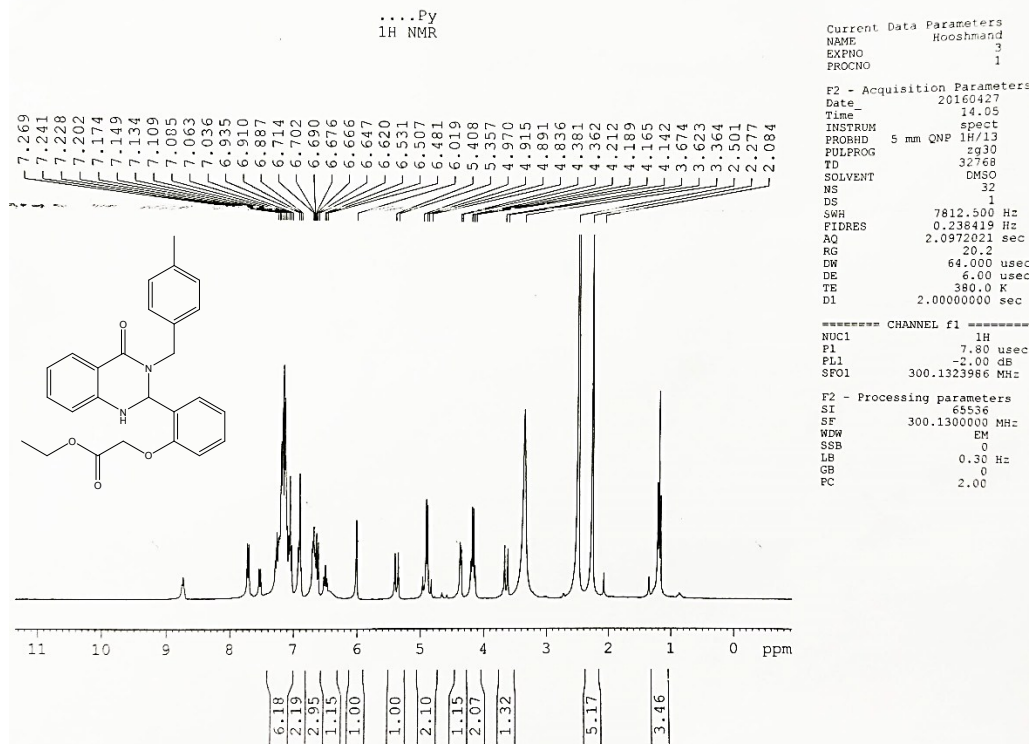
Cream powder, 189-190 °C, ¹H NMR (300 MHz, DMSO-*d*₆) δ (ppm): 1.18 (3H, t), 2.27 (3H, s), 3.62-3.67 (1H, d, J=15 Hz), 4.14-4.21 (2H, q), 4.37 (1H, s), 4.83- 4.98 (2H, q), 5.35-5.40 (2H, d, J=15 Hz), 6.01 (1 H, s), 6.48-7.26 (12 H, m); ¹³C NMR (75 MHz, DMSO-*d*₆) δ (ppm) 14.4, 21.1, 46.7, 61.3, 64.9, 65.3, 113.0, 114.8, 115.0, 116.8, 121.6, 126.3, 127.5, 128.3, 129.5, 130.1, 132.1, 133.8, 134.8, 136.3, 137.3, 146.8, 150.2, 155.2, 163.0, 169.2; Anal. Calcd. (%) for C₂₆H₂₆N₂O₄: C, 72.54; H, 6.09; N, 6.51. Found: C, 72.19; H, 6.37; N, 6.83.

2-(2-(4,5-diphenyl-1H-imidazol-2-yl)phenoxy)acetic acid (8g).

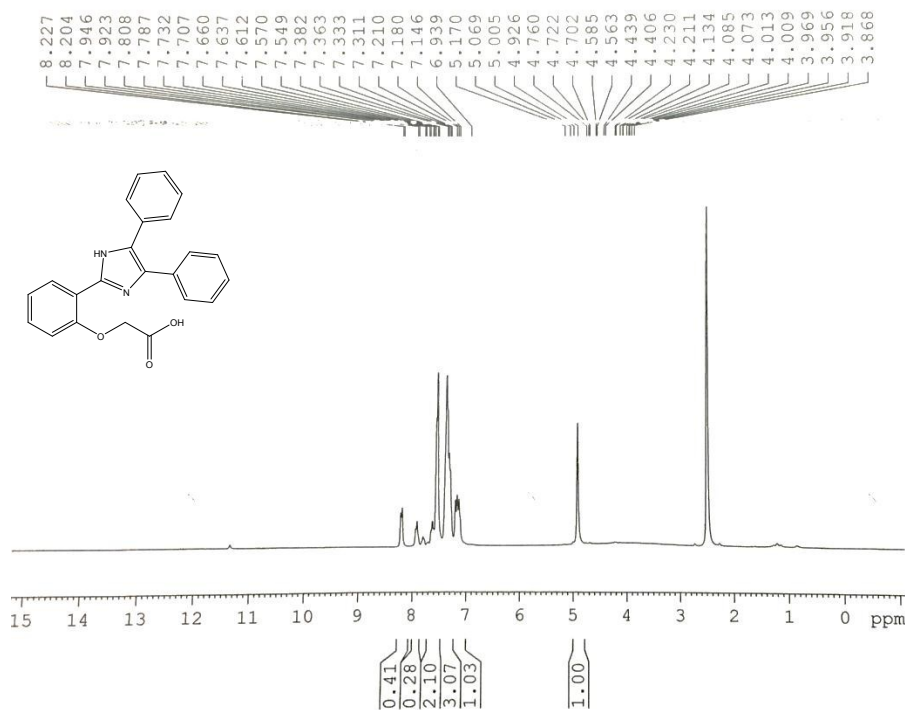
Off-white powder, 103-105 °C, ¹H NMR (300 MHz, DMSO-*d*₆) δ (ppm) 4.92 (2 H, s, CH₂), 7.14–8.22 (14 H, m, Ar), 11.35 (1 H, brs, NH); ¹³C NMR (75 MHz, DMSO-*d*₆) δ (ppm) 66.5, 114.3, 118.8, 122.2, 127.6, 128.0, 128.2, 128.9, 129.9, 130.2, 133.1, 143.2, 154.5, 171.9; Anal. Calcd. (%) for C₂₃H₁₈N₂O₃: C, 74.58; H, 4.90; N, 7.56. Found: C, 74.69; H, 5.07; N, 7.23.

1-(3-Iodobenzyl)-4-p-tolyl-1H-1,2,3-triazole (12f).

Cream powder, 178-181 °C, ¹H NMR (300 MHz, CDCl₃) δ (ppm) 2.38 (3H, s), 5.51 (2H, s), 7.09–7.14 (1H, m), 7.22–7.27 (3H, m), 7.62–7.72 (5H, m); ¹³C NMR (75 MHz, CDCl₃) δ (ppm) 21.3, 53.2, 94.7, 118.85, 119.25, 119.58, 125.63, 127.51, 129.50, 129.63, 130.77, 136.80, 136.97, 137.86, 138.16, 148.49, 158.53; Anal. Calcd. (%) for C₁₆H₁₄IN₃: C, 51.22; H, 3.76; N, 11.20. Found: C, 50.99; H, 3.97; N, 11.42.



ICOOH
1H NMR

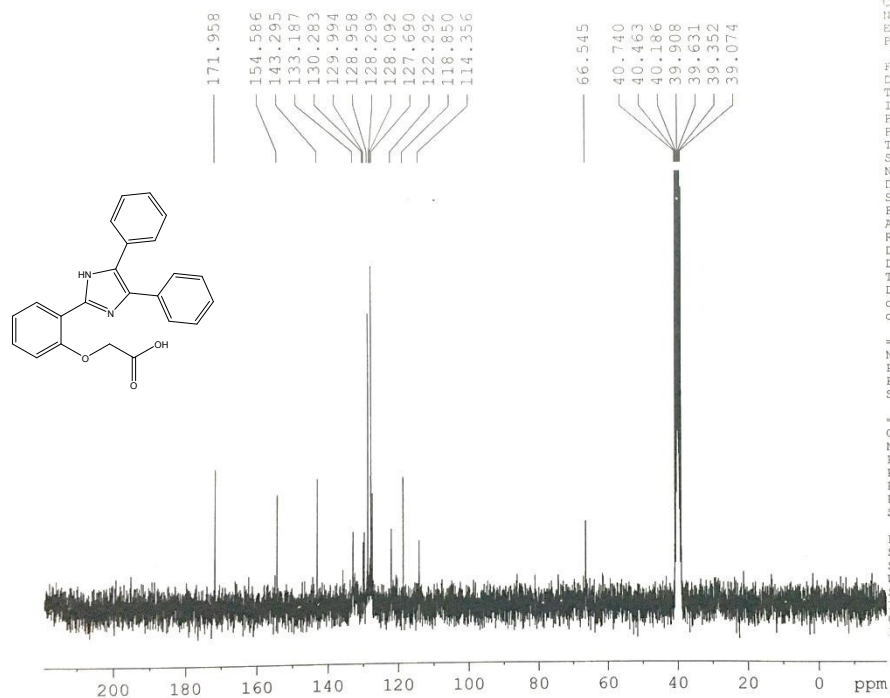


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PROCNO 1

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FIDRES 0.238419 Hz
AQ 2.0972021 sec
RG 228.1
DW 64.000 usec
DE 6.00 usec
TE 380.0 K
D1 2.00000000 sec

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F2 - Processing parameters
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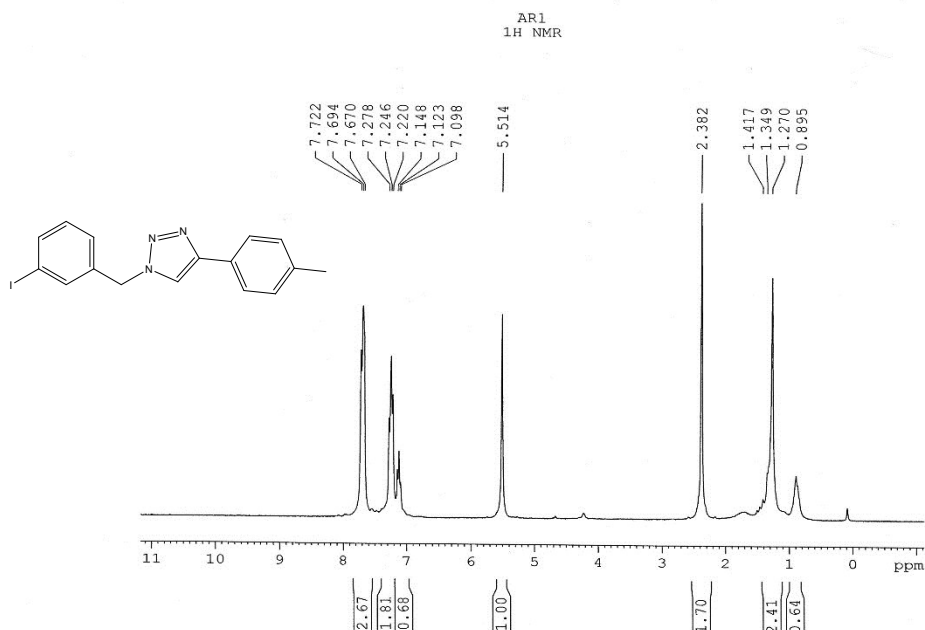
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EXPNO 7
PROCNO 1

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DS 2
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PL13 18.00 dB
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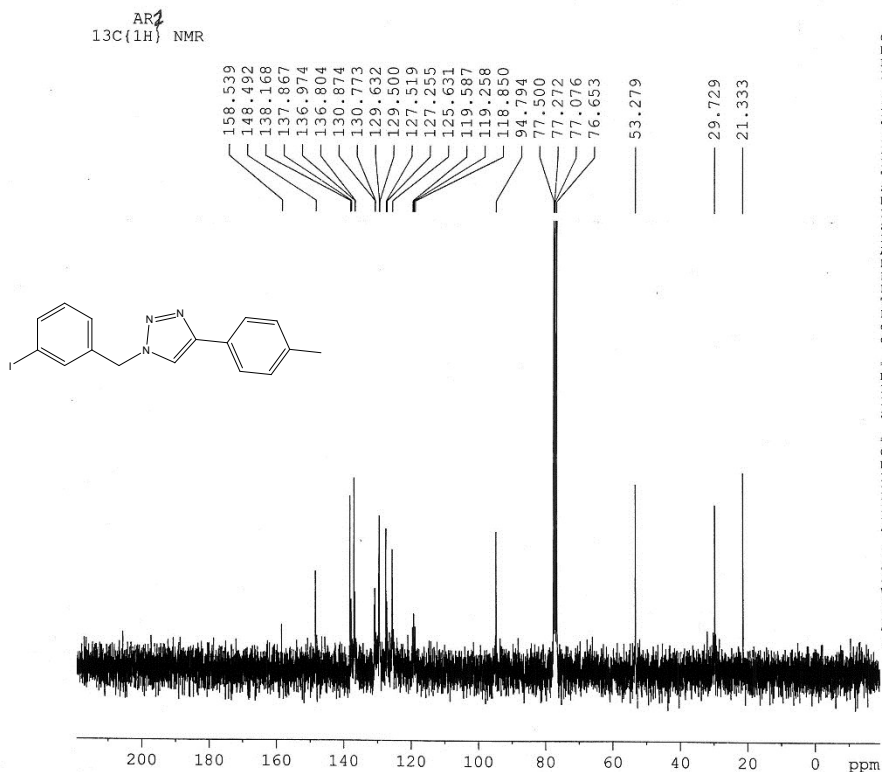


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PROCNO 1

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FIDRES 0.238419 Hz
AQ 2.0972021 sec
RG 724.1
DW 64.000 usec
DE 6.00 usec
TE 380.0 K
D1 2.0000000 sec

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F2 - Processing parameters
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GB 0
PC 1.00



Current Data Parameters
NAME Afshari
EXPNO 17
PROCNO 1

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TD 65536
SOLVENT CDCl3
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AQ 1.8219508 sec
RG 2048
DW 27.800 usec
DE 6.00 usec
TE 300.0 K
D1 2.0000000 sec
d11 0.0300000 sec
d12 0.0000200 sec

===== CHANNEL f1 =====
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PL1 -2.00 dB
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===== CHANNEL f2 =====
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PCPD2 87.00 usec
PL2 -2.00 dB
PL12 12.00 dB
PL13 18.00 dB
SFO2 300.1312005 MHz

F2 - Processing parameters
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WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00