

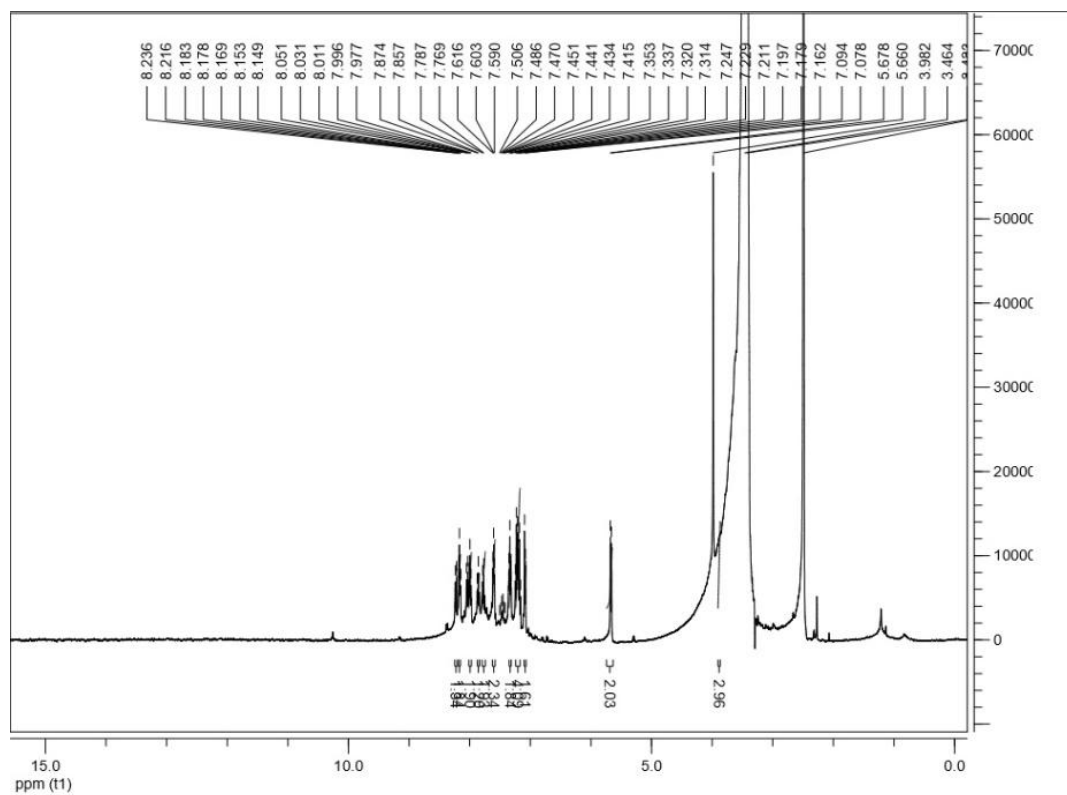
SUPPLEMENTARY INFORMATION

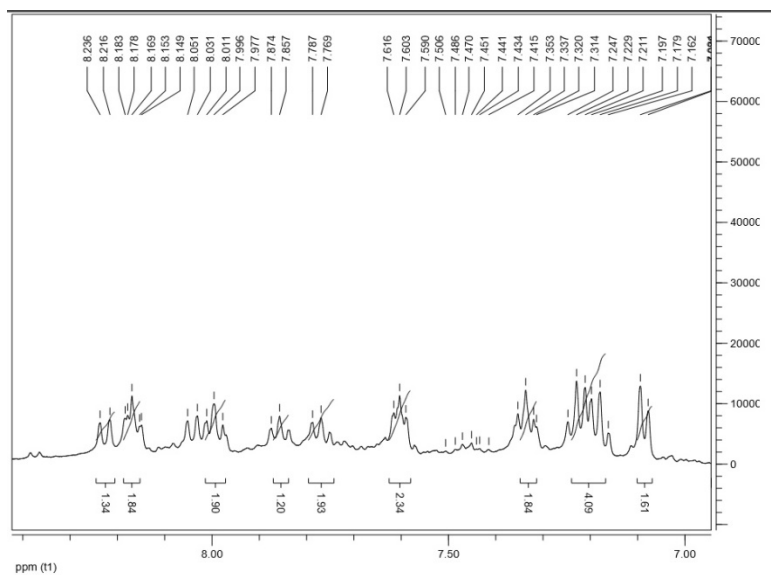
Manganese ferrite particles encapsulated-chitosan bearing sulfonic acid group catalyzed efficient synthesis of spiro indenoquinoxalines

Authors: Sepideh Lahouti and Hossein Naeimi*

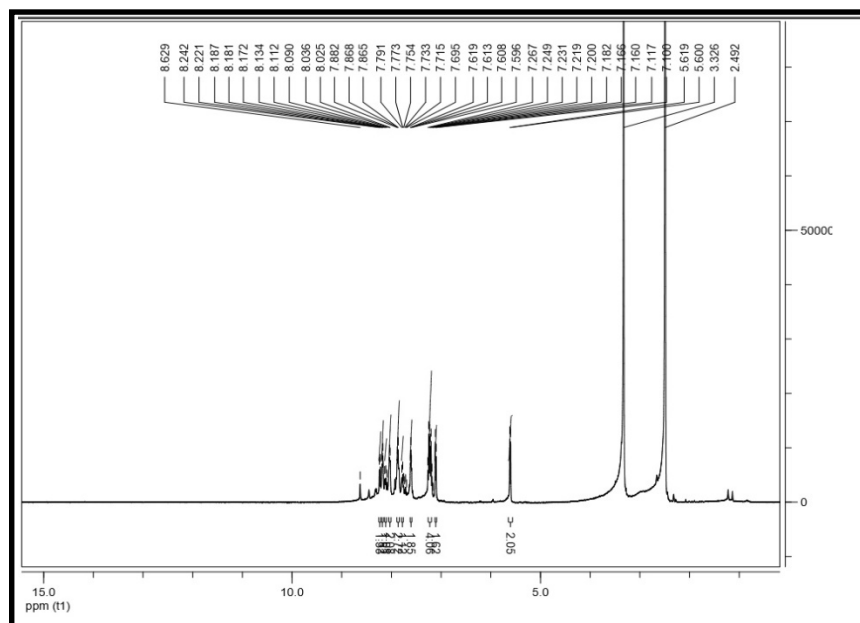
NMR data

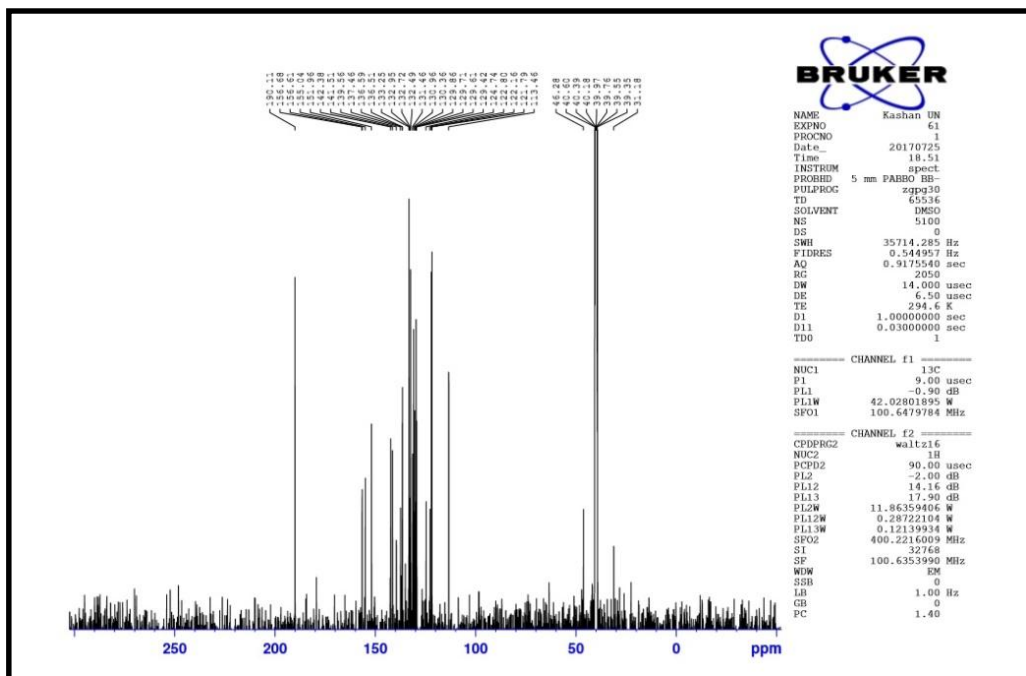
¹H NMR spectra of 5-(4-methoxyphenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5a)



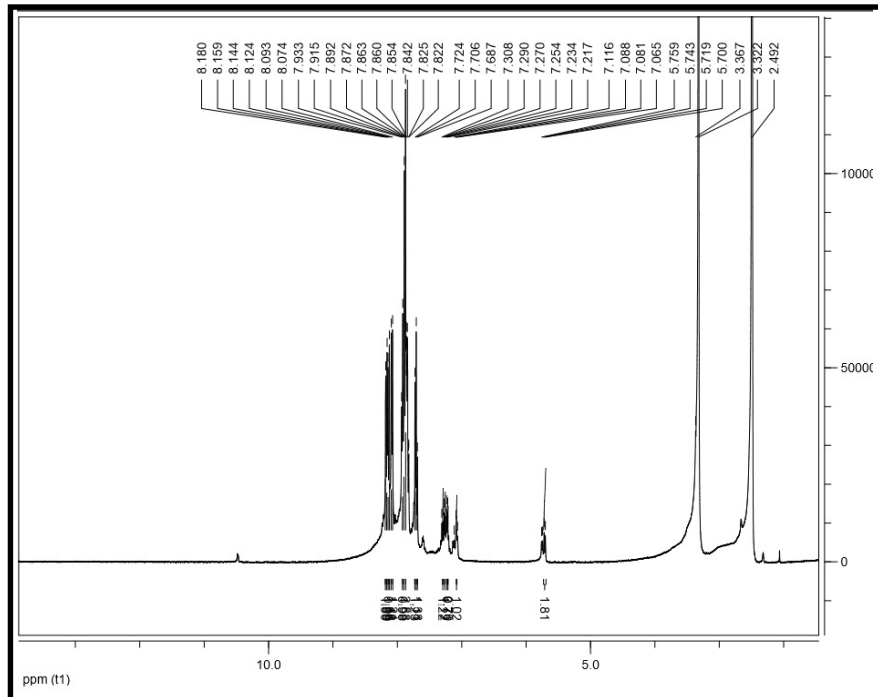


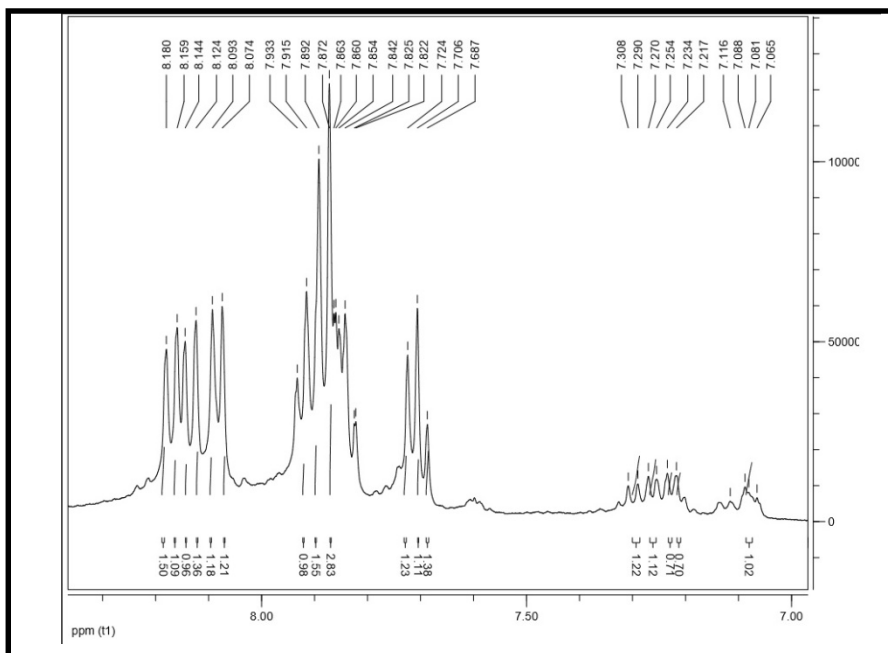
^1H NMR spectra of 5-(3-chlorophenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5b)



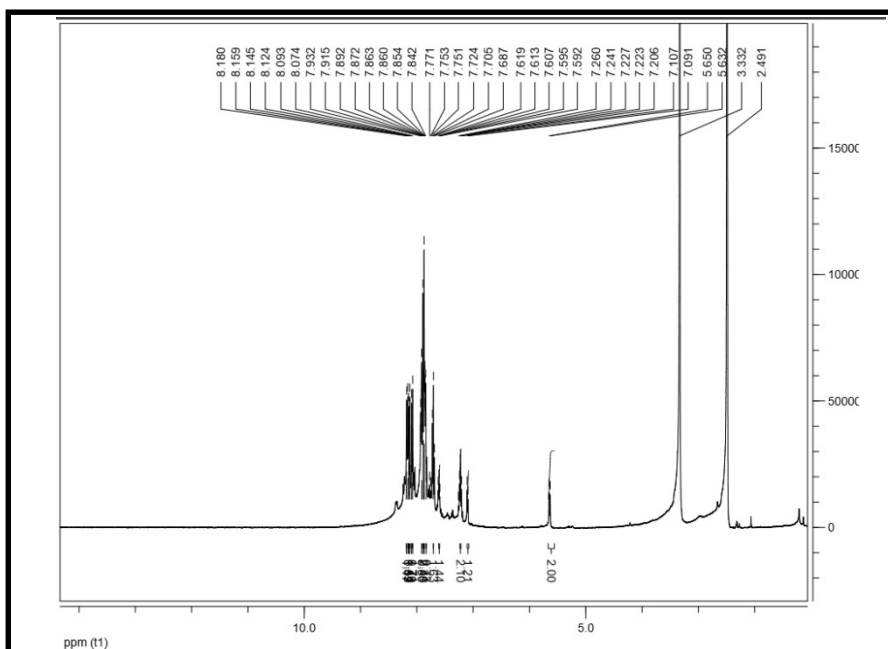


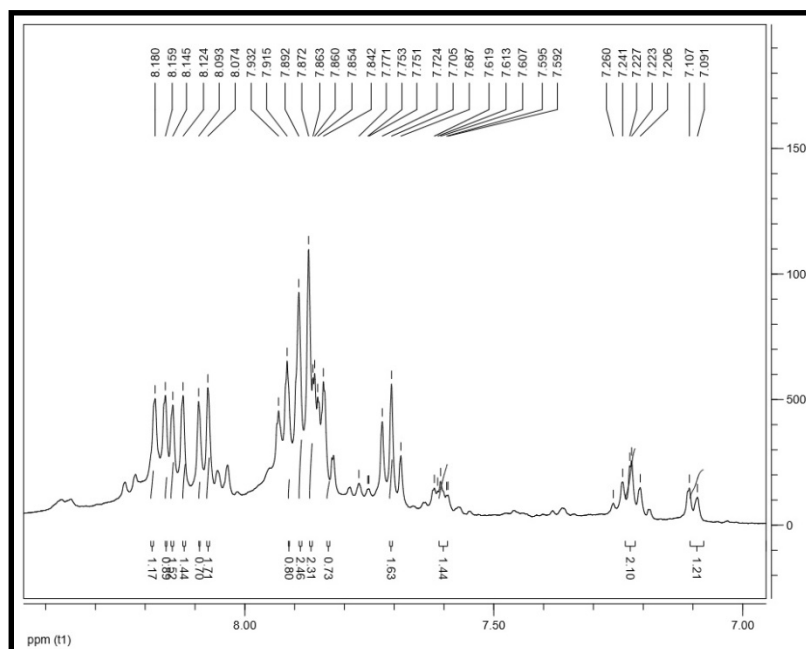
^1H NMR spectra of 5-(4-hydroxyphenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5c)



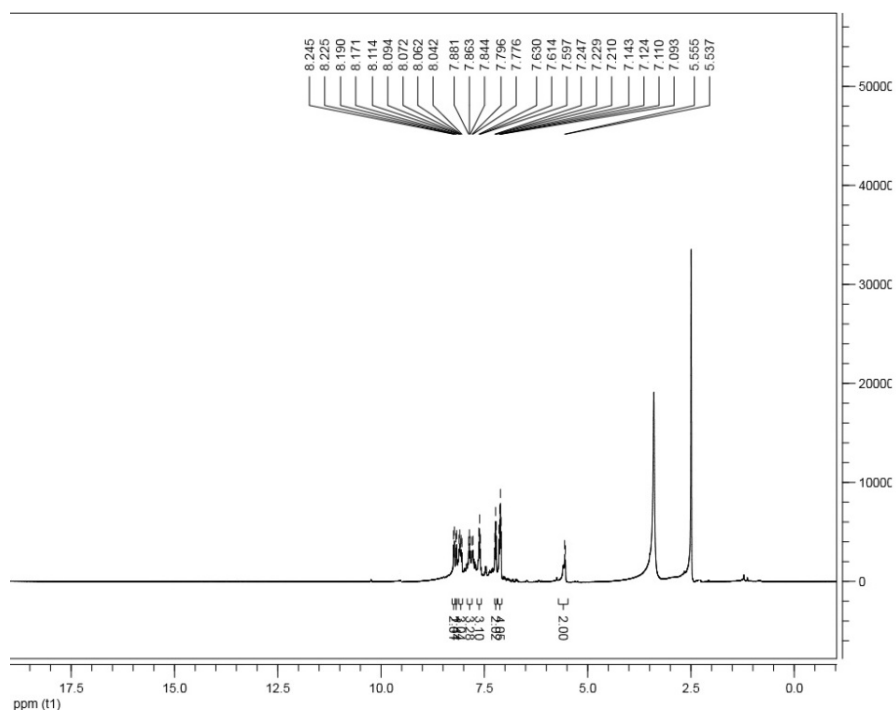


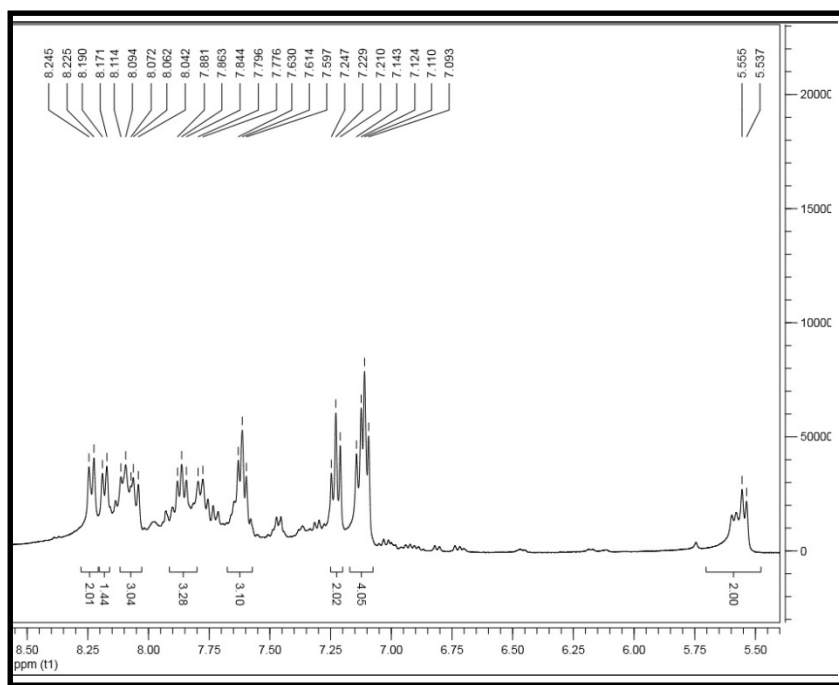
^1H NMR spectra of 5-(4-chlorophenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5d)



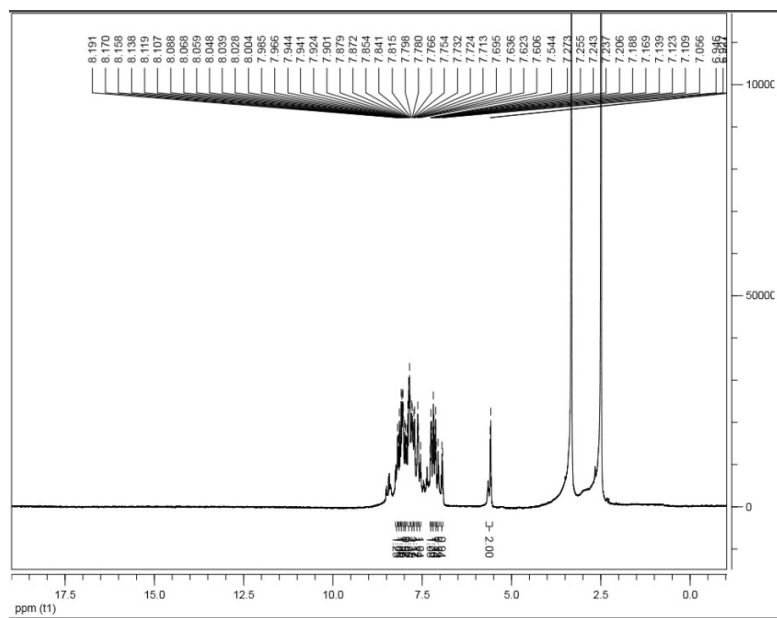


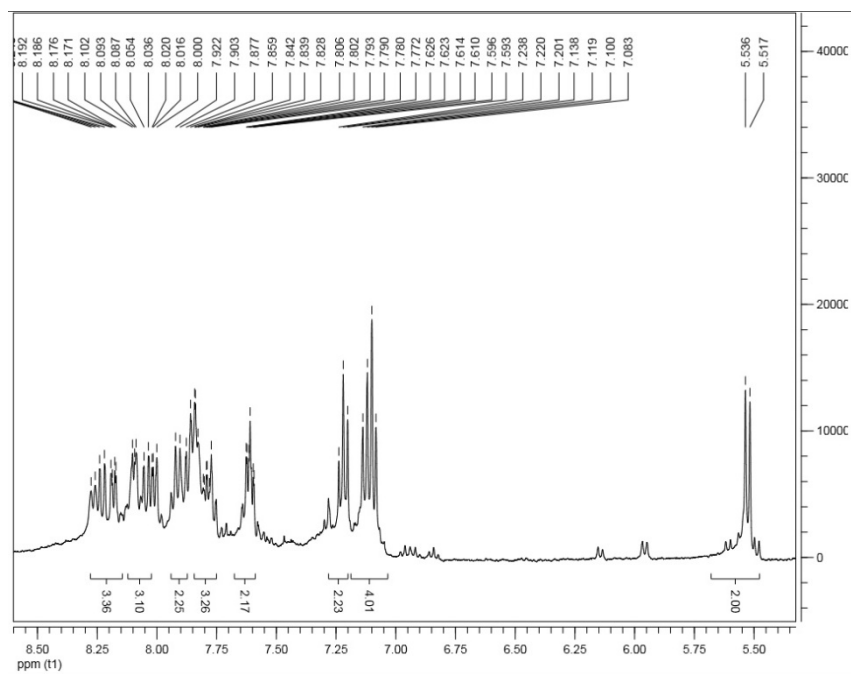
^1H NMR spectra of 5-(3-nitrophenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5e)



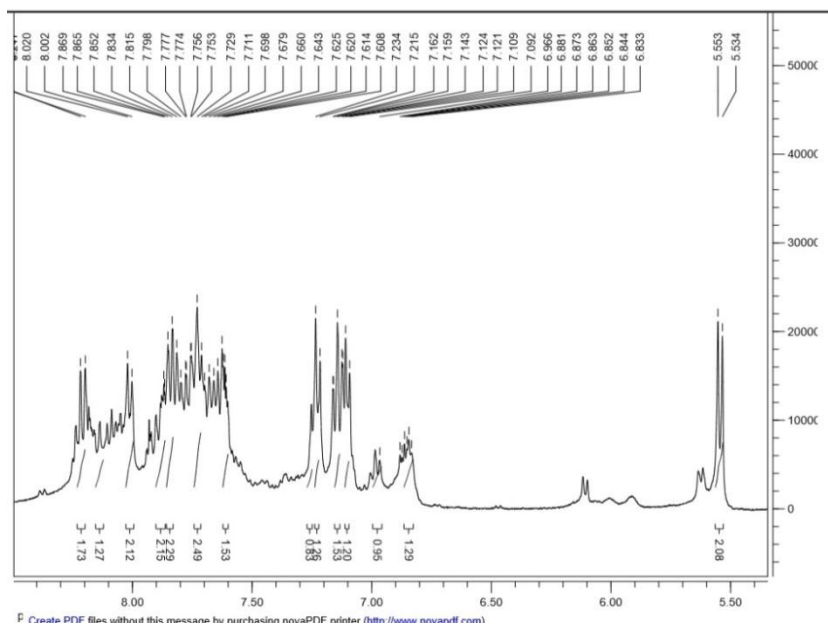
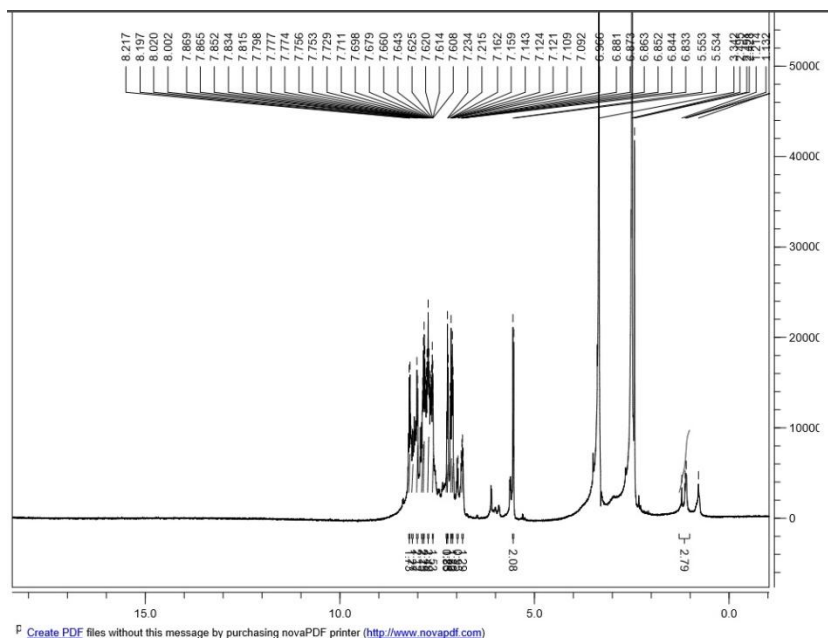


^1H NMR spectra of 5-(2-chlorophenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5f)

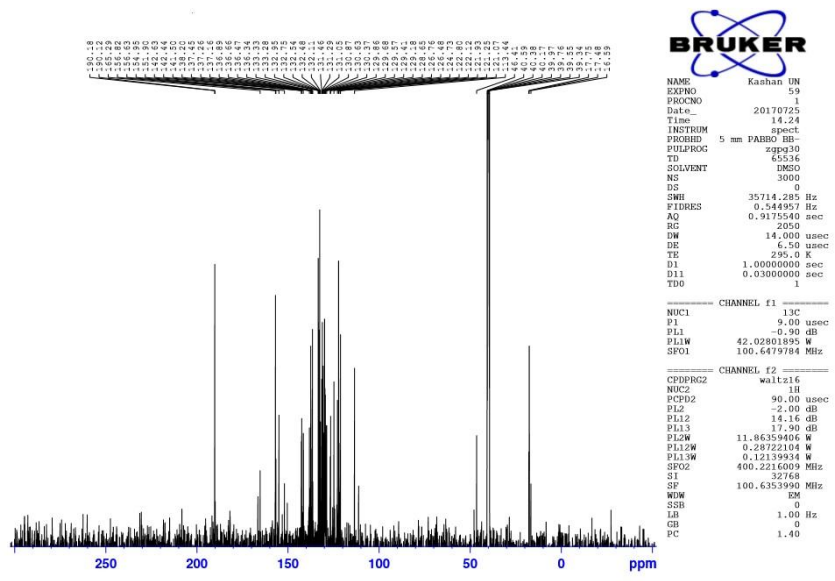




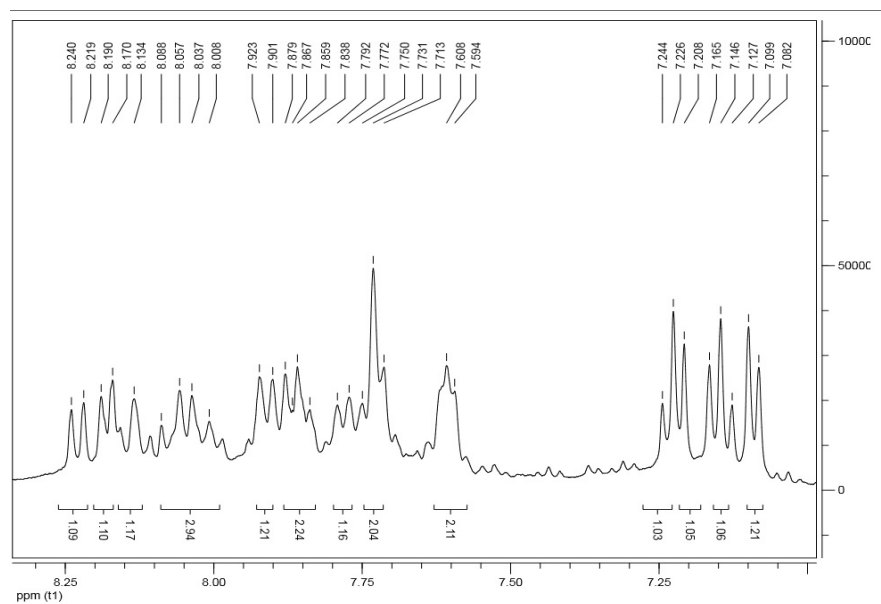
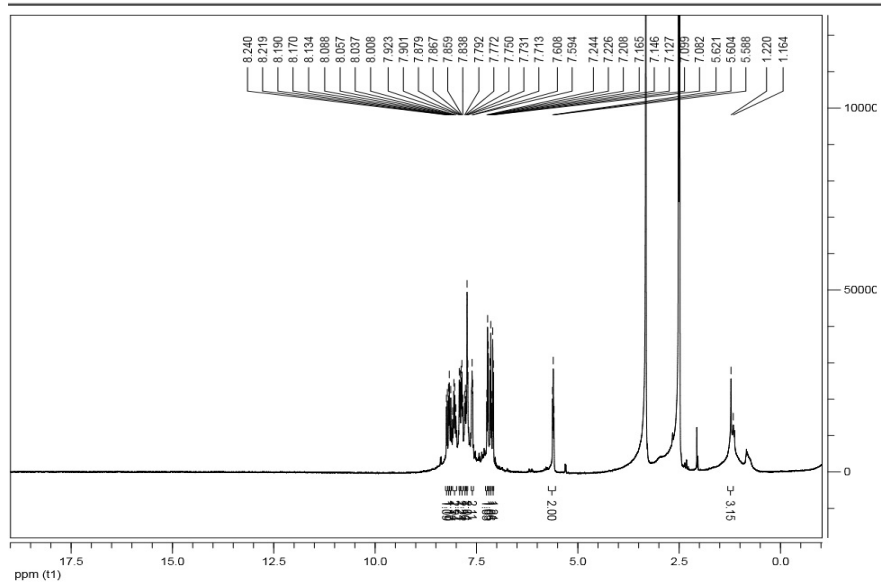
¹H NMR spectra of 5-(o-tolyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5h)



¹³C NMR spectra of 5-(o-tolyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5h)



¹H NMR spectra of 5-(2,4-dimethylphenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5i)



¹H NMR spectra of 5-(4-nitrophenyl)-10H-spiro[diindeno[1,2-b:2',1'-e]pyridine-11,11'-indeno[1,2-b]quinoxaline]-10,12(5H)-dione (5m)

