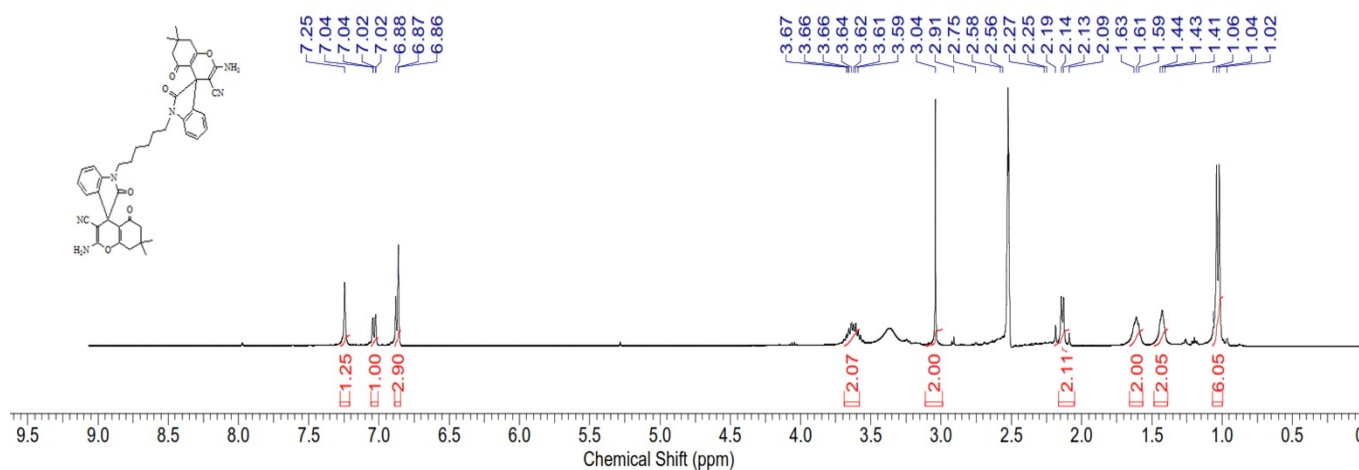
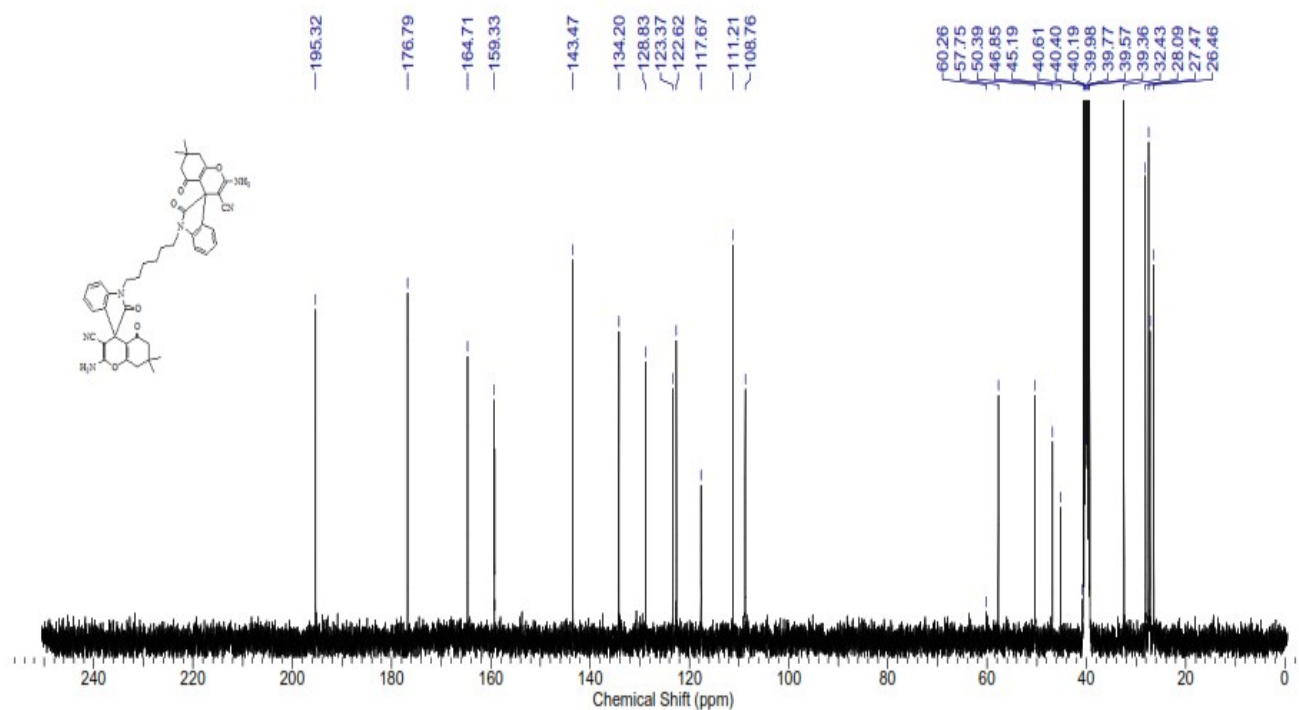


**Highly efficient, one-pot synthesis of novel bis-spirooxindoles with skeletal diversity via
sequential multi-component reaction in PEG-400 as a biodegradable solvent**

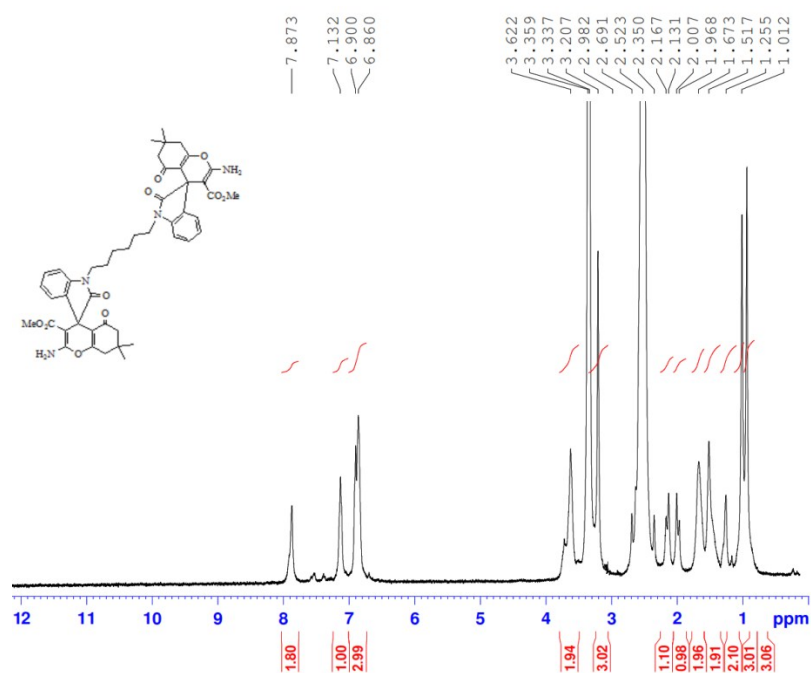
SUPPORTING INFORMATION

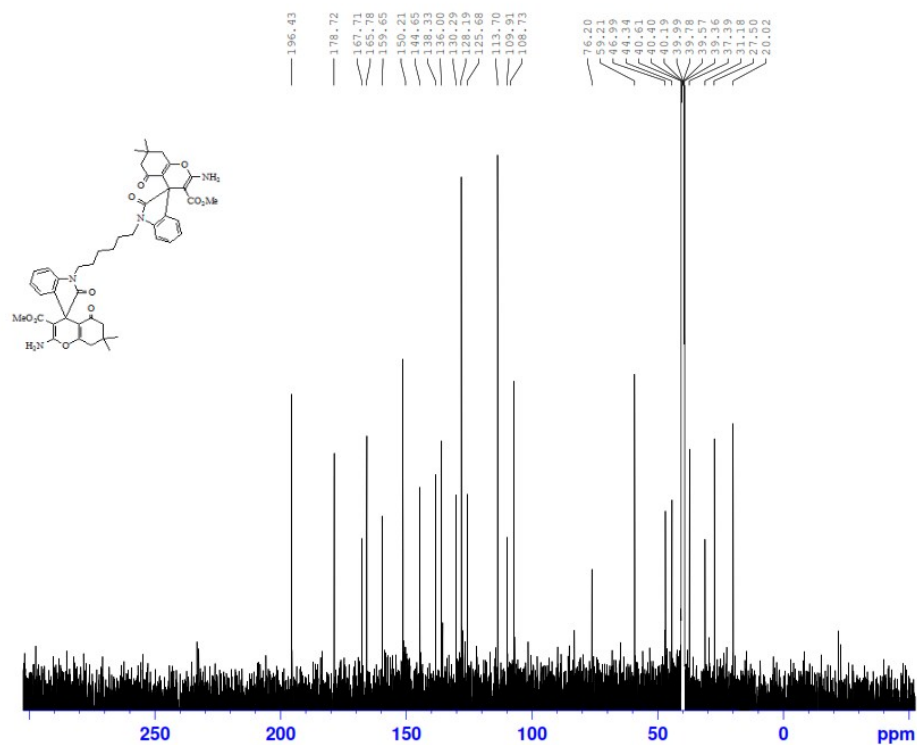
1',1'''-(hexane-1,6-diyl)bis(2-amino-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carbonitrile) (**7a**)



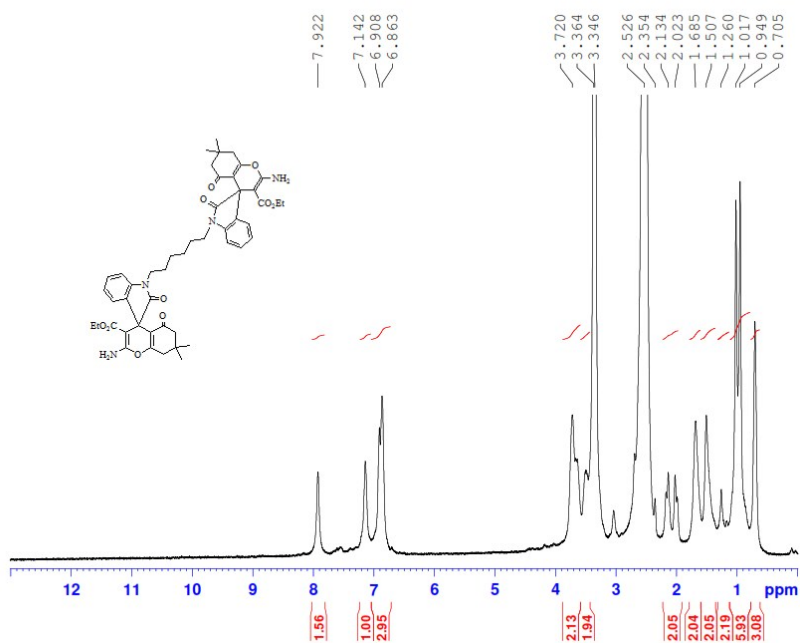


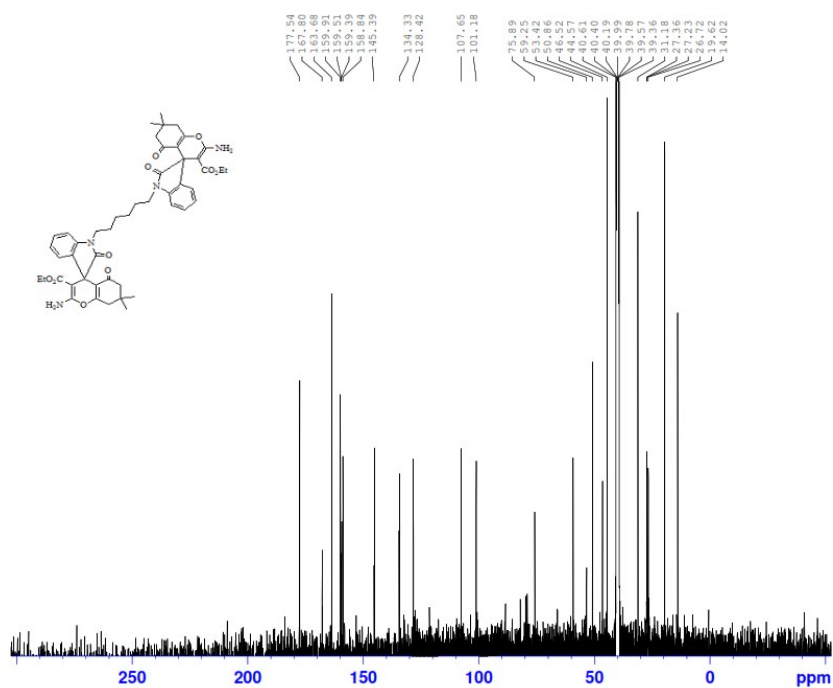
dimethyl 1',1'''-(hexane-1,6-diyl)bis(2-amino-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate) (**7b**)



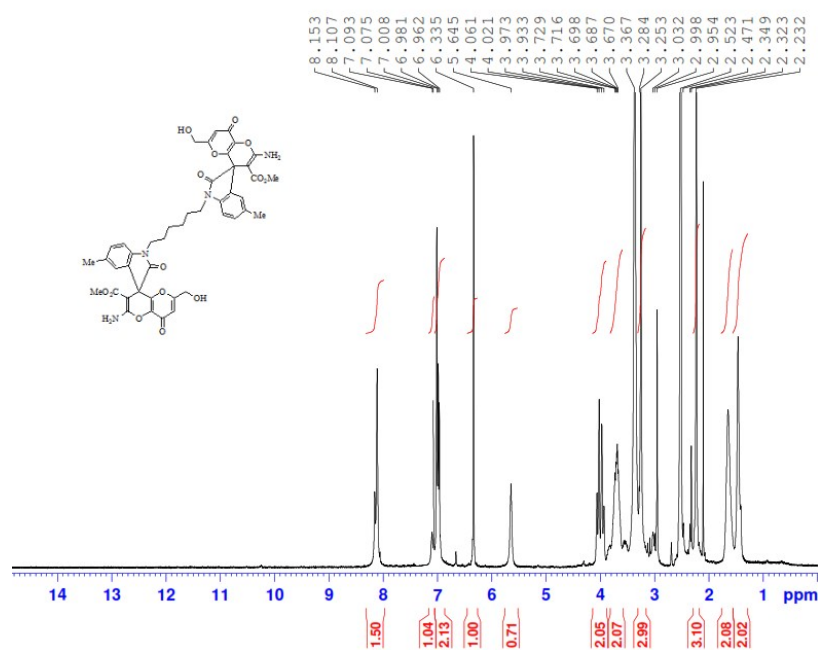


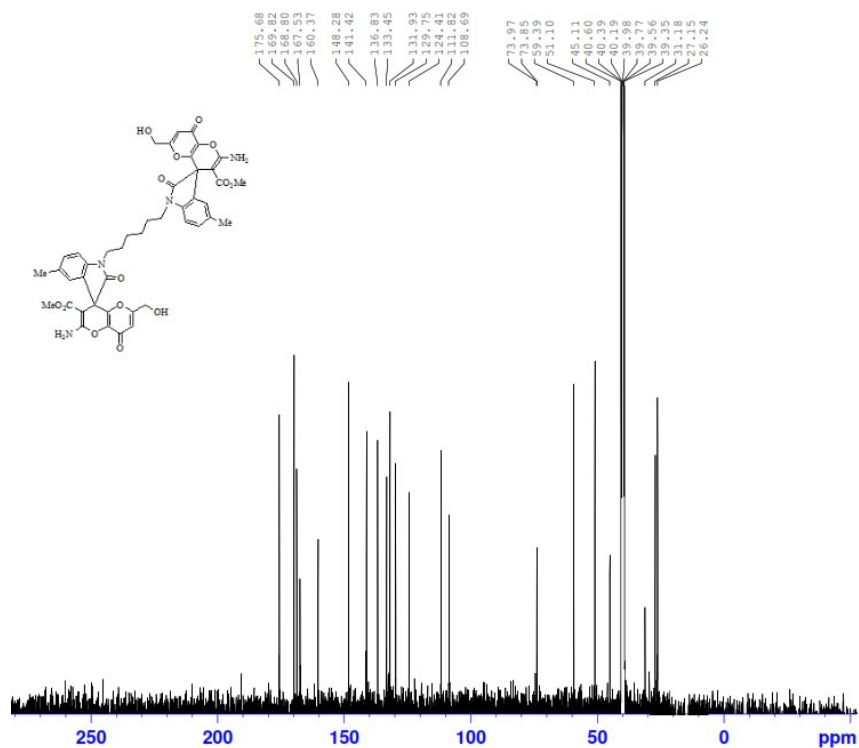
diethyl 1',1'''-(hexane-1,6-diyl)bis(2-amino-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate) (**7c**)



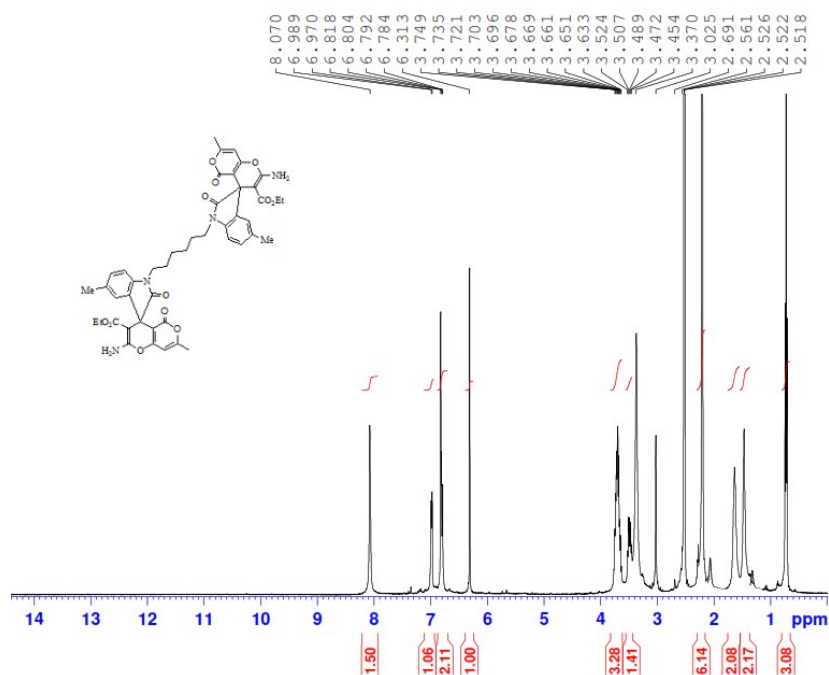


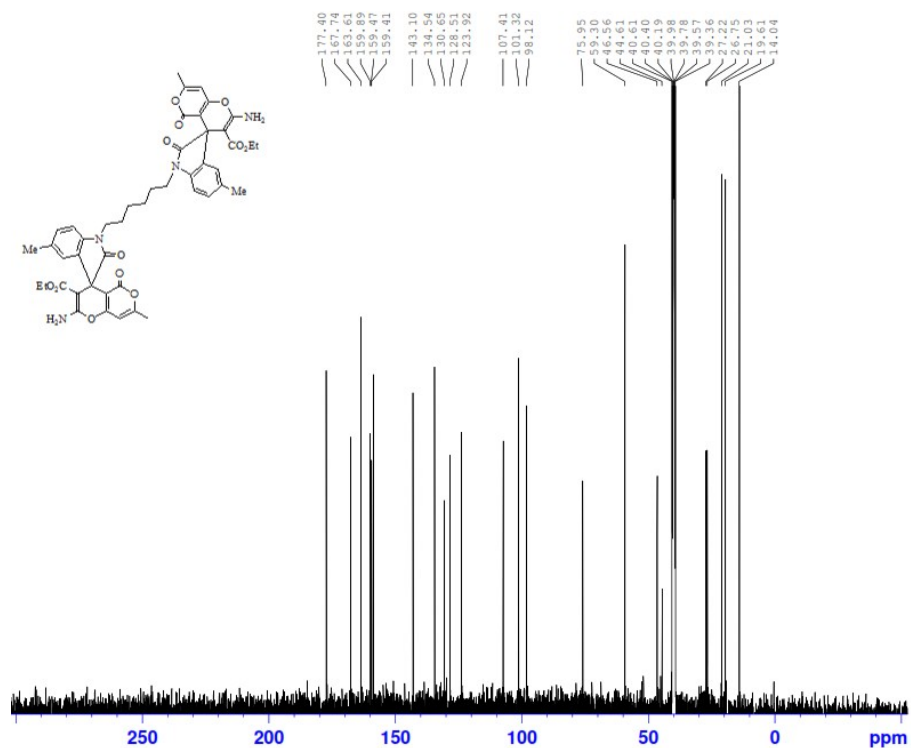
dimethyl 1,1''-(hexane-1,6-diyl)bis(2'-amino-6'-(hydroxymethyl)-5-methyl-2,8'-dioxo-8'H-spiro[indoline-3,4'-pyrano[3,2-b]pyran]-3'-carboxylate) (7d)



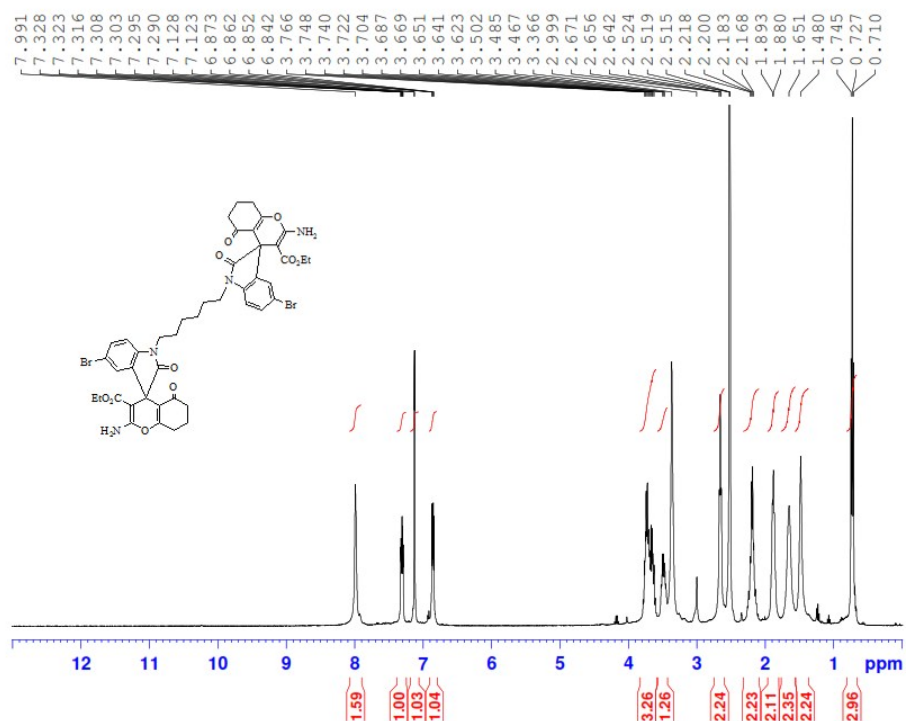


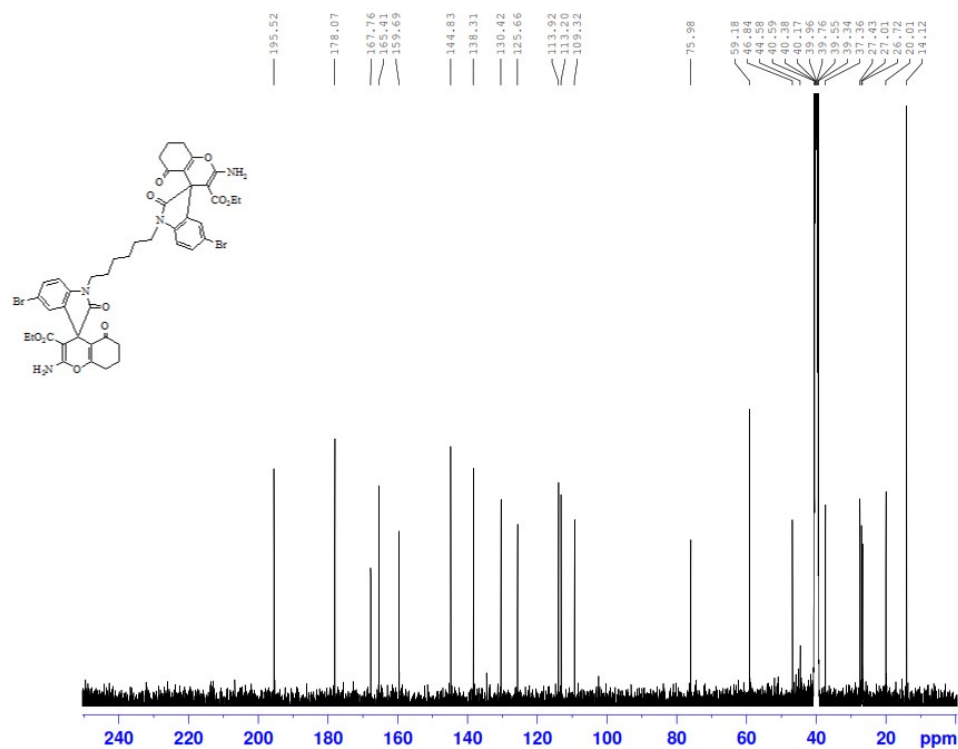
diethyl 1,1''-(hexane-1,6-diyl)bis(2'-amino-5,7'-dimethyl-2,5'-dioxo-5'H-spiro[indoline-3,4'-pyrano[4,3-b]pyran]-3'-carboxylate) (**7e**)



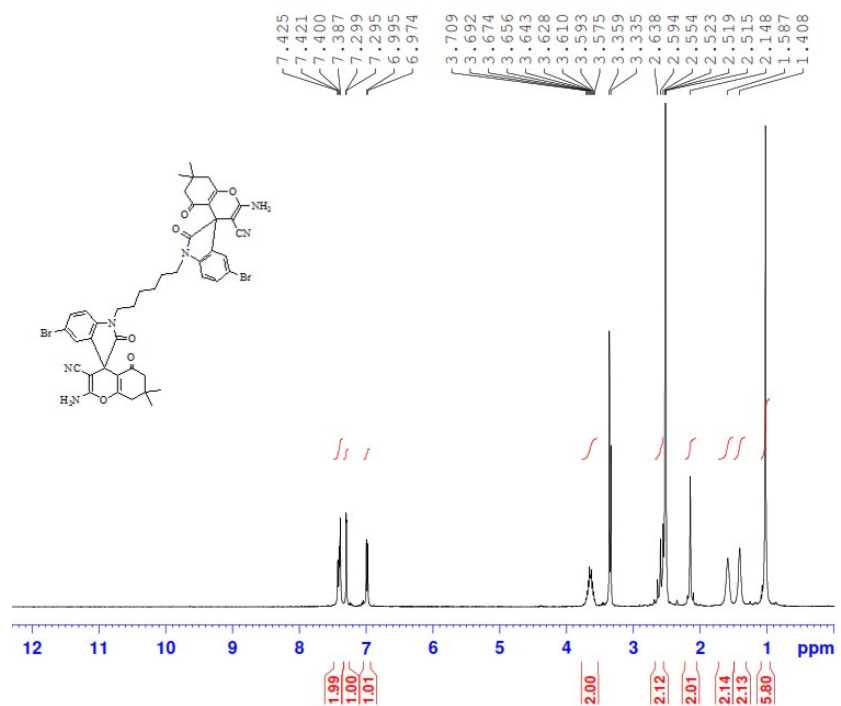


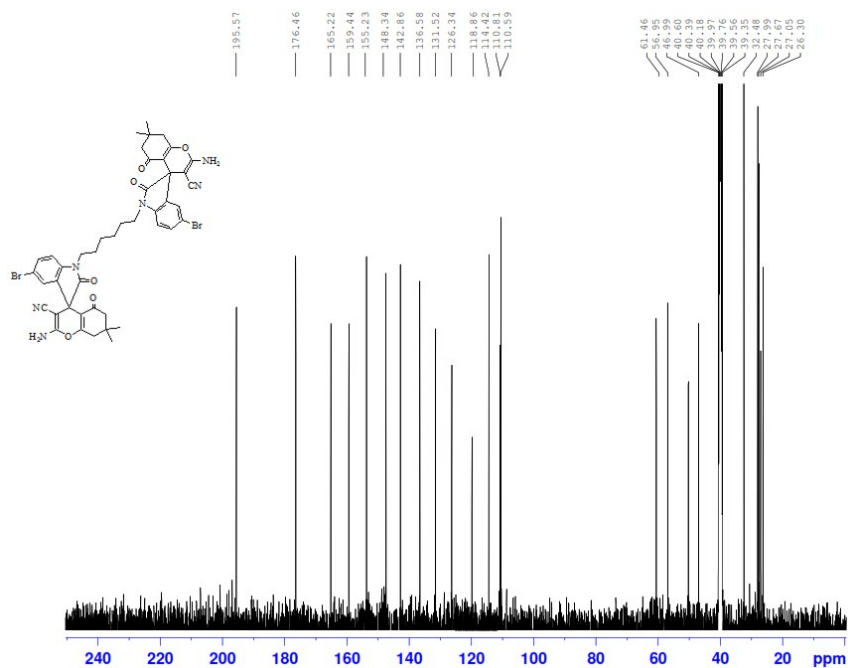
diethyl 1',1'''-(hexane-1,6-diyl)bis(2-amino-5'-bromo-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate) (**7f**)



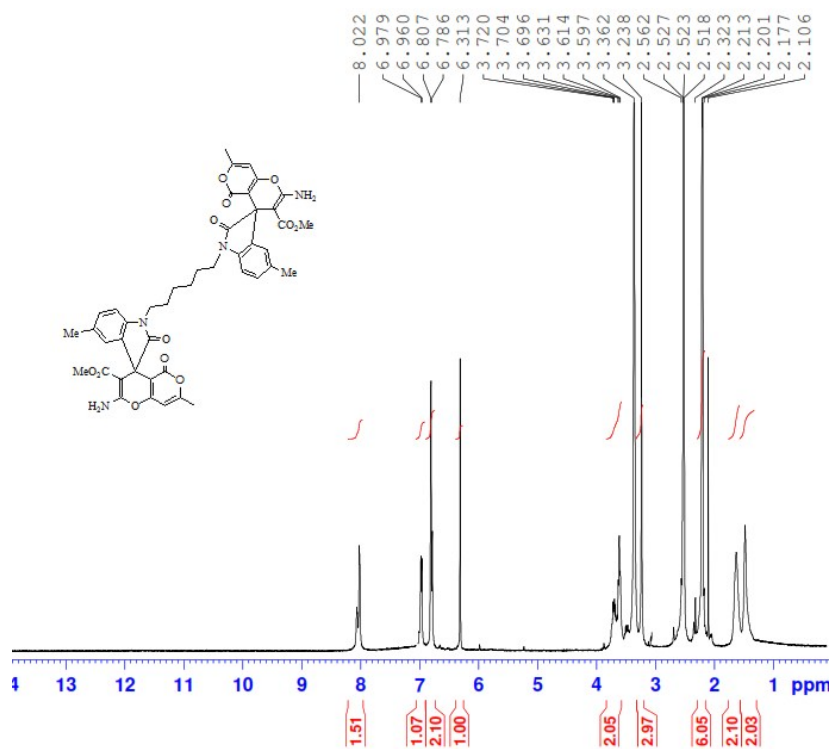


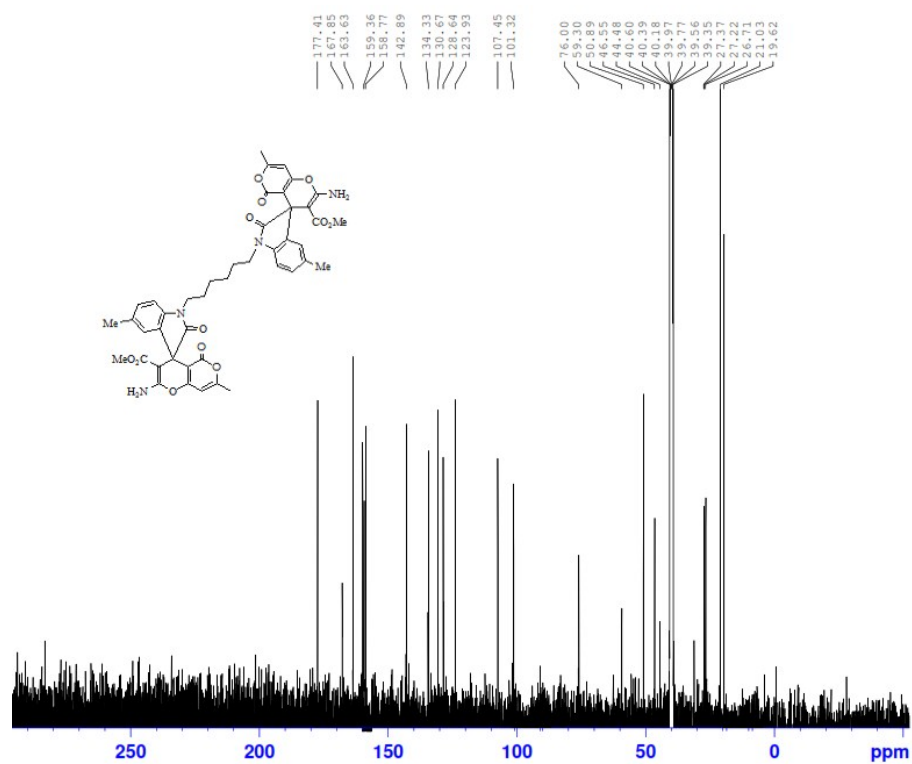
1',1'''-(hexane-1,6-diyl)bis(2-amino-5'-bromo-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carbonitrile) (**7g**)



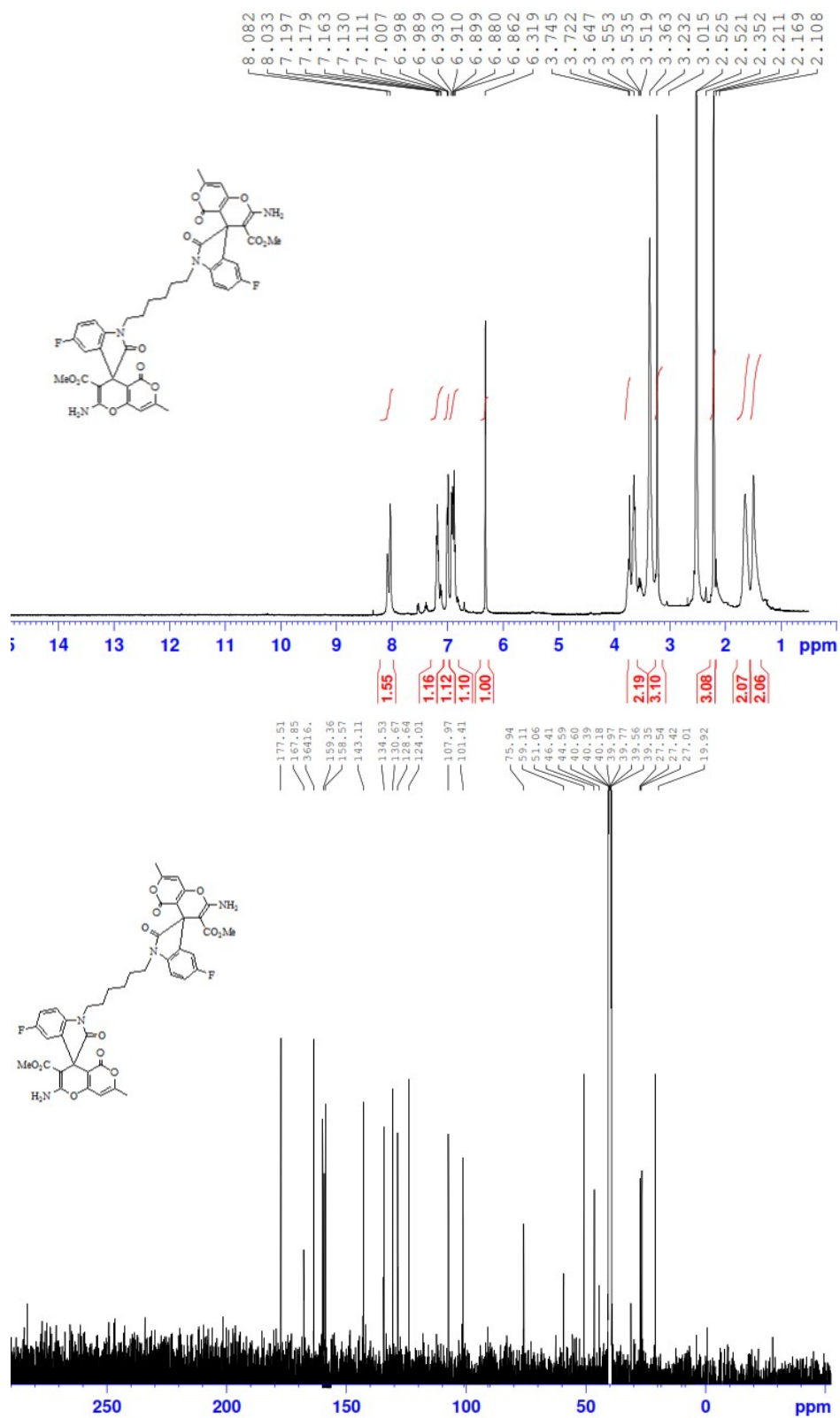


dimethyl 1,1''-(hexane-1,6-diyl)bis(2'-amino-5,7'-dimethyl-2,5'-dioxo-5'H-spiro[indoline-3,4'-pyrano[4,3-b]pyran]-3'-carboxylate) (**7h**)

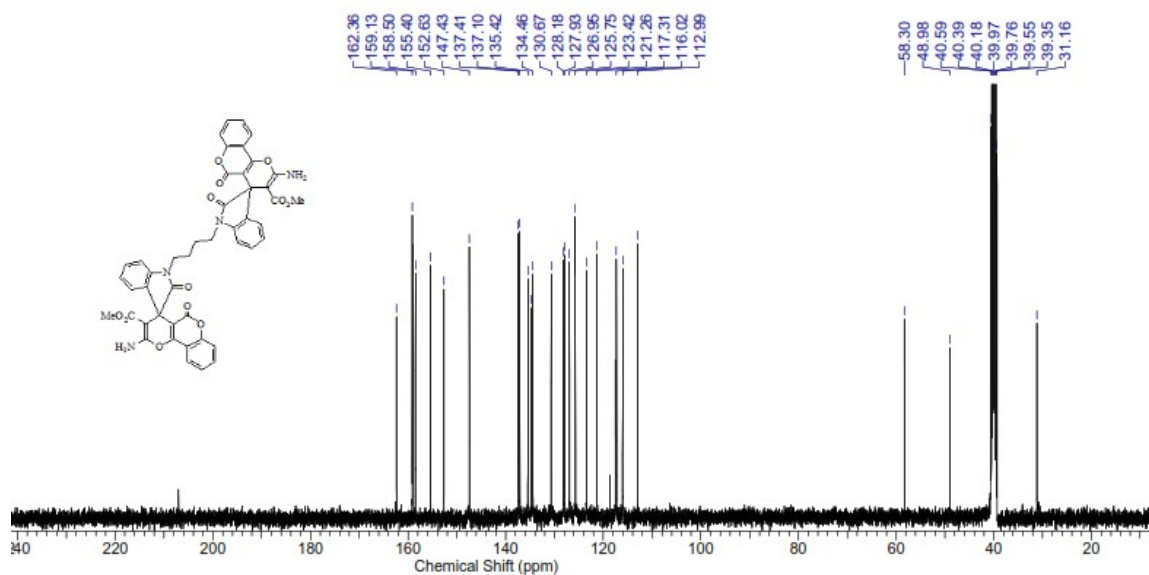
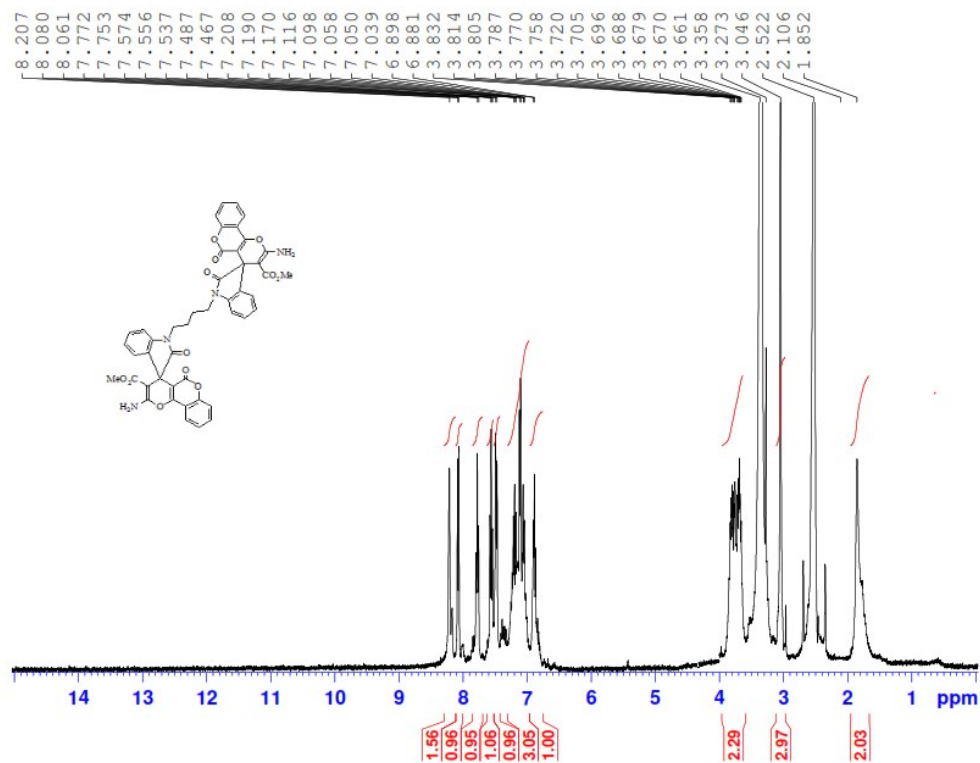




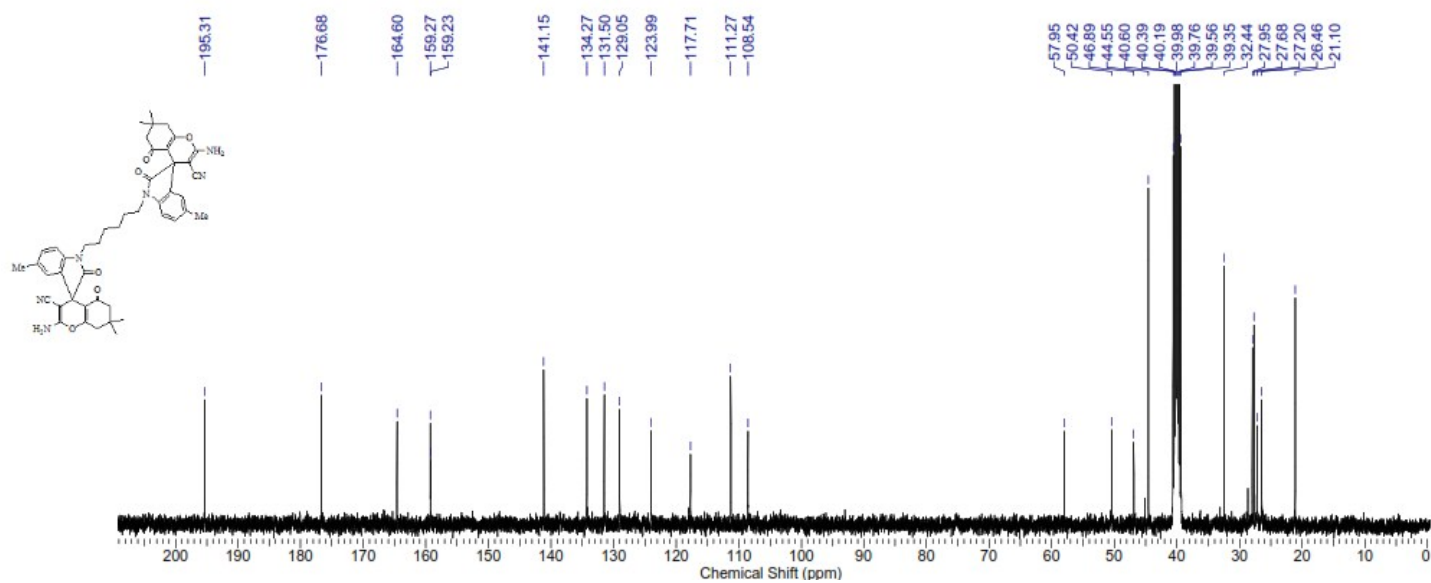
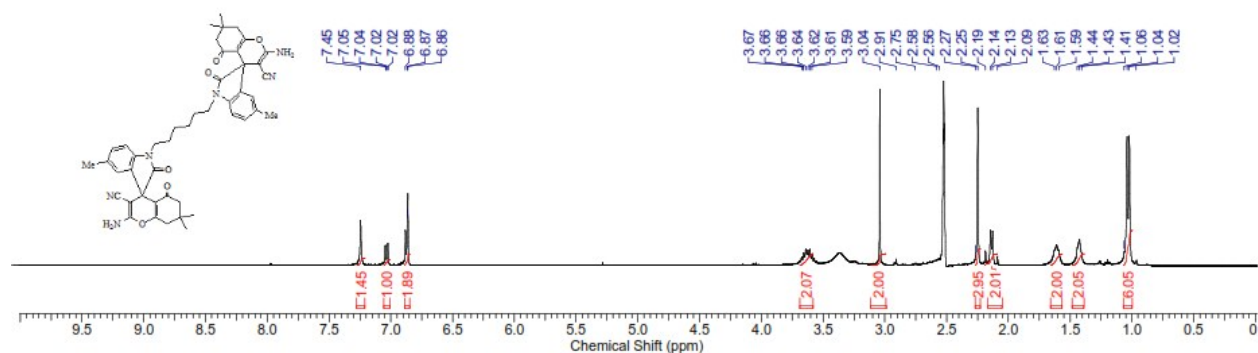
dimethyl 1,1'-(hexane-1,6-diyl)bis(2'-amino-5-fluoro-7'-methyl-2,5'-dioxo-5'H-spiro[indoline-3,4'-pyrano[4,3-b]pyran]-3'-carboxylate) (**7i**)



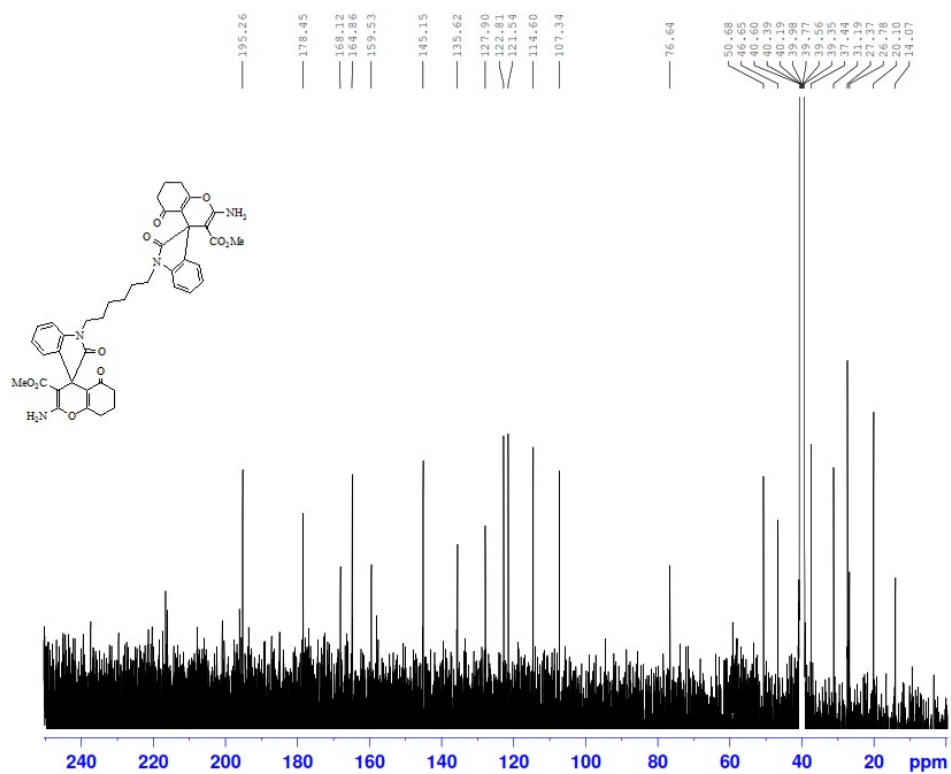
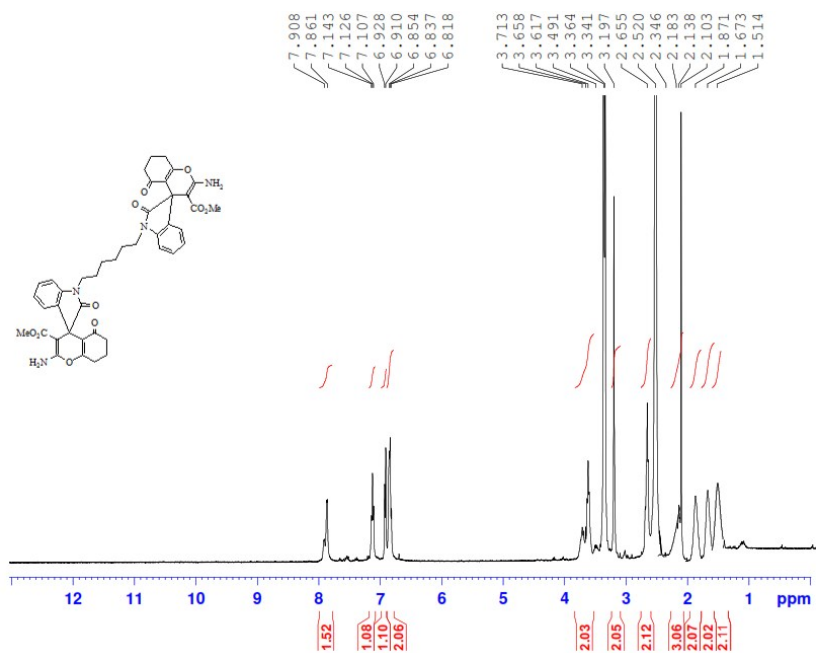
dimethyl 1,1''-(butane-1,4-diyl)bis(2'-amino-2,5'-dioxo-5'H-spiro[indoline-3,4'-pyrano[3,2-c]chromene]-3'-carboxylate)(7j)



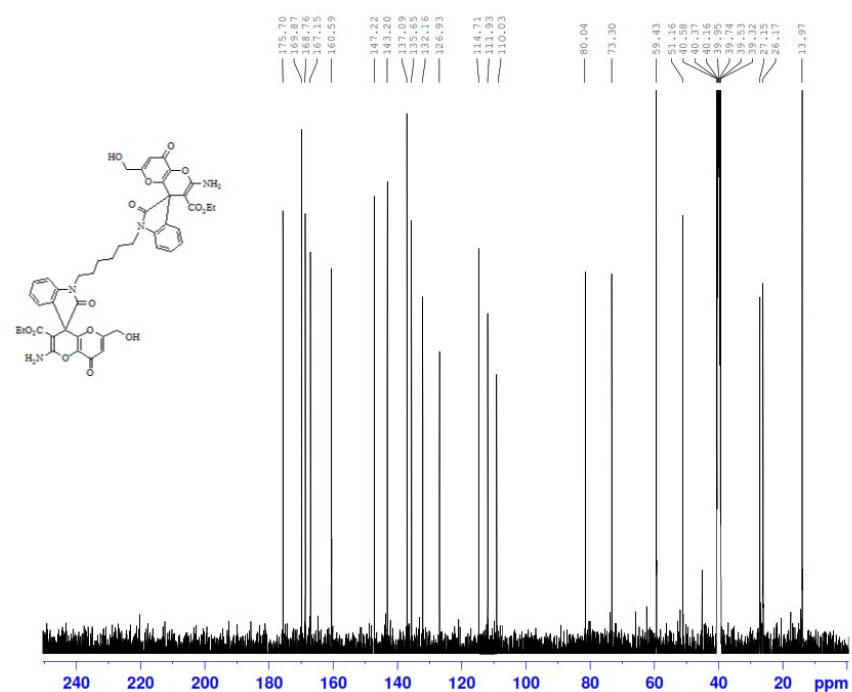
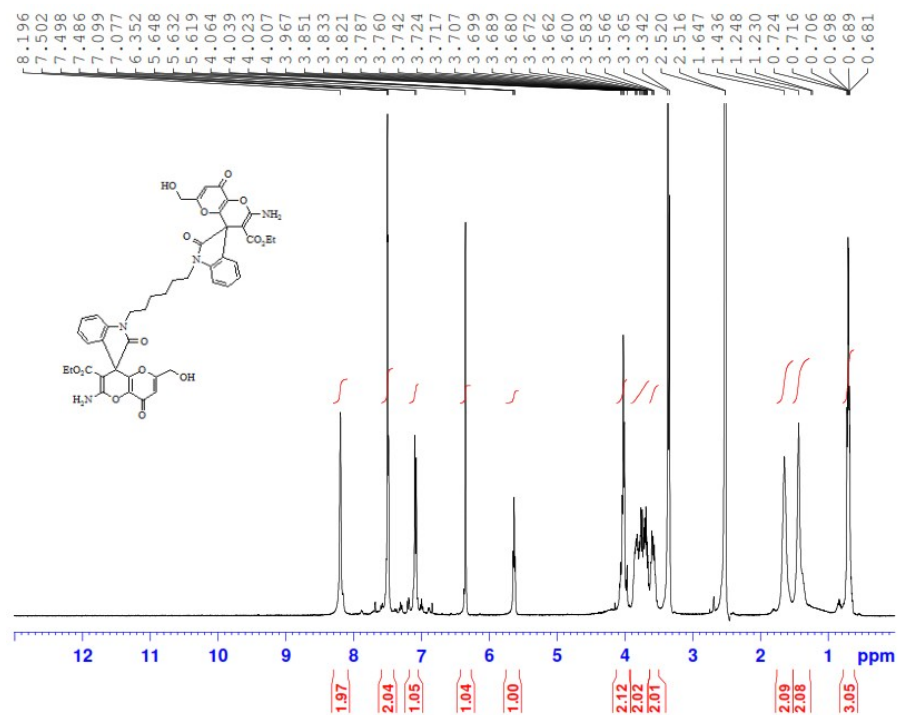
1',1'''-(hexane-1,6-diyl)bis(2-amino-5',7,7-trimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carbonitrile) (**7k**)



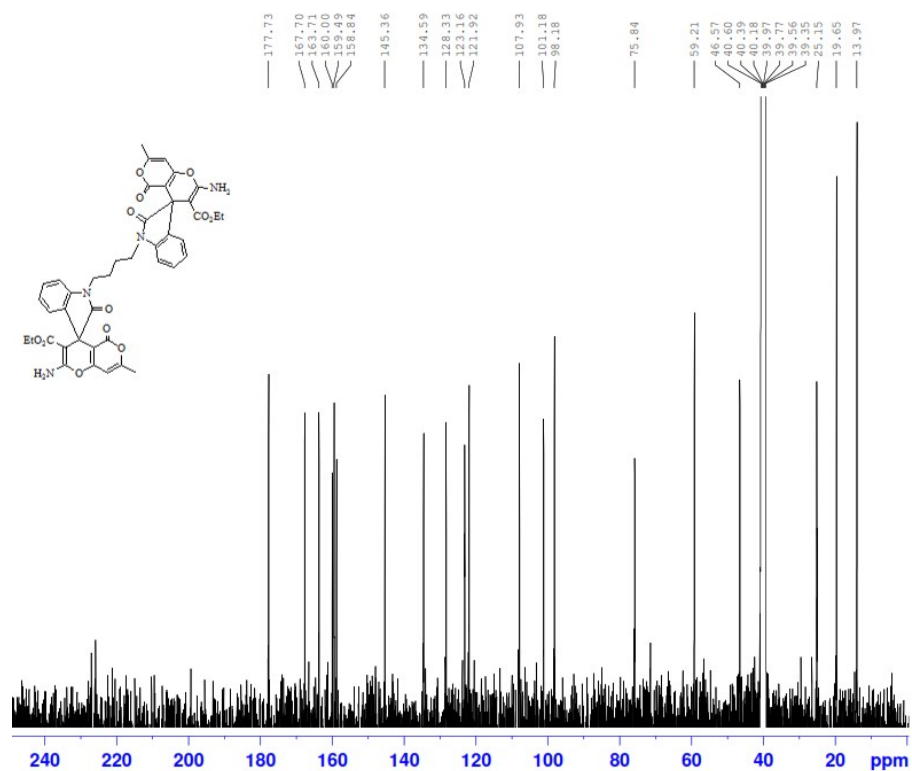
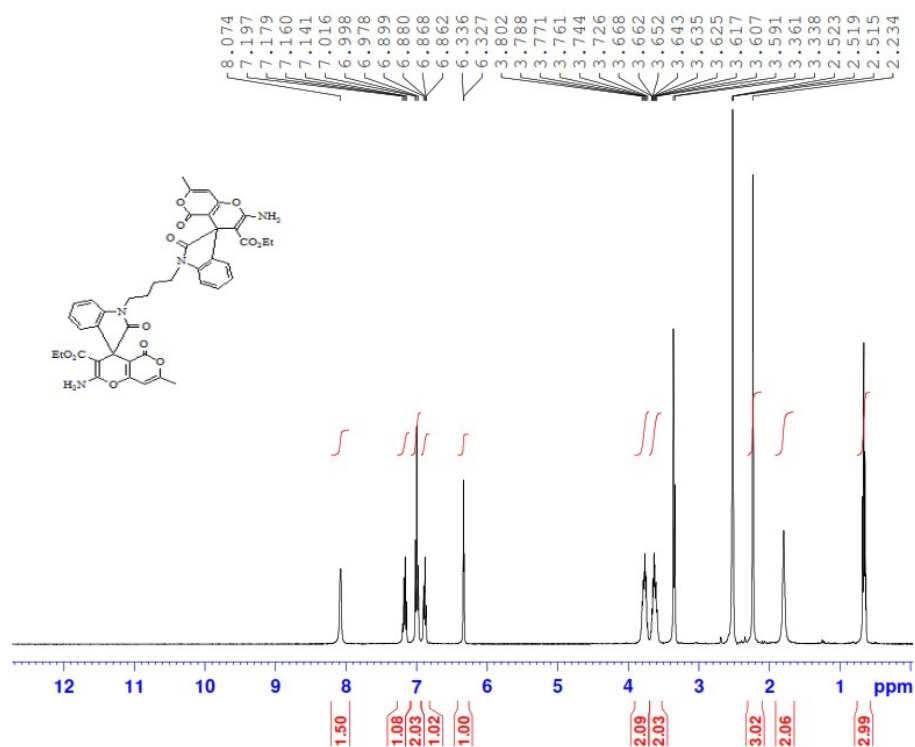
dimethyl 1',1'''-(hexane-1,6-diyl)bis(2-amino-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate) (**71**)



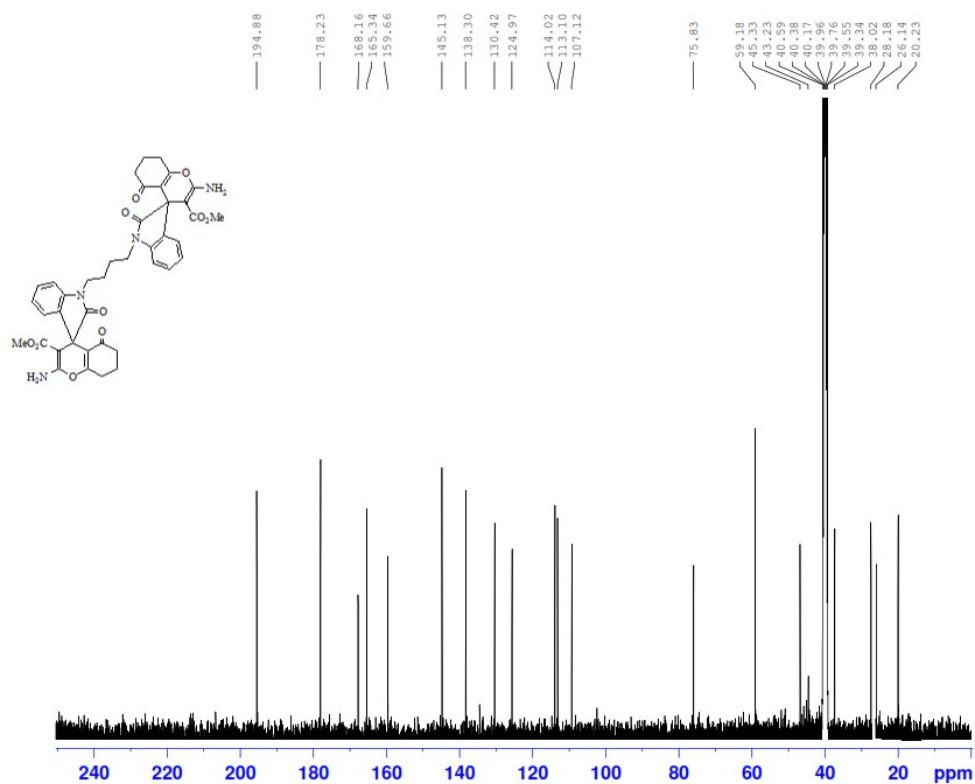
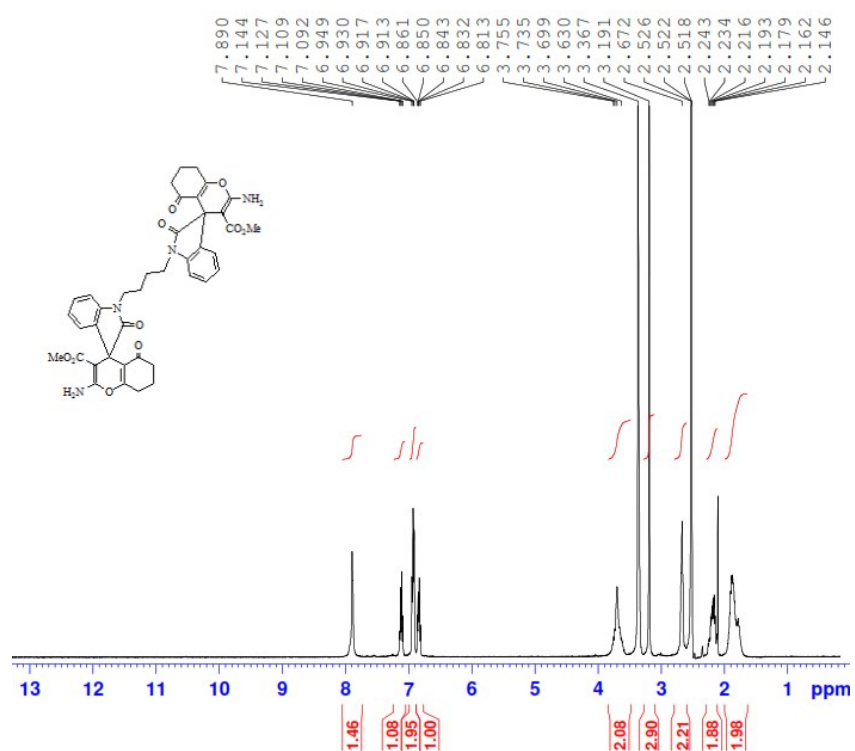
diethyl 1,1''-(hexane-1,6-diyl)bis(2'-amino-6'-(hydroxymethyl)-2,8'-dioxo-8'H-spiro[indoline-3,4'-pyrano[3,2-b]pyran]-3'-carboxylate) (**7m**)



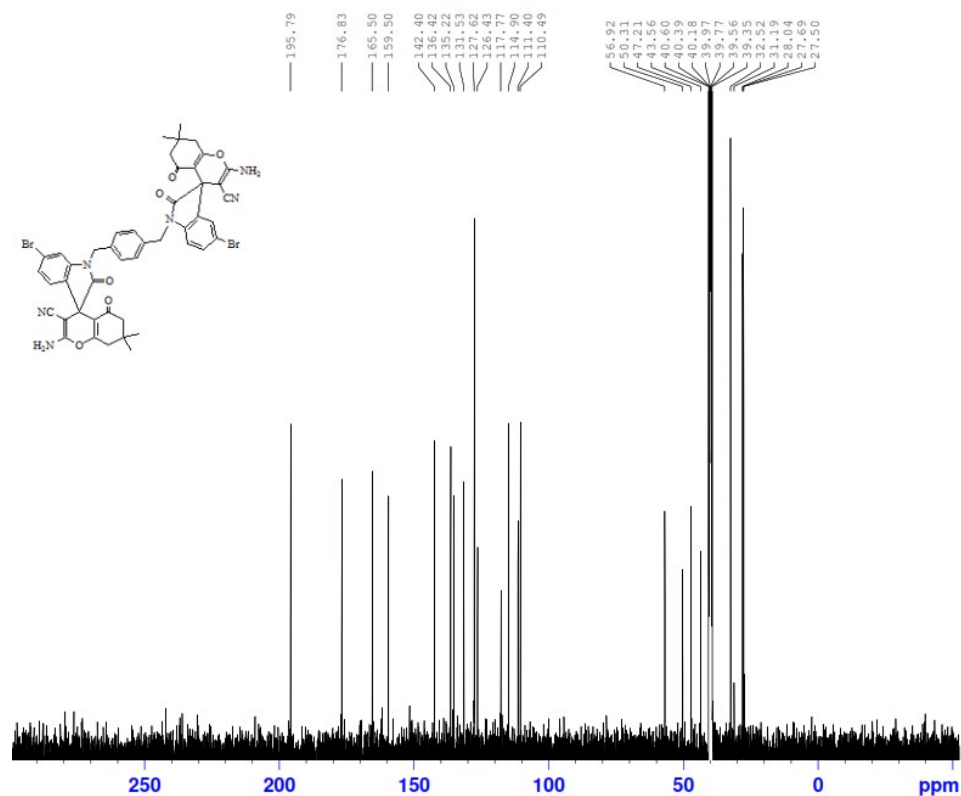
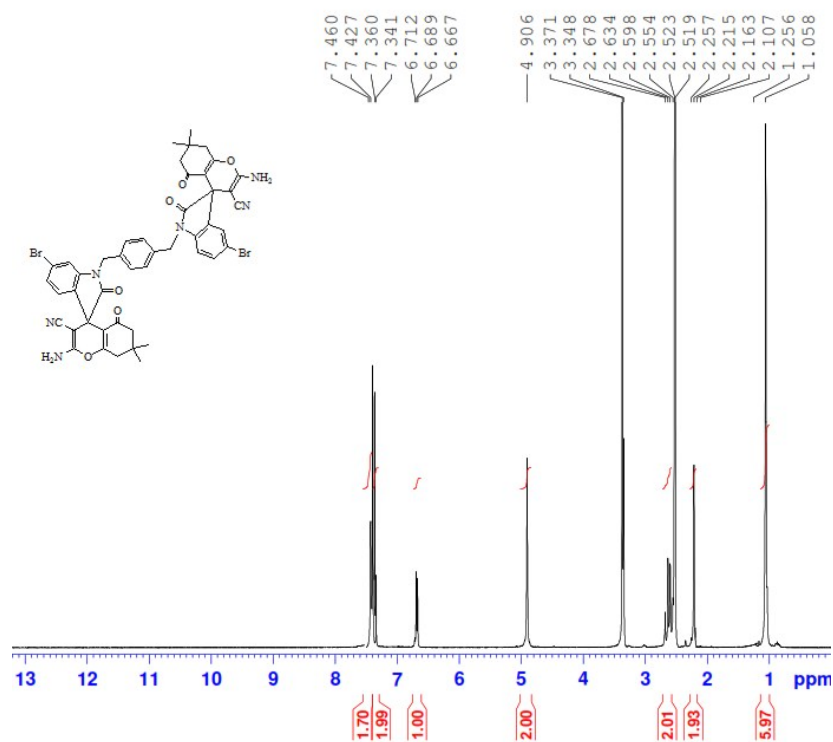
diethyl 1,1''-(butane-1,4-diyl)bis(2'-amino-7'-methyl-2,5'-dioxo-5'H-spiro[indoline-3,4'-pyrano[4,3-b]pyran]-3'-carboxylate) (**7n**)



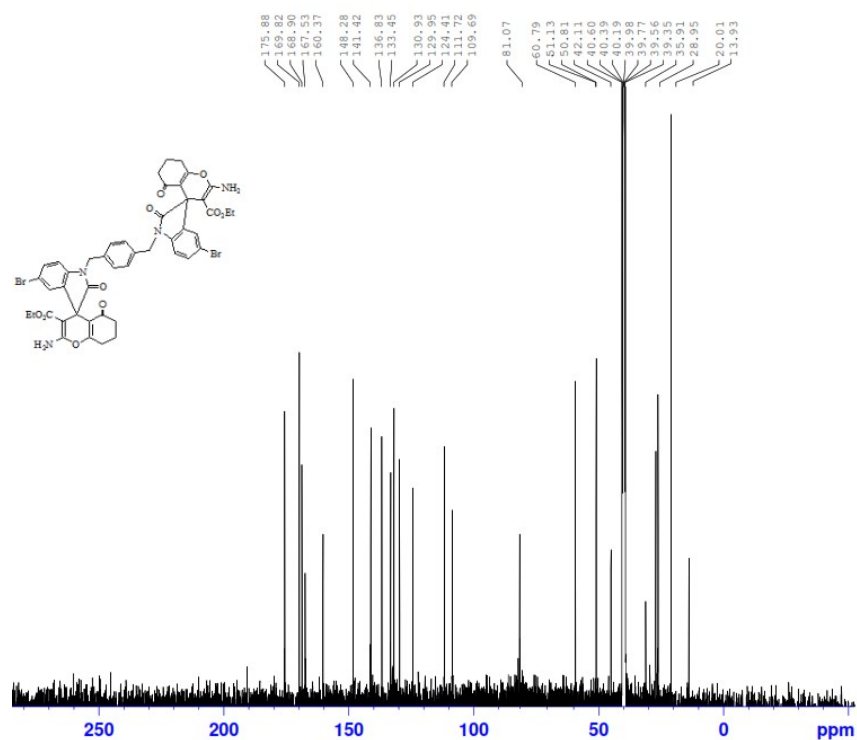
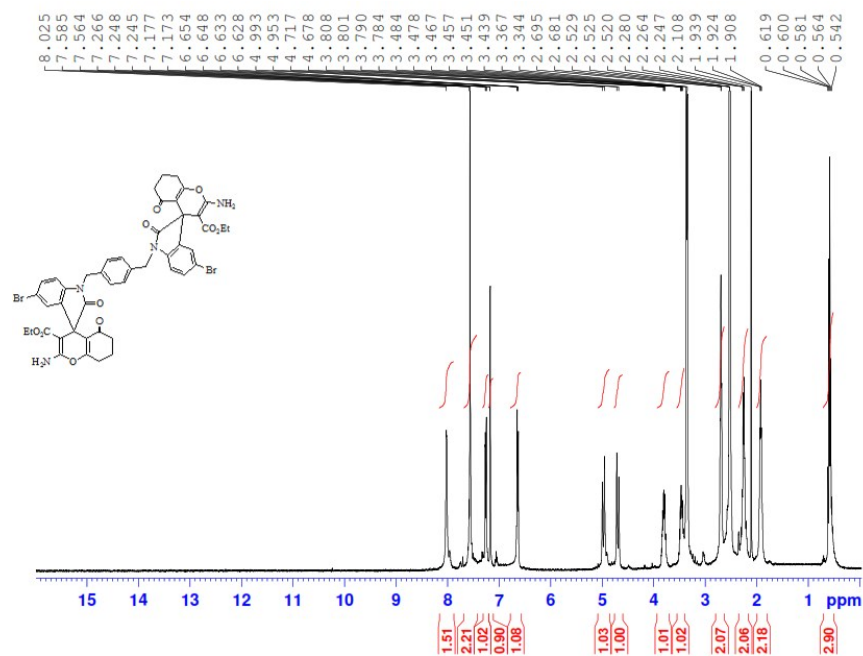
dimethyl 1',1'''-(butane-1,4-diyl)bis(2-amino-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate) (**7o**)



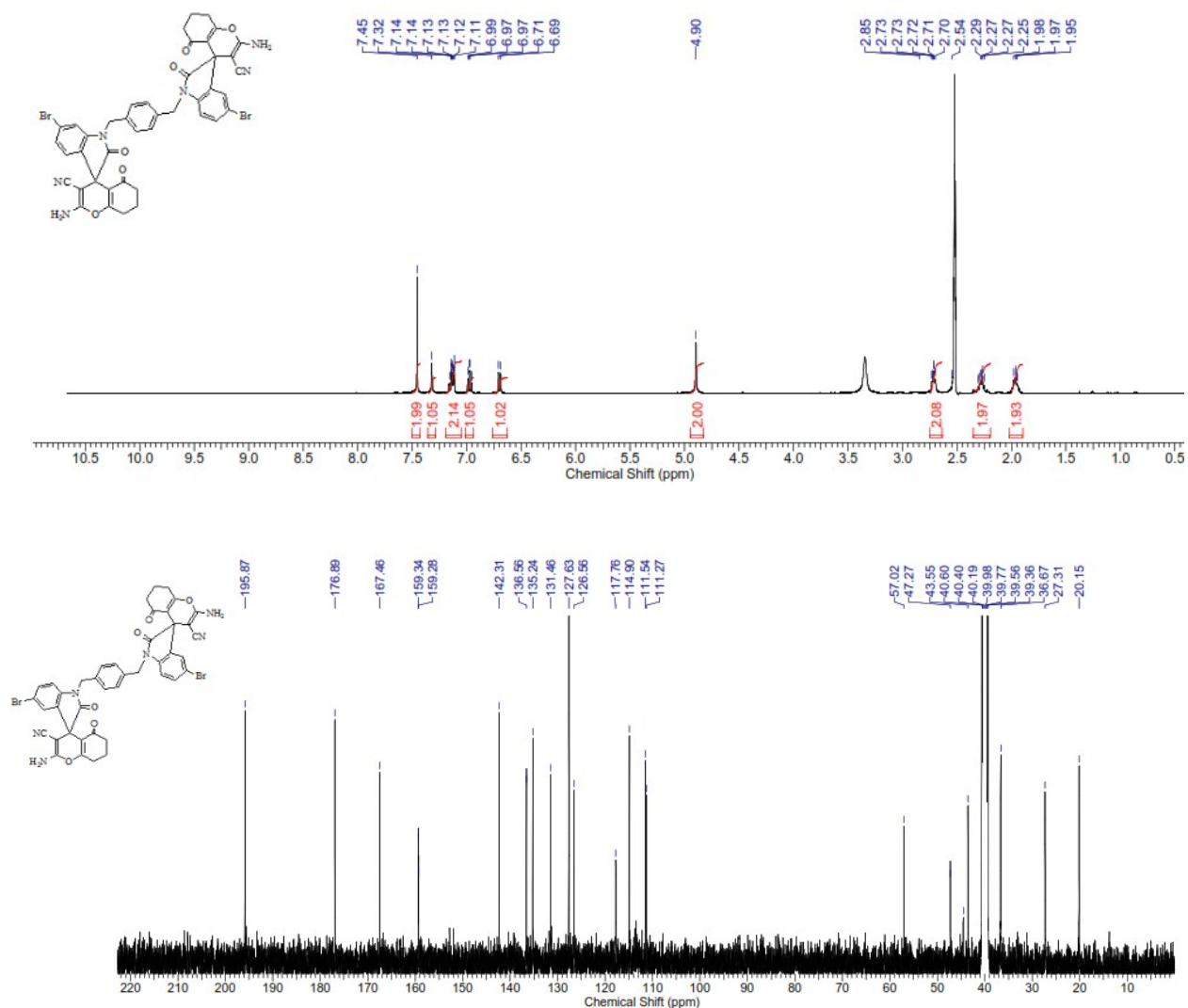
1',1'''-(1,4-phenylenebis(methylene))bis(2-amino-5'-bromo-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carbonitrile) (**7p**)



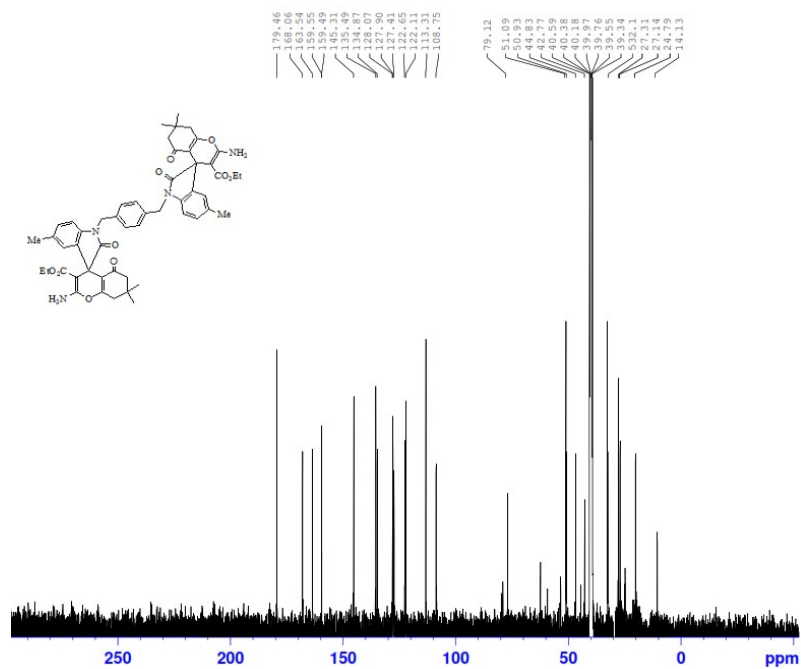
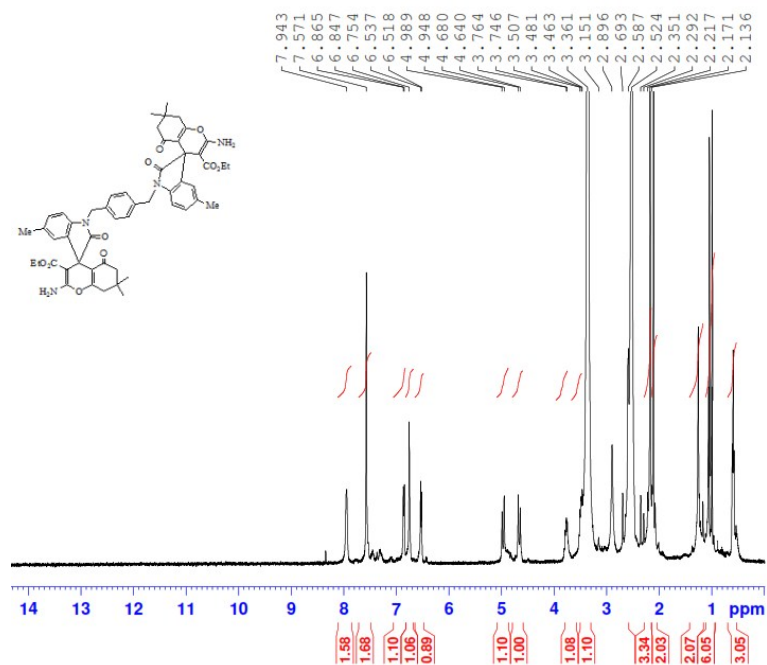
diethyl 1',1'''-(1,4-phenylenebis(methylene))bis(2-amino-5'-bromo-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate) (**7q**)



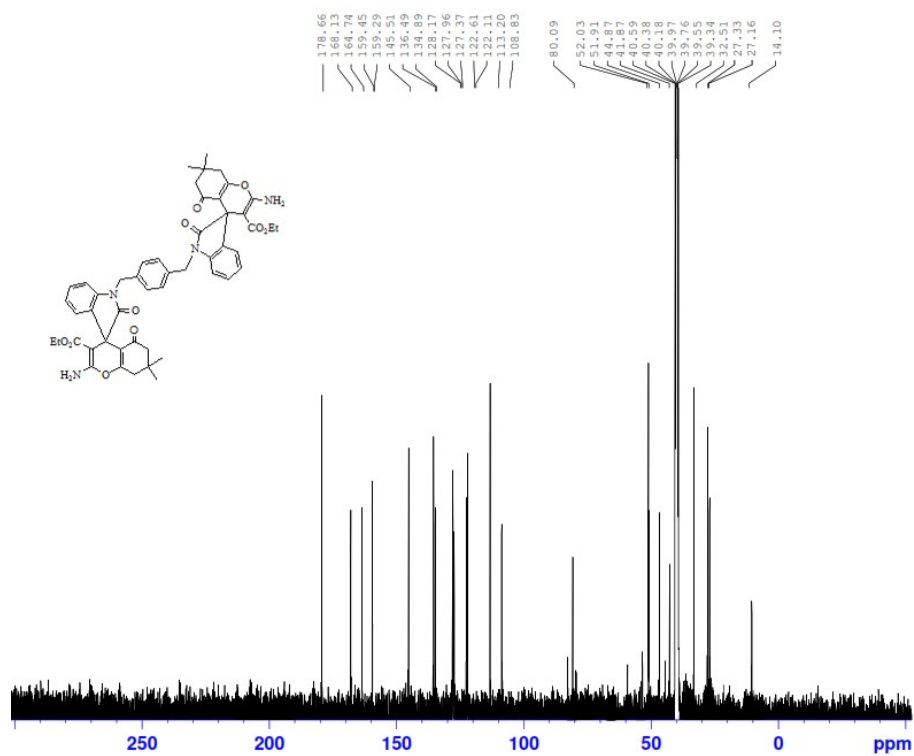
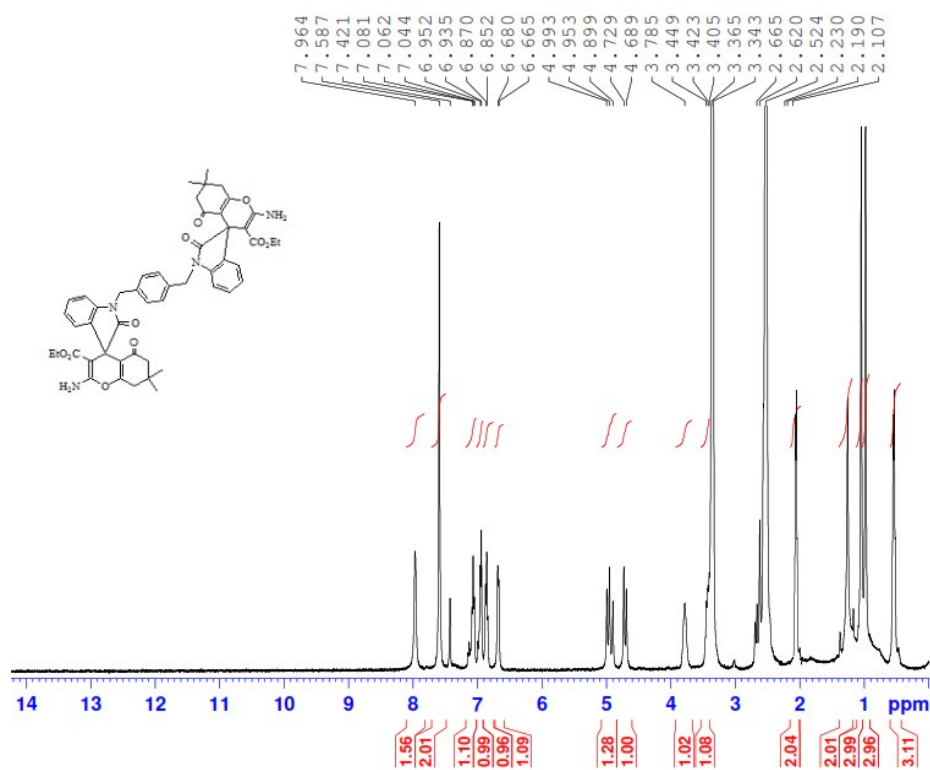
1',1'''-(1,4-phenylenebis(methylene))bis(2-amino-5'-bromo-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carbonitrile) (**7r**)



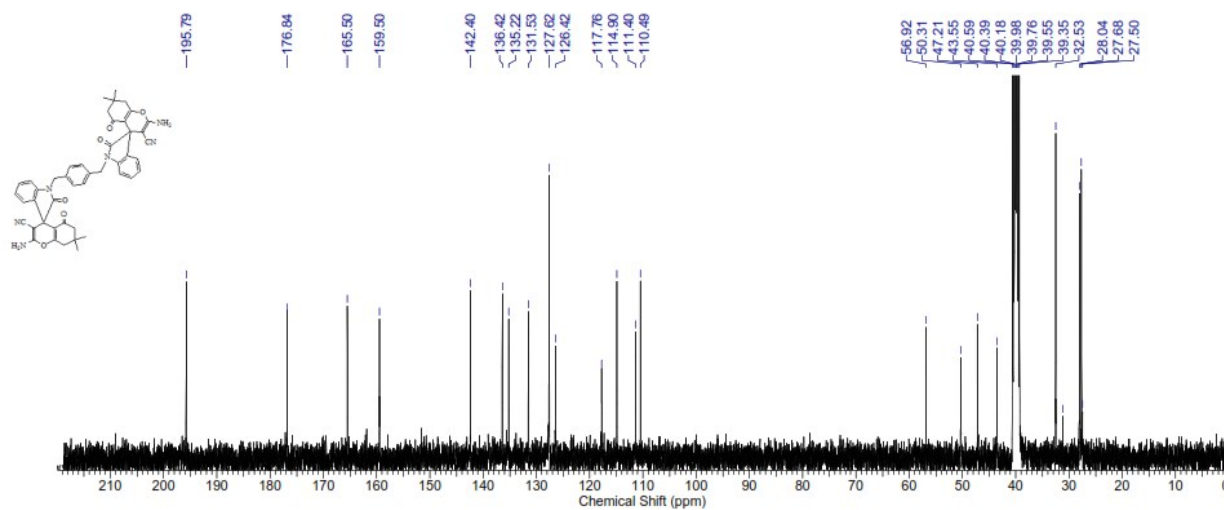
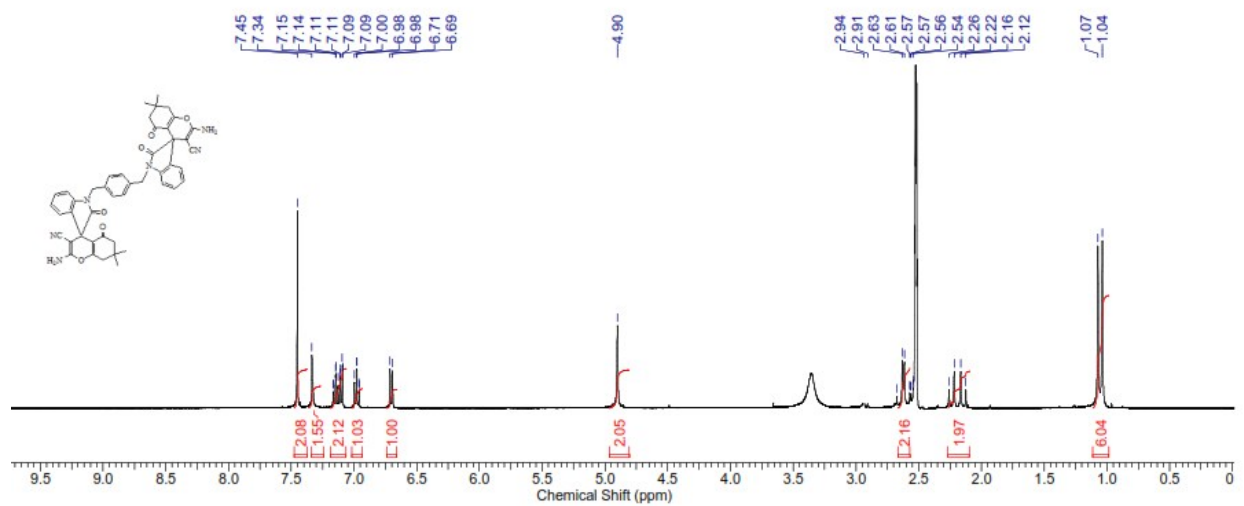
diethyl 1',1'''-(1,4-phenylenebis(methylene))bis(2-amino-5',7,7-trimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate(**7s**)



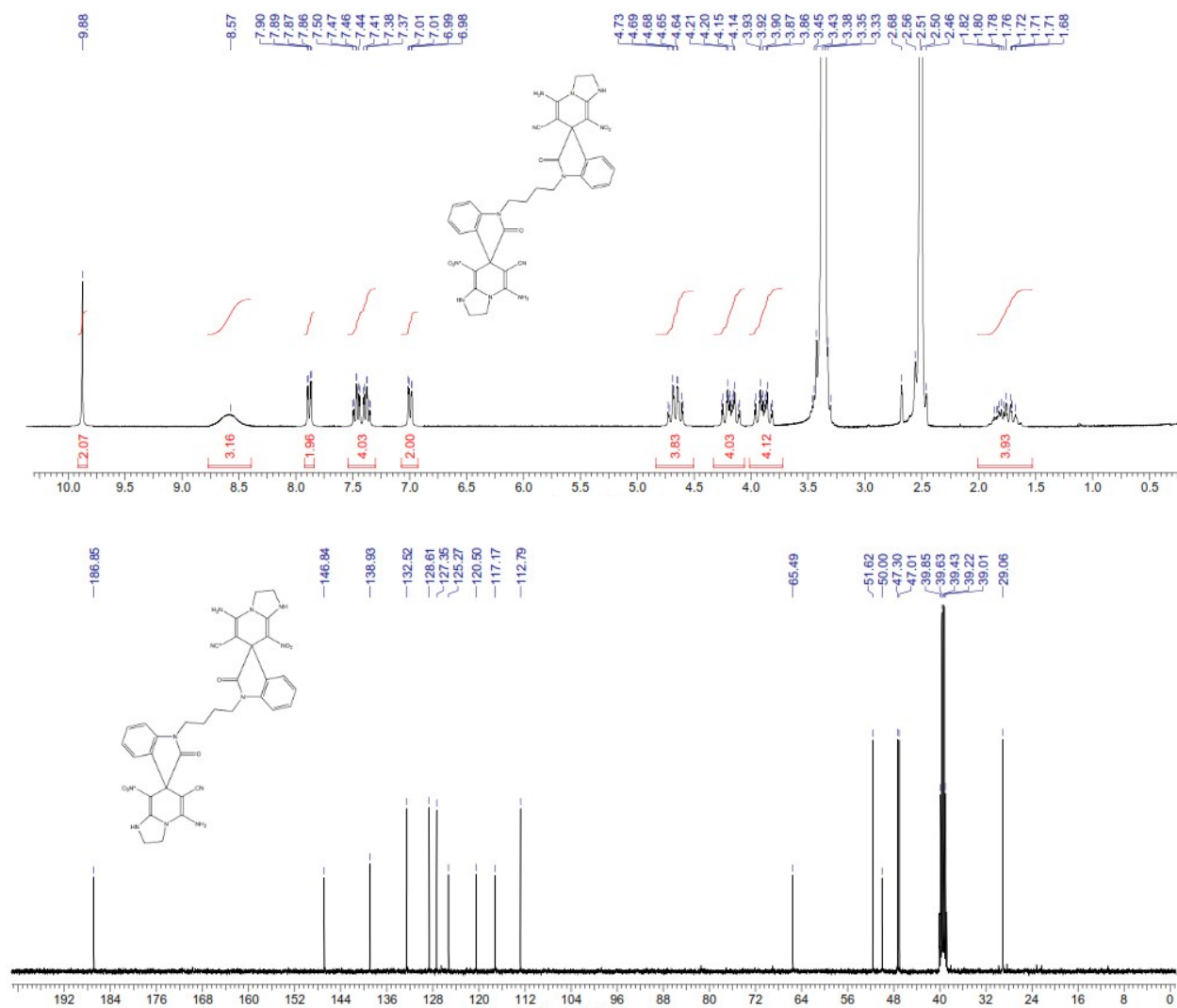
diethyl 1',1'''-(1,4-phenylenebis(methylene))bis(2-amino-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carboxylate)(7t)



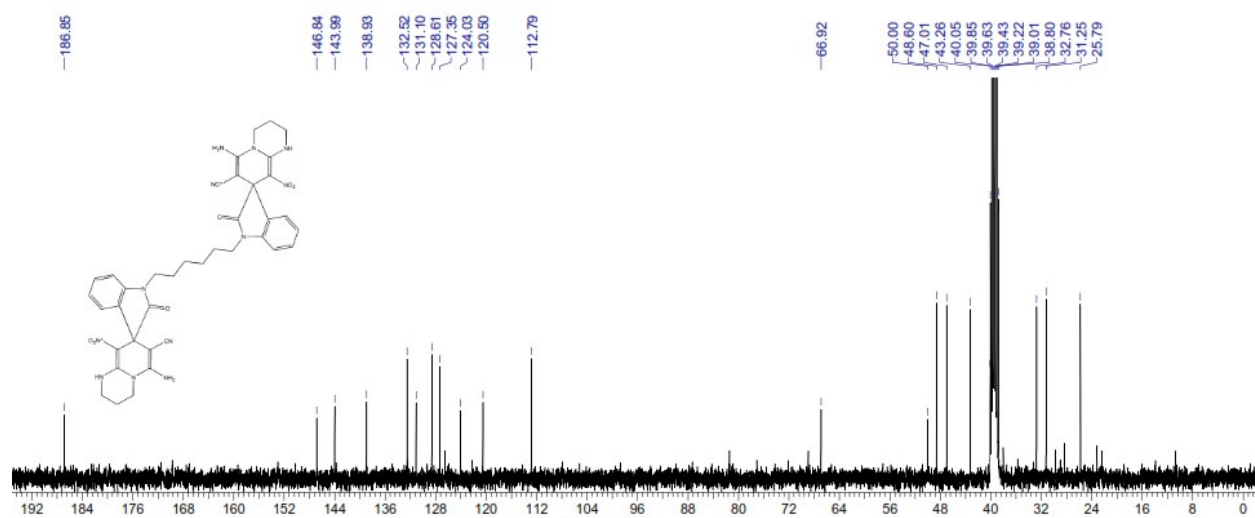
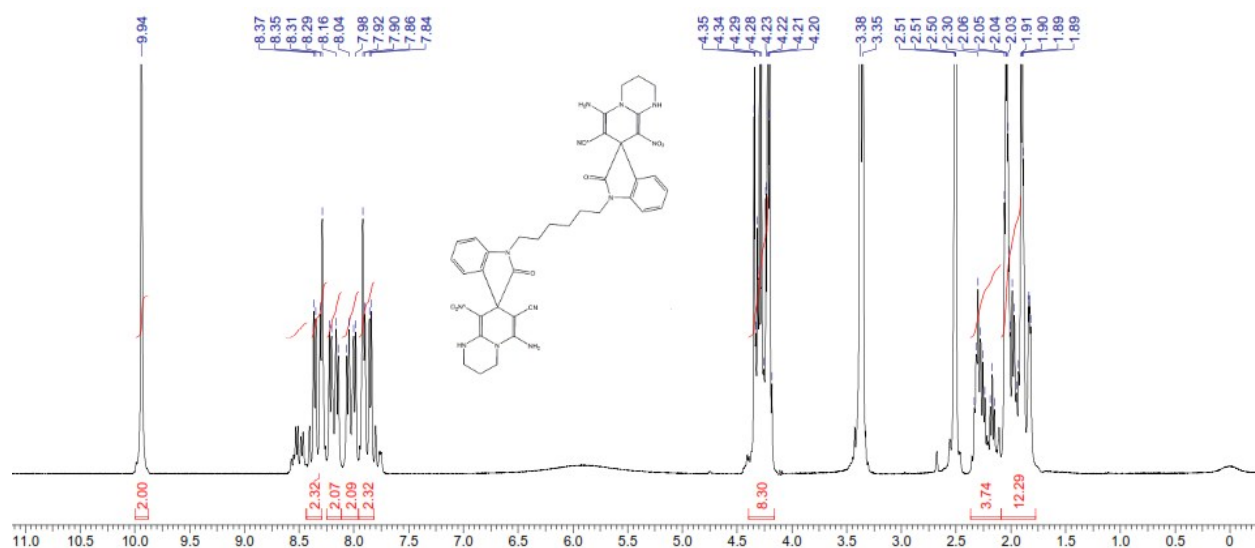
1',1'''-(1,4-phenylenebis(methylene))bis(2-amino-7,7-dimethyl-2',5-dioxo-5,6,7,8-tetrahydrospiro[chromene-4,3'-indoline]-3-carbonitrile) (**7u**)



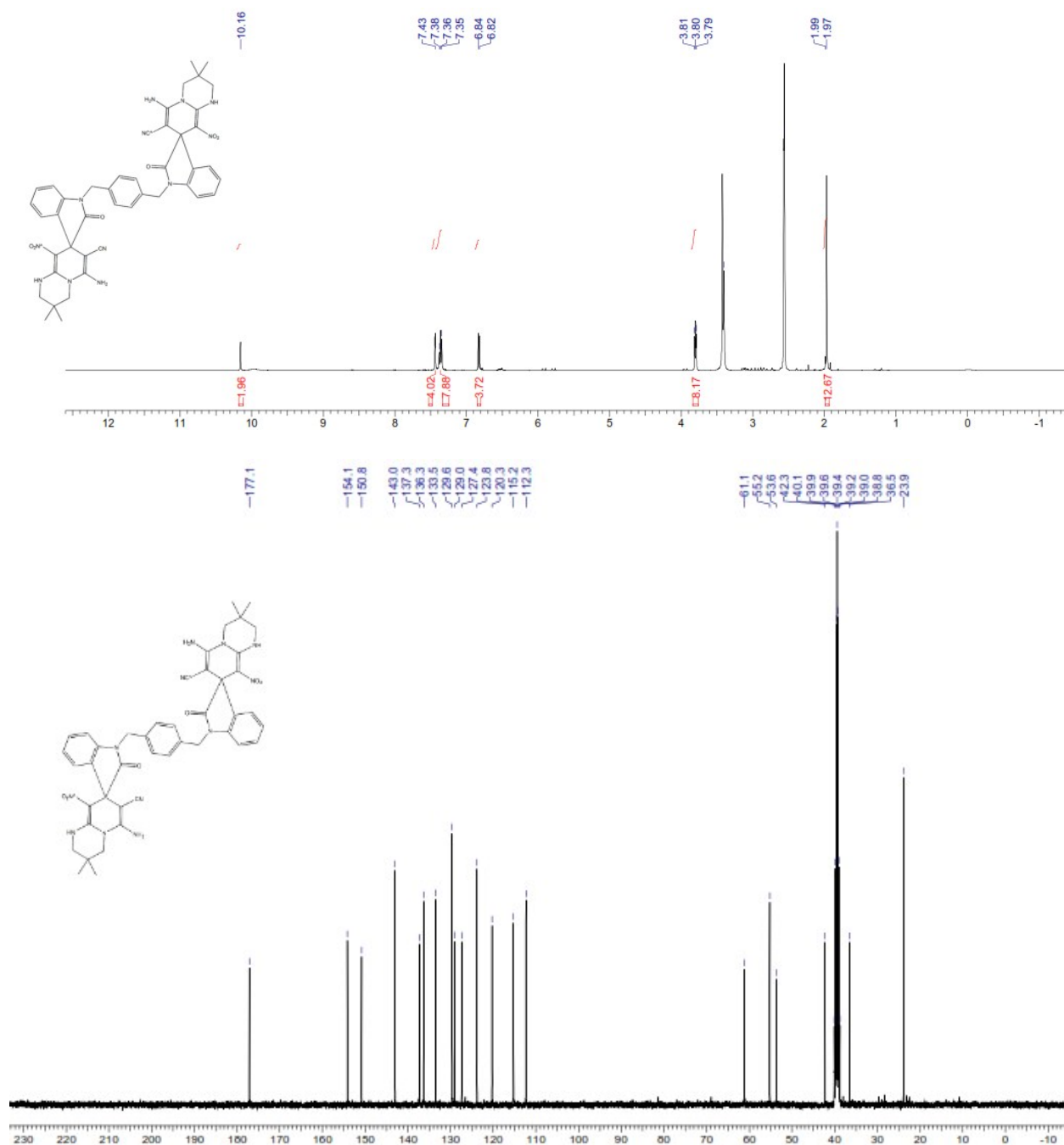
1',1'''-(butane-1,4-diyl)bis(5-amino-8-nitro-2'-oxo-2,3-dihydro-1H-spiro[imidazo[1,2-a]pyridine-7,3'-indoline]-6-carbonitrile) (8a)



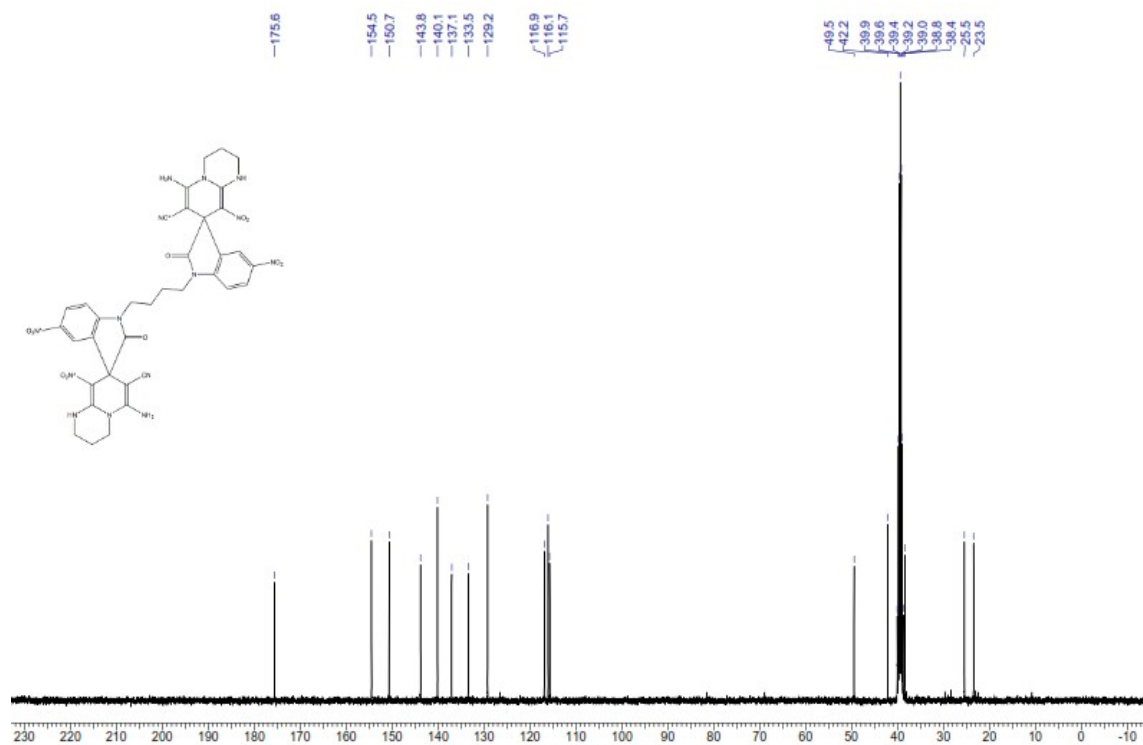
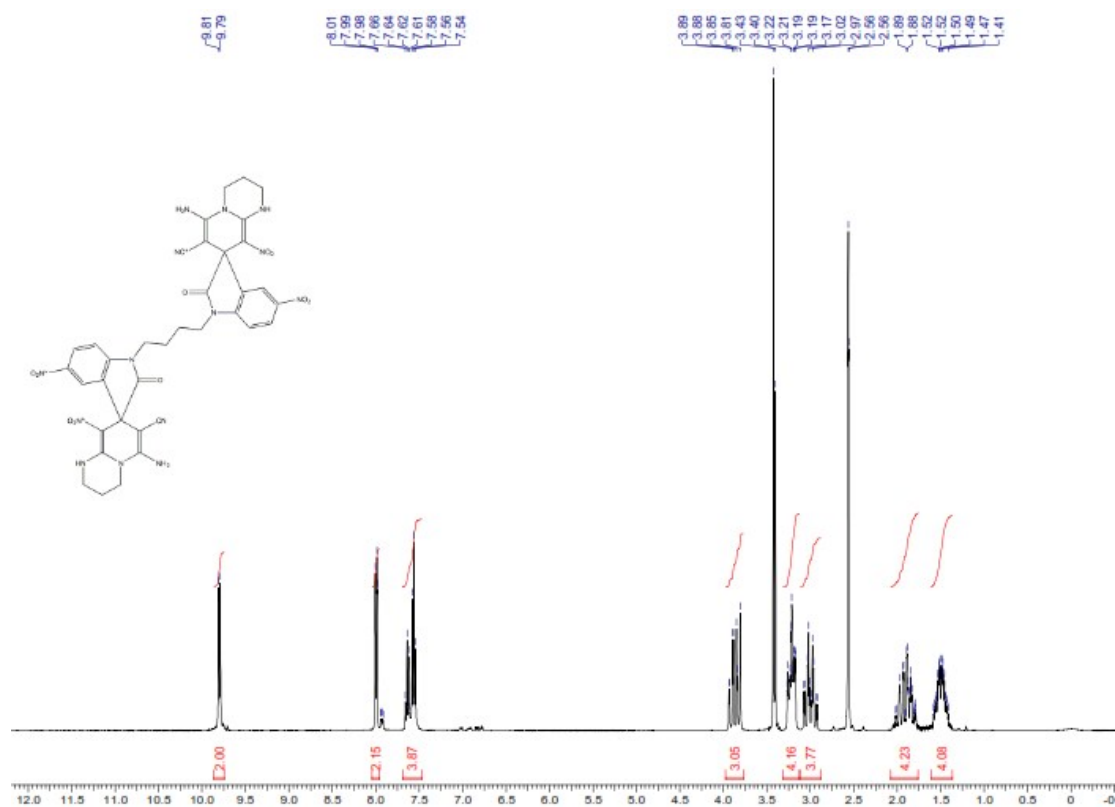
1,1''-(hexane-1,6-diyl)bis(6'-amino-9'-nitro-2-oxo-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidine]-7'-carbonitrile) (8b)



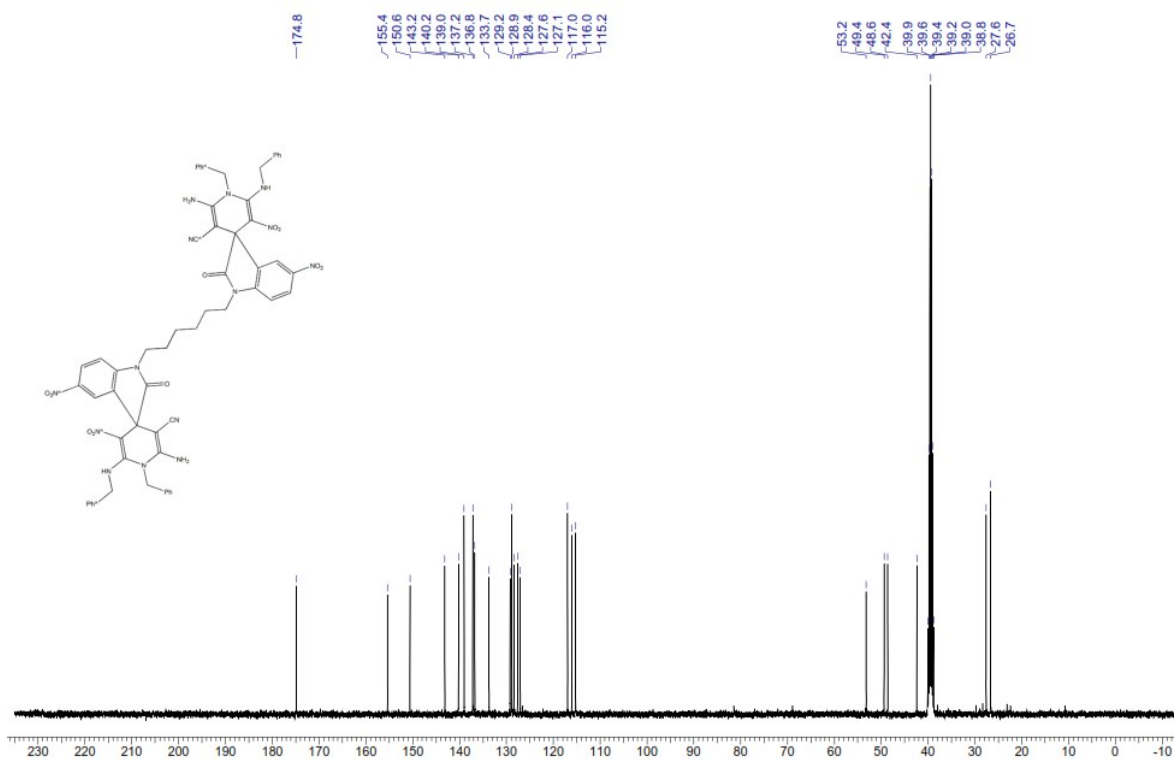
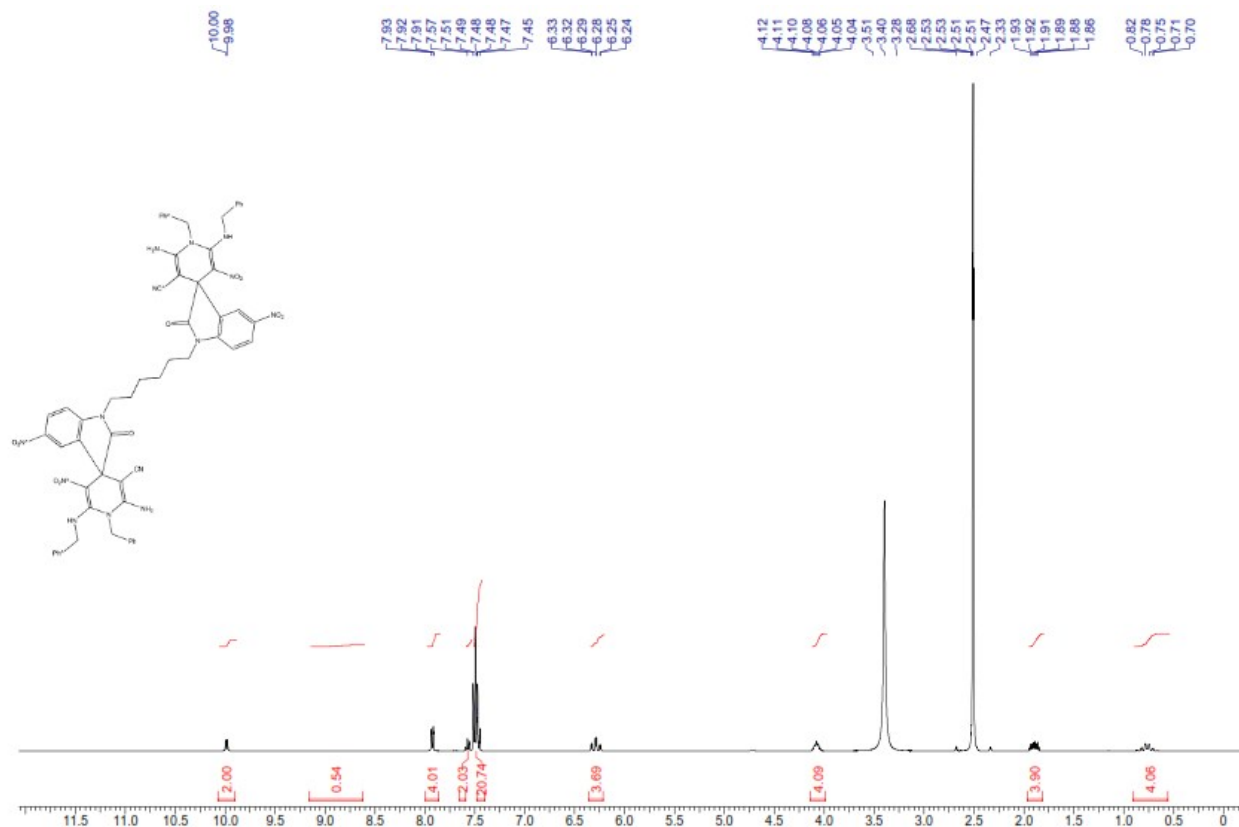
1,1'-(1,4-phenylenebis(methylene))bis(6'-amino-3',3'-dimethyl-9'-nitro-2-oxo-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidine]-7'-carbonitrile) (8c)



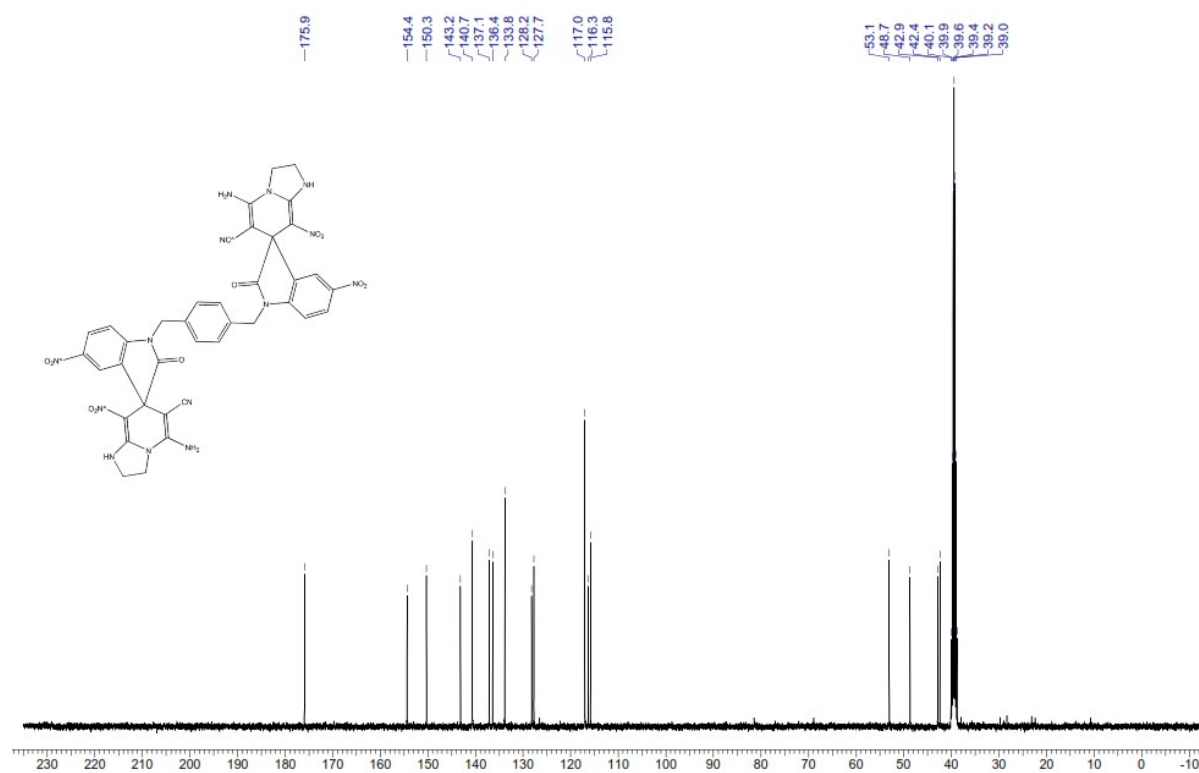
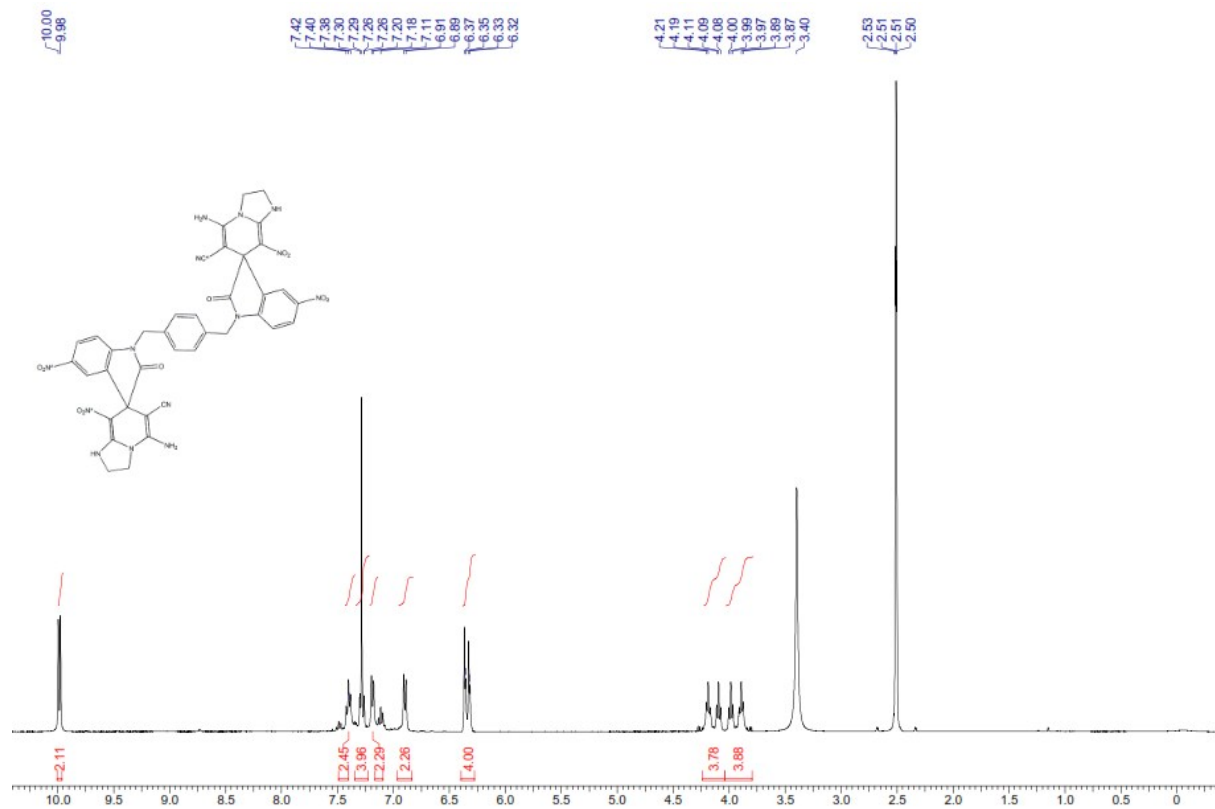
1,1''-(butane-1,4-diyl)bis(6'-amino-5,9'-dinitro-2-oxo-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidine]-7'-carbonitrile) (8d)



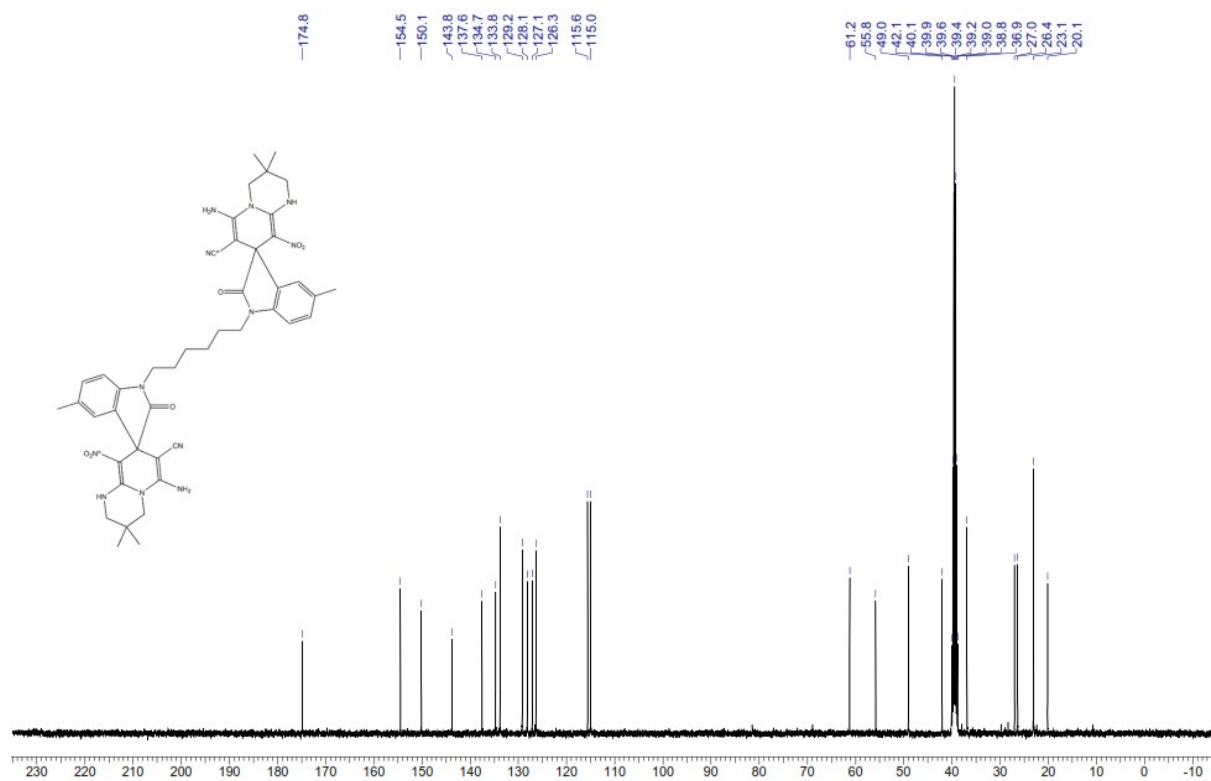
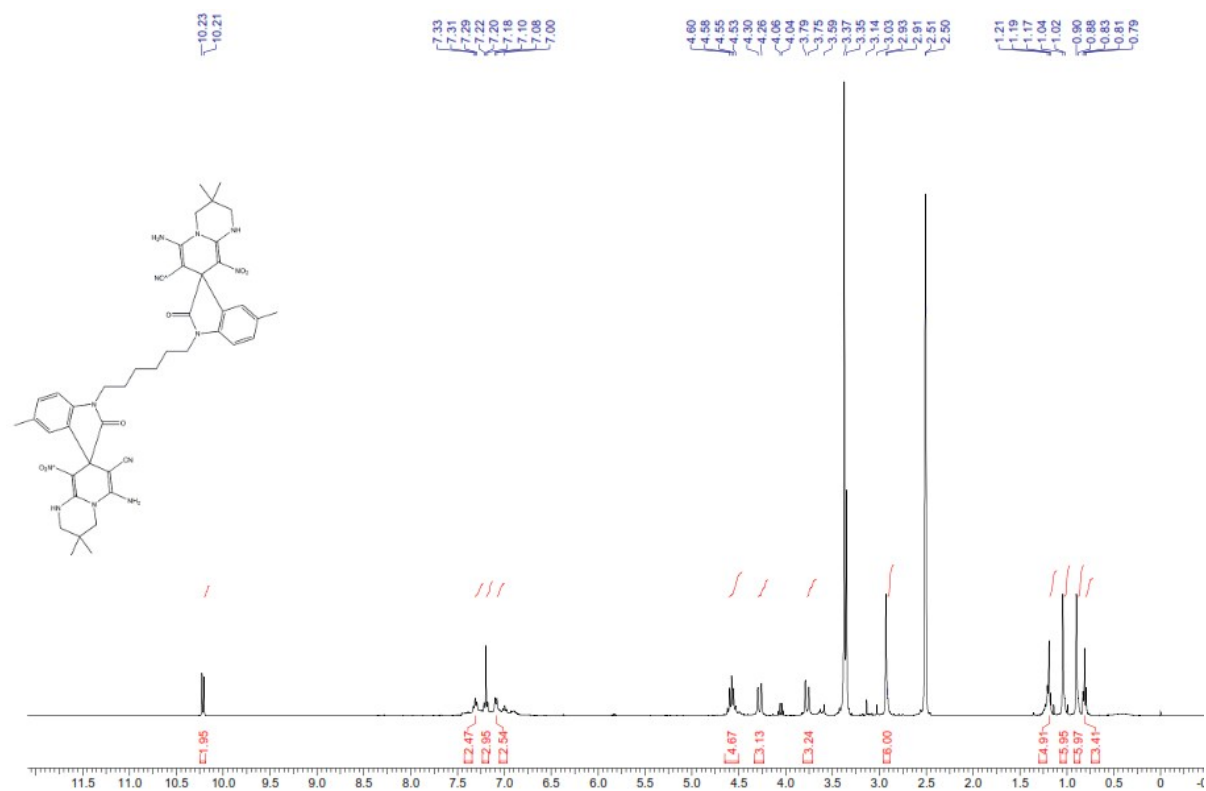
1,1'-(hexane-1,6-diyl)bis(2'-amino-1'-benzyl-6'-(benzylamino)-5,5'-dinitro-2-oxo-1'H-spiro[indoline-3,4'-pyridine]-3'-carbonitrile) (8e)



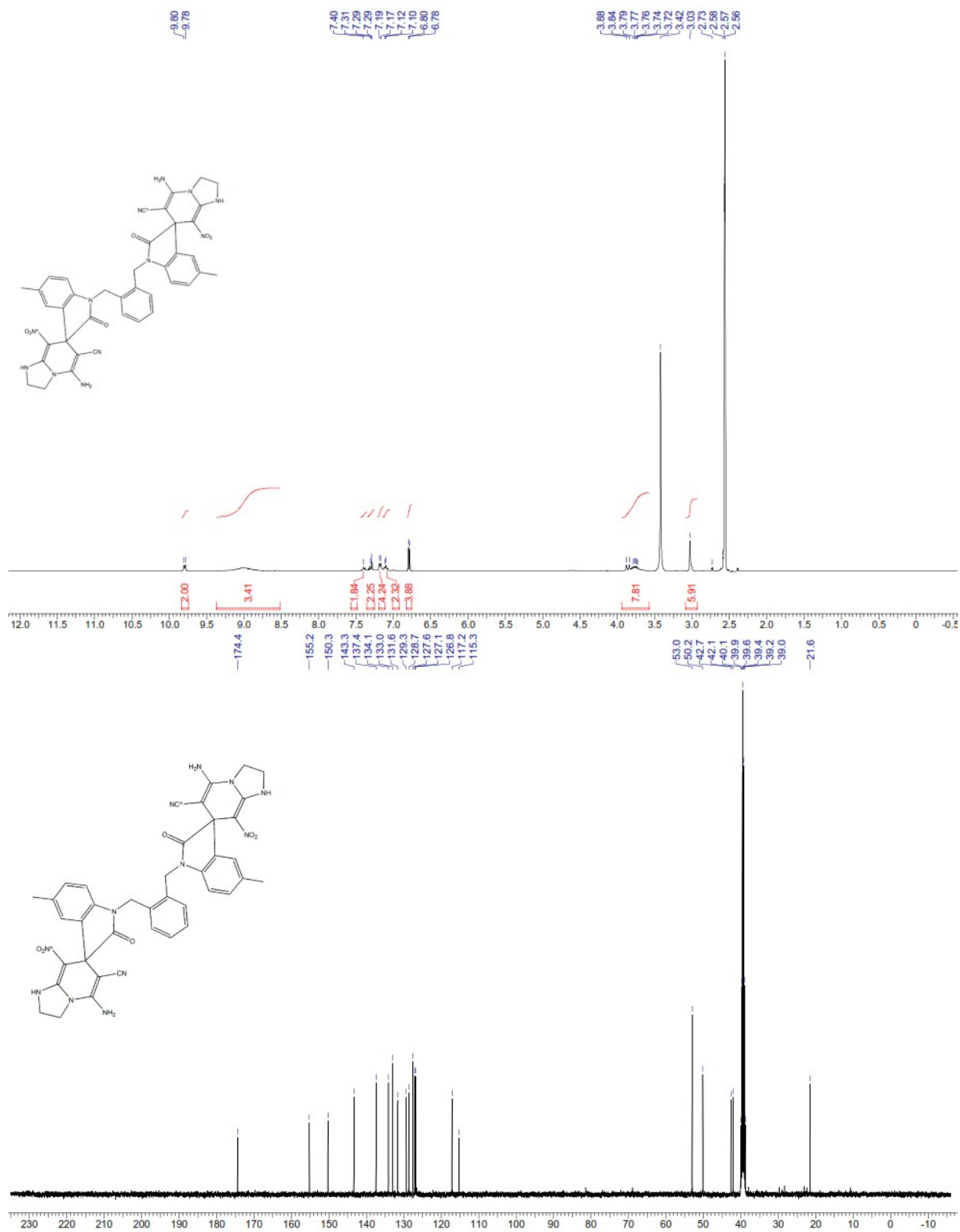
1',1'''-(1,4-phenylenebis(methylene))bis(5-amino-5',8-dinitro-2'-oxo-2,3-dihydro-1H-spiro[imidazo[1,2-a]pyridine-7,3'-indoline]-6-carbonitrile)(8f)



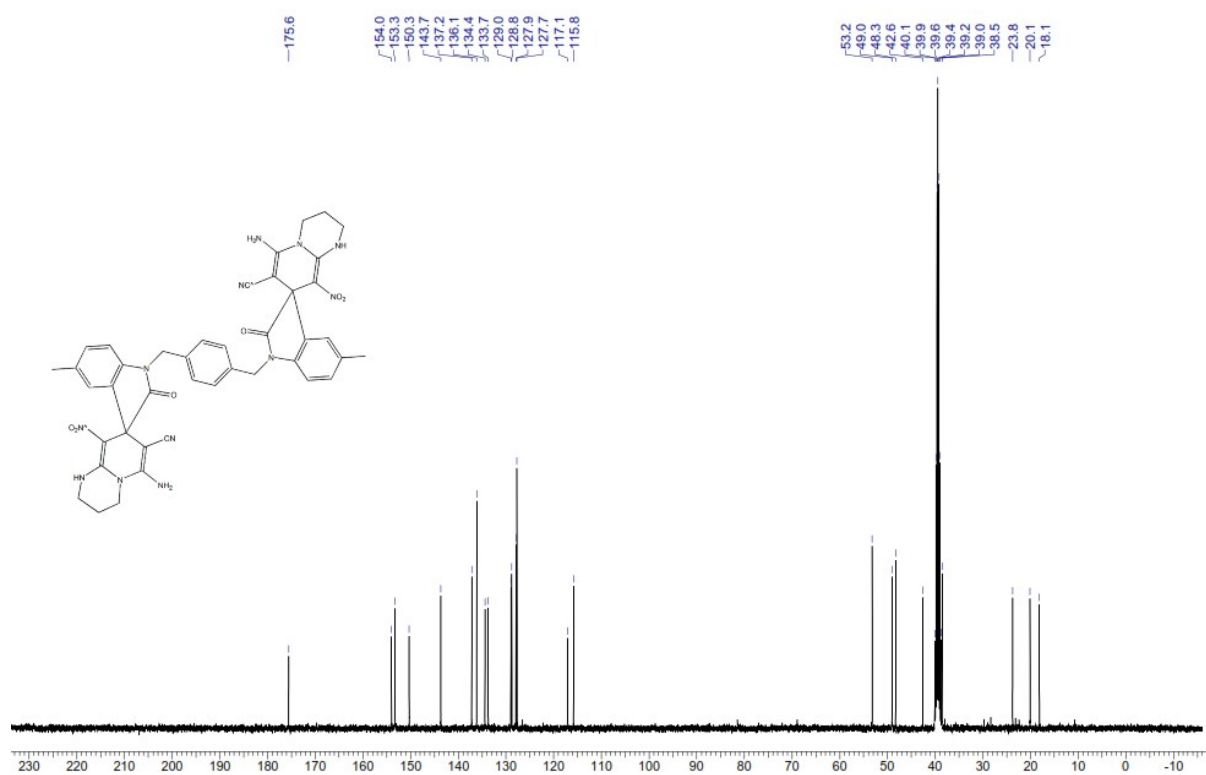
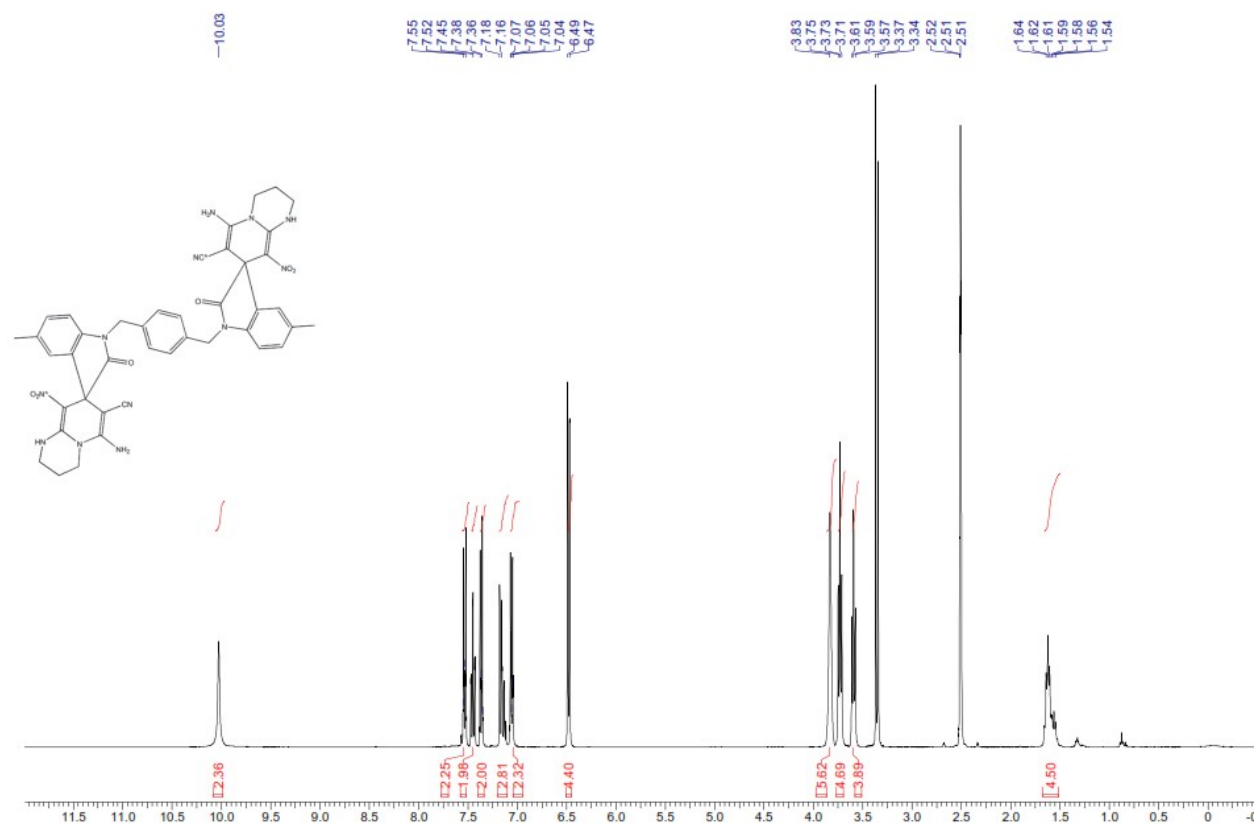
1,1'-(hexane-1,6-diyl)bis(6'-amino-3',3',5-trimethyl-9'-nitro-2-oxo-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidine]-7'-carbonitrile) (8g)



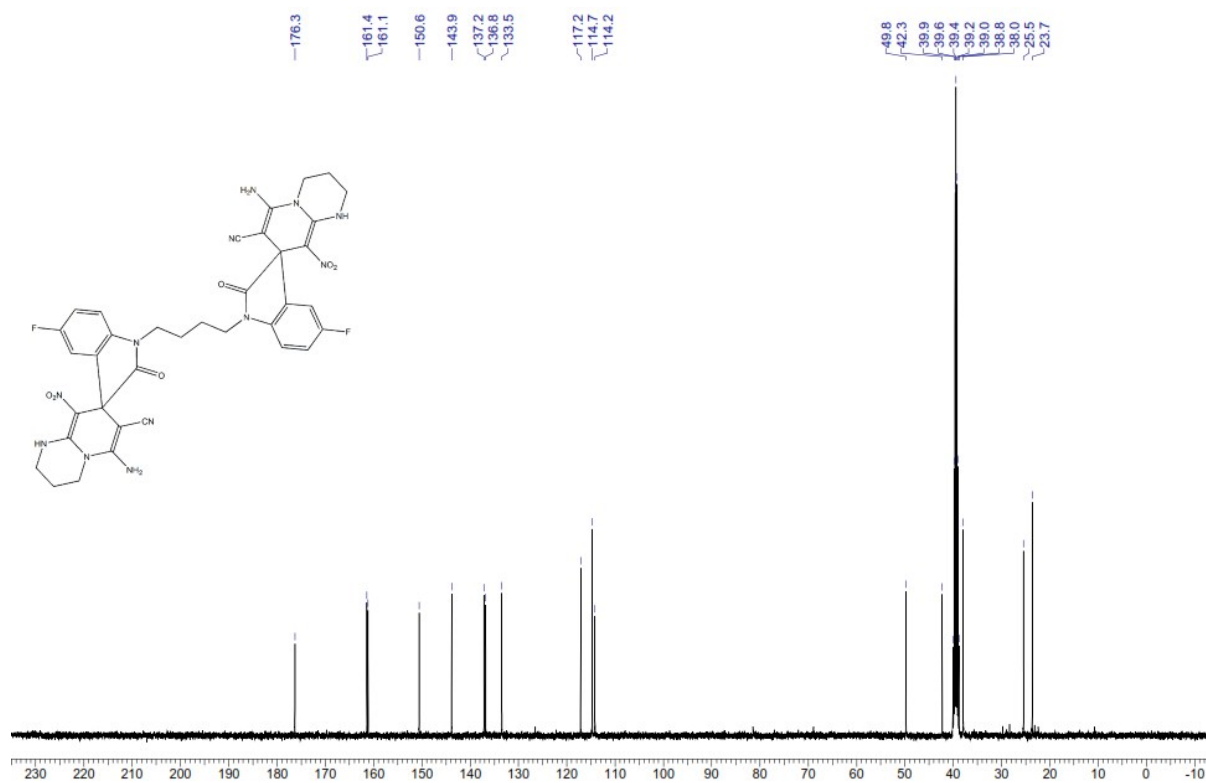
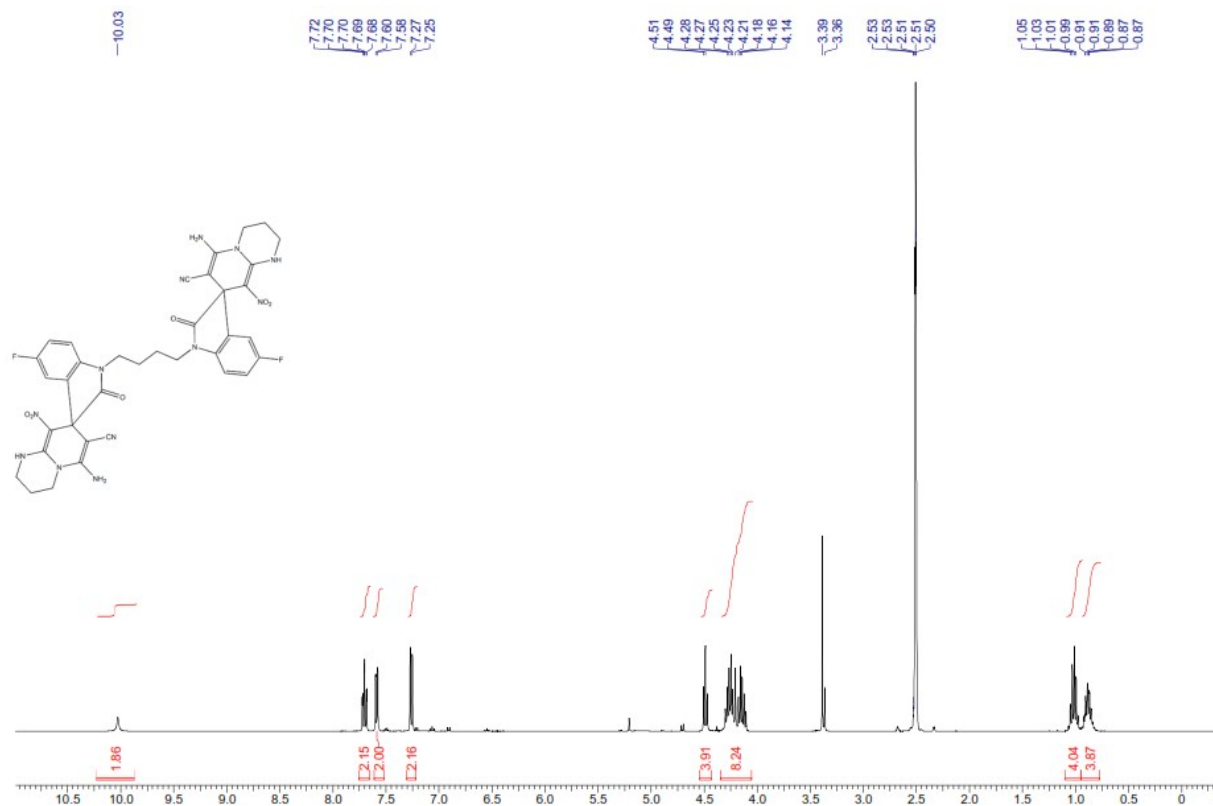
1',1'''-(1,2-phenylenebis(methylene))bis(5-amino-5'-methyl-8-nitro-2'-oxo-2,3-dihydro-1H-spiro[imidazo[1,2-a]pyridine-7,3'-indoline]-6-carbonitrile) (8h)



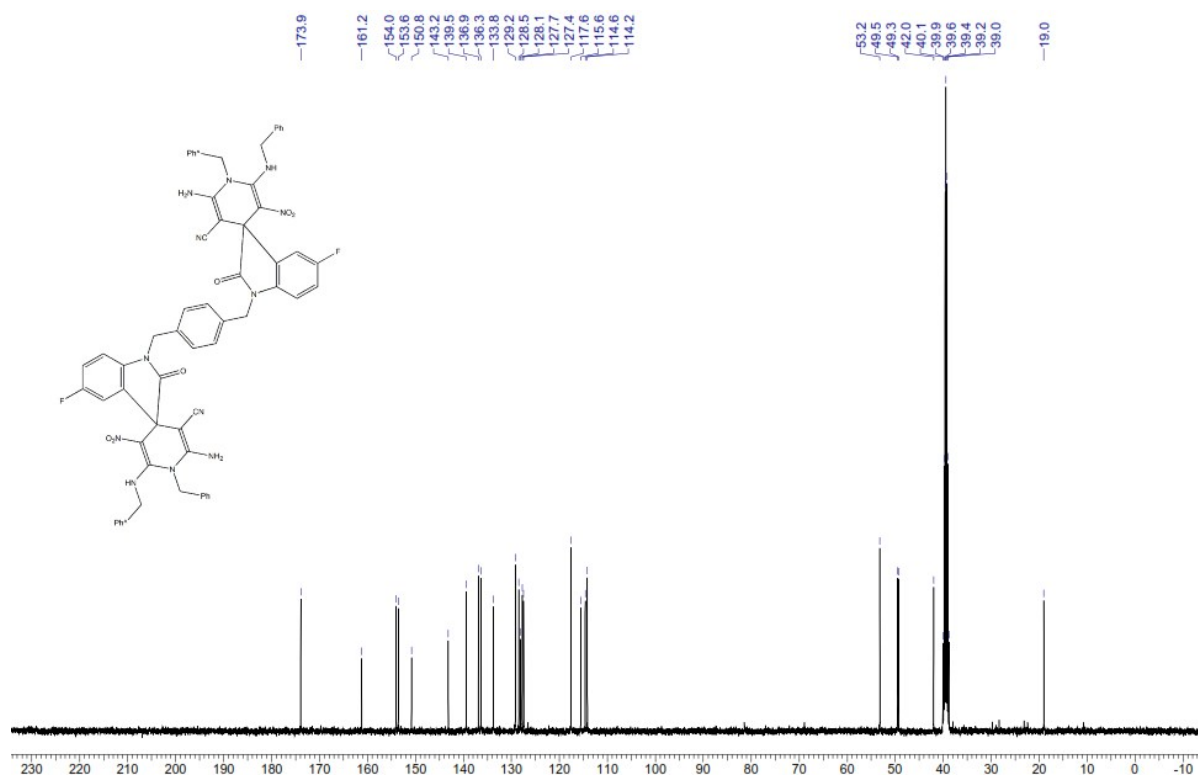
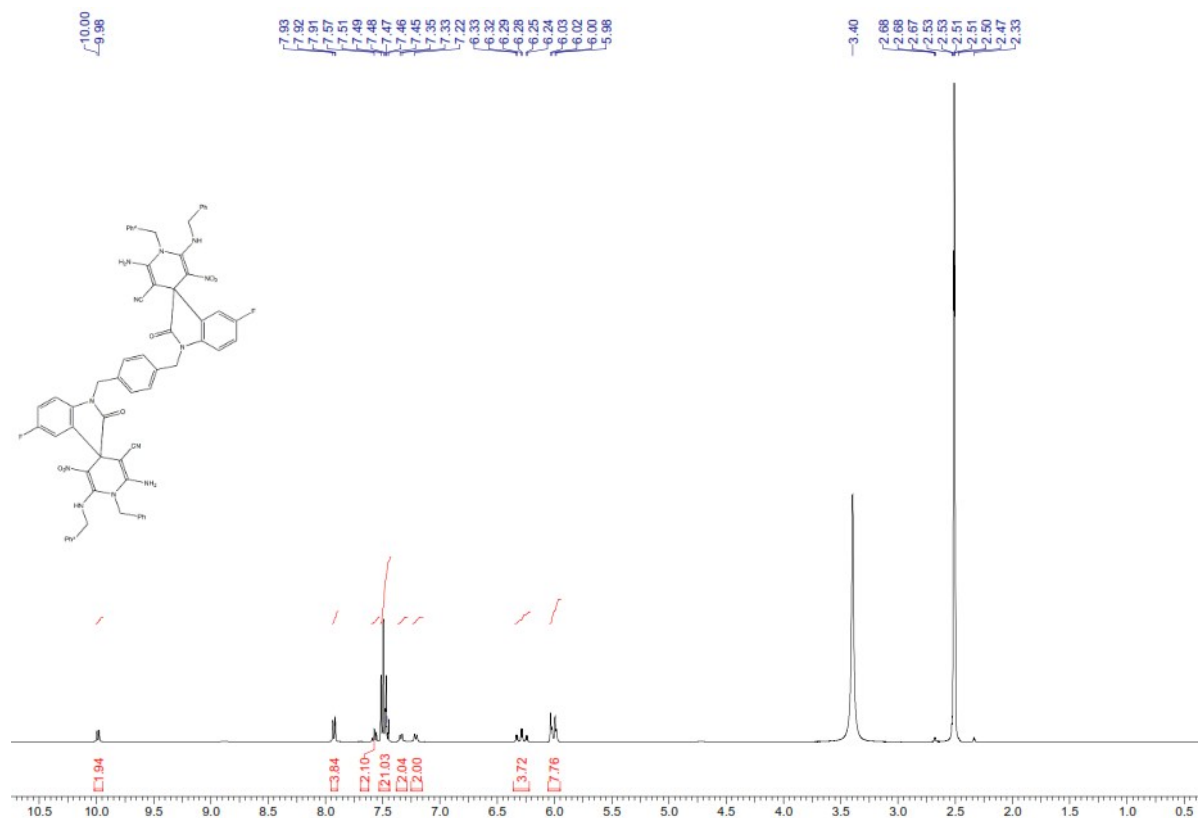
1,1''-(1,4-phenylenebis(methylene))bis(6'-amino-5-methyl-9'-nitro-2-oxo-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidine]-7'-carbonitrile) (8i)



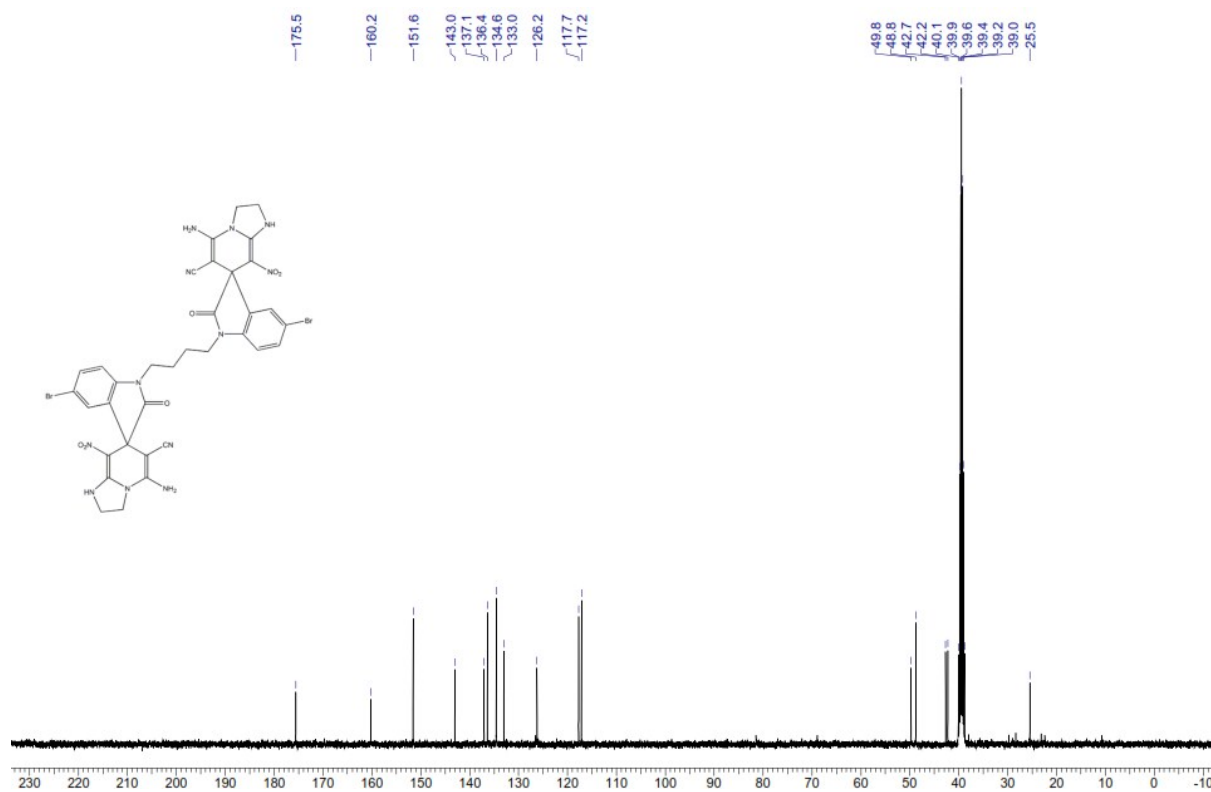
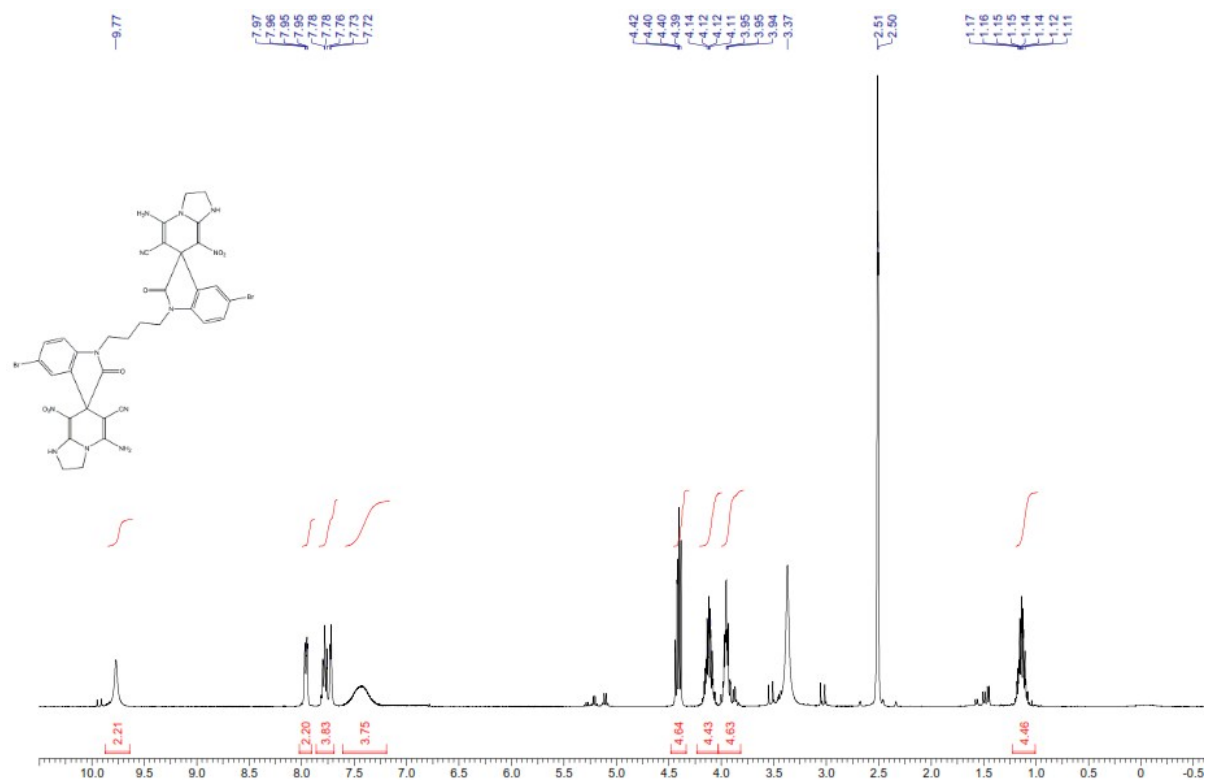
1,1''-(butane-1,4-diyl)bis(6'-amino-5'-fluoro-7'-isocyano-9'-nitro-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidin]-2-one) (8j)



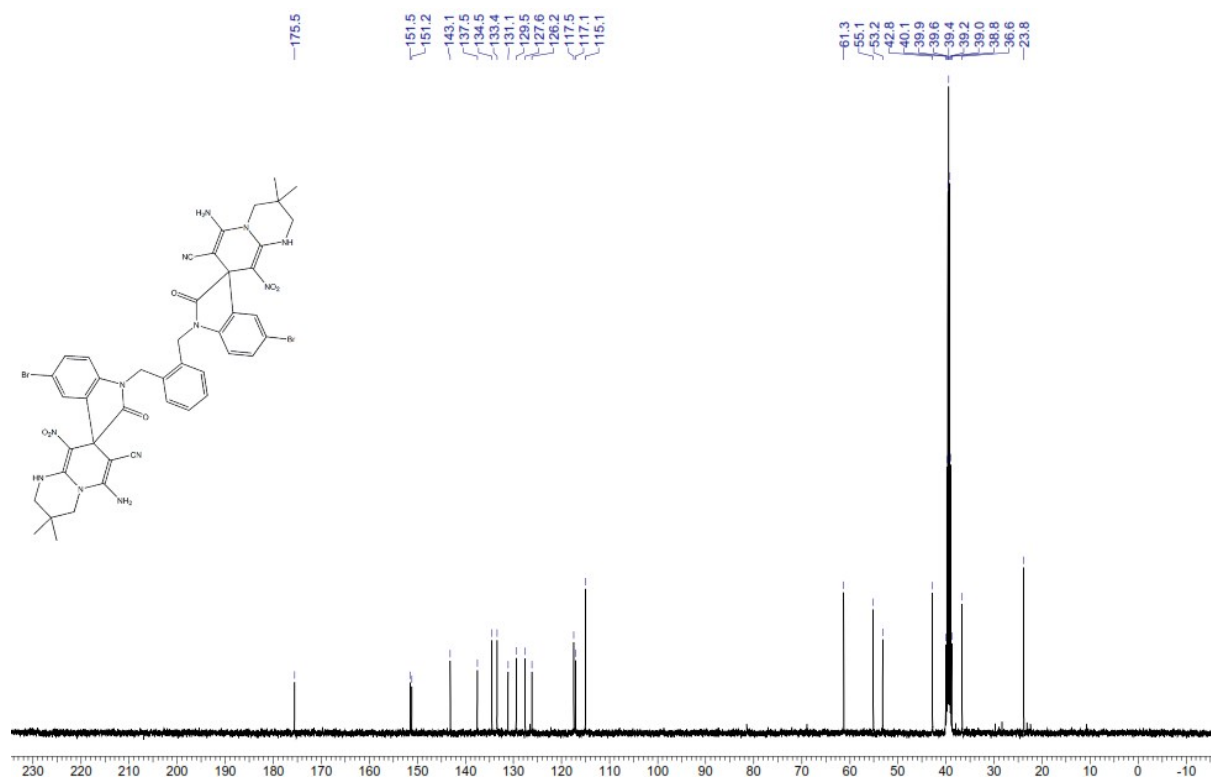
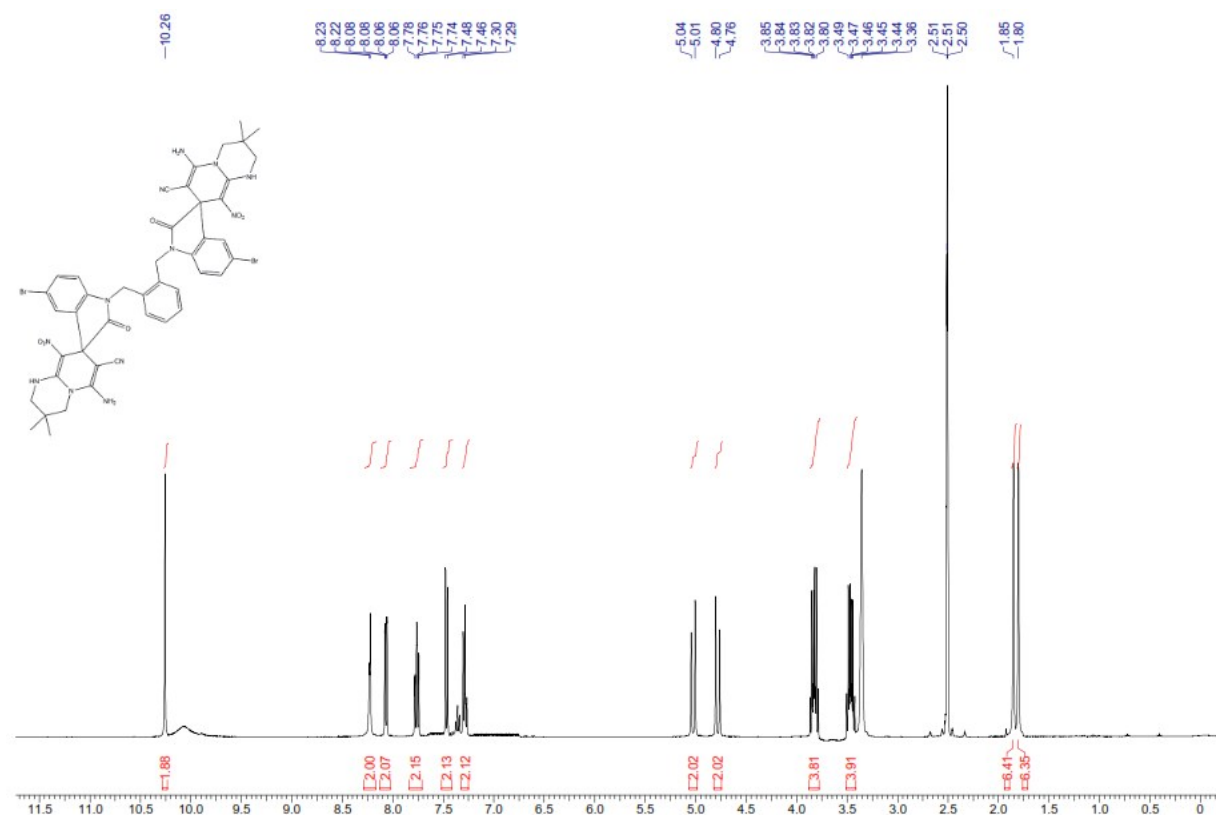
1,1''-(1,4-phenylenebis(methylene))bis(2'-amino-1'-benzyl-6'-(benzylamino)-5-fluoro-5'-nitro-2-oxo-1'H-spiro[indoline-3,4'-pyridine]-3'-carbonitrile) (8k)



1',1'''-(butane-1,4-diyl)bis(5-amino-5'-bromo-6-isocyano-8-nitro-2,3-dihydro-1H-spiro[imidazo[1,2-a]pyridine-7,3'-indolin]-2'-one) (8l)



1,1''-(1,2-phenylenebis(methylene))bis(6'-amino-5-bromo-3',3'-dimethyl-9'-nitro-2-oxo-1',2',3',4'-tetrahydrospiro[indoline-3,8'-pyrido[1,2-a]pyrimidine]-7'-carbonitrile) (8m)



1,1'-(1,4-phenylenebis(methylene))bis(2'-amino-1'-benzyl-6'-(benzylamino)-5-bromo-5'-nitro-2-oxo-1'H-spiro[indoline-3,4'-pyridine]-3'-carbonitrile) (8n)

