

# Design, synthesis and antitumor evaluation of novel mono-carbonyl curcumin analogs in hepatocellular carcinoma cell

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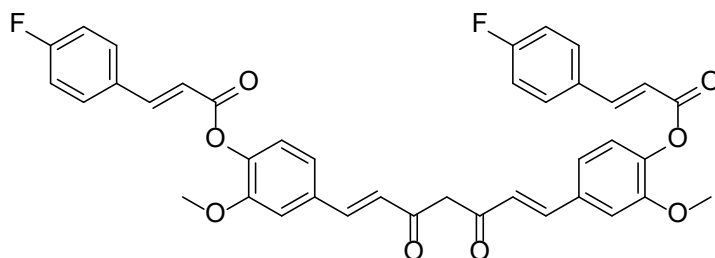
c College of Science, China Agricultural University, Beijing, 100193, China

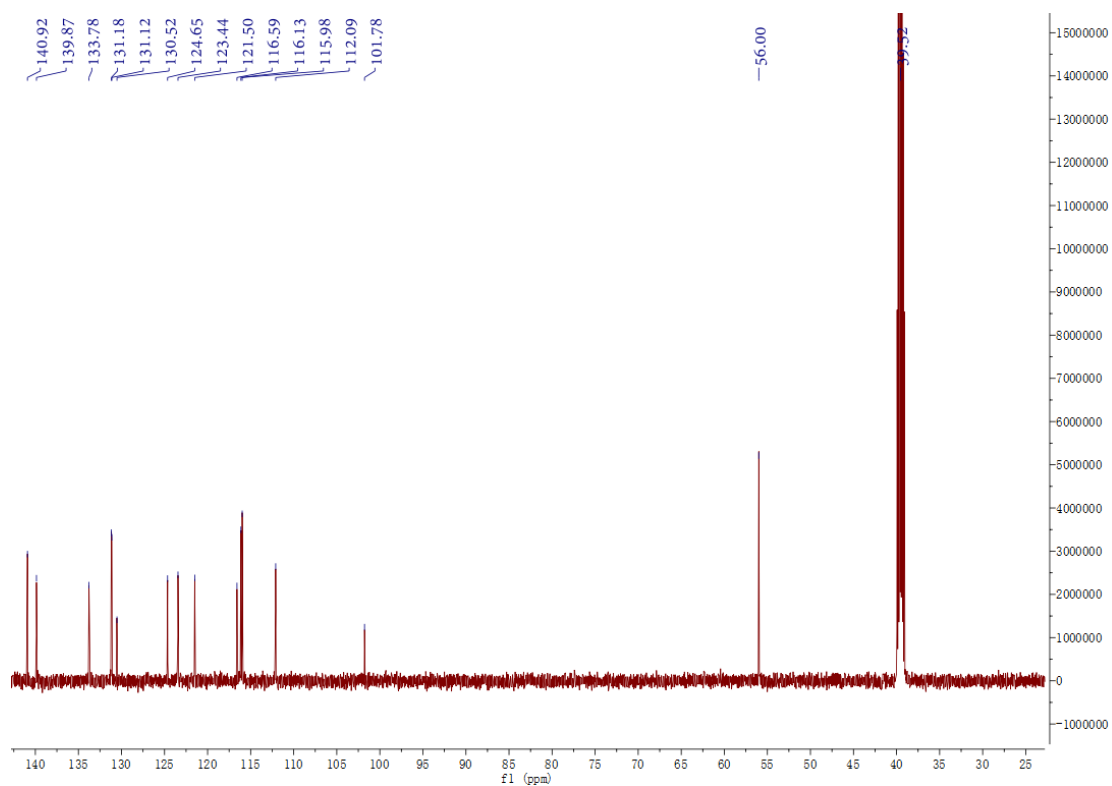
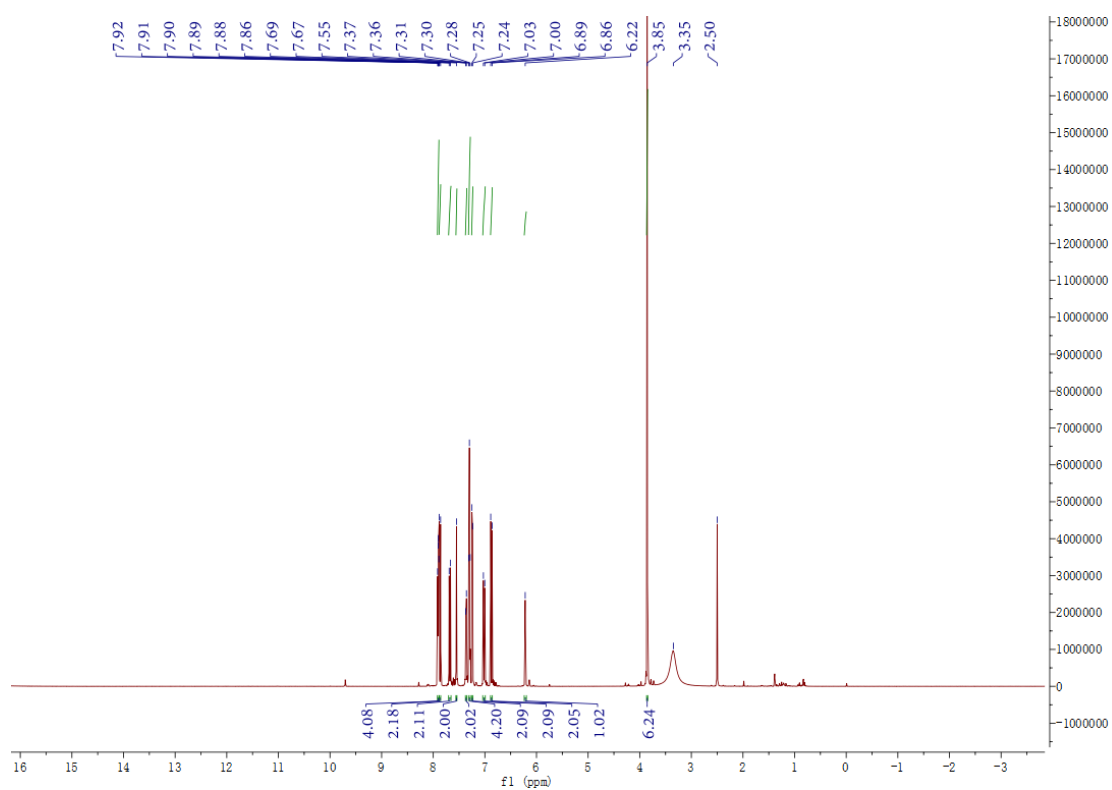
1 These authors equally contributed to this work.

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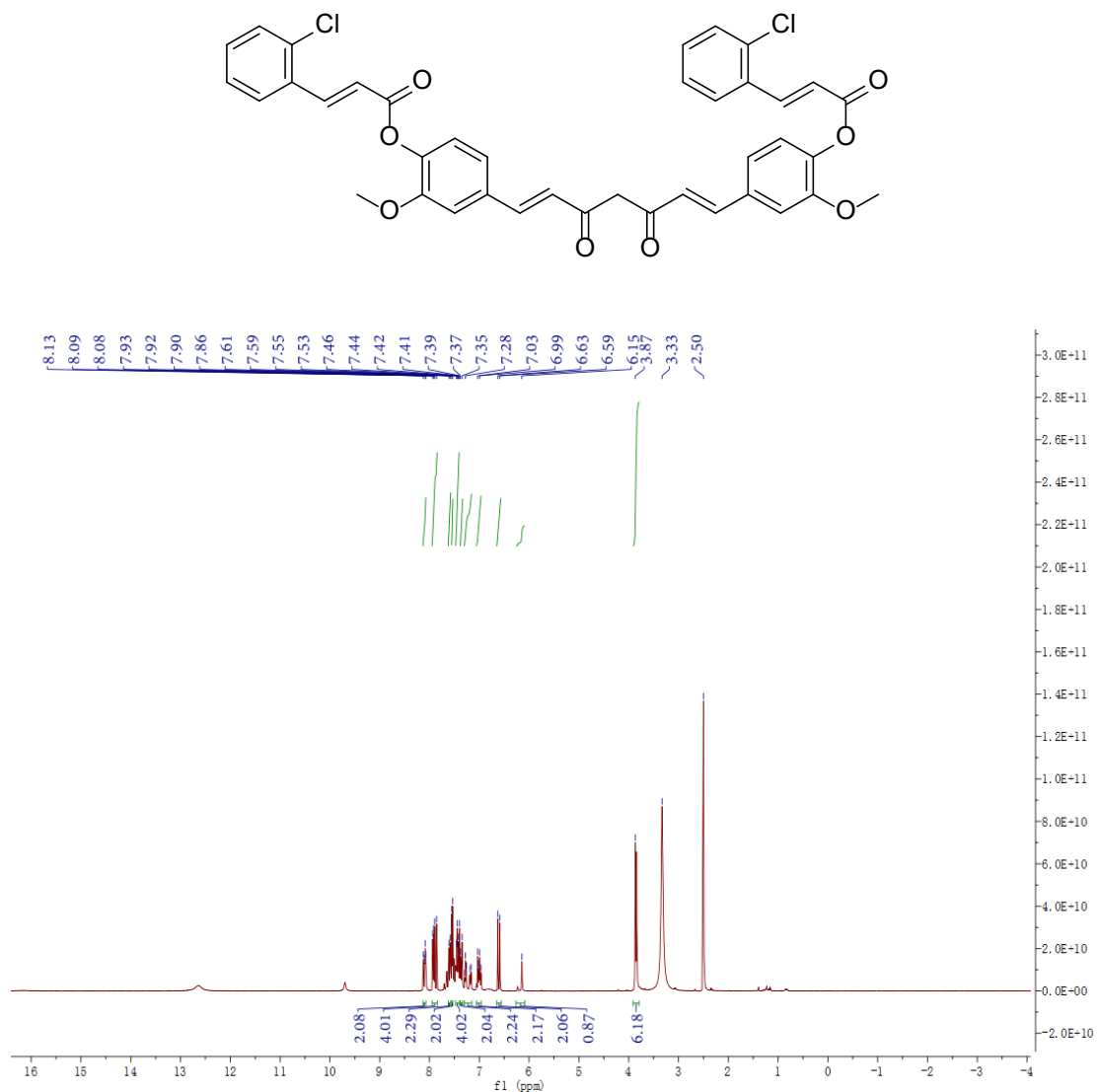
## <sup>1</sup>H NMR, <sup>13</sup>C NMR of target compounds A1-A8

((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(4-fluorophenyl)acrylate) (**A1**)

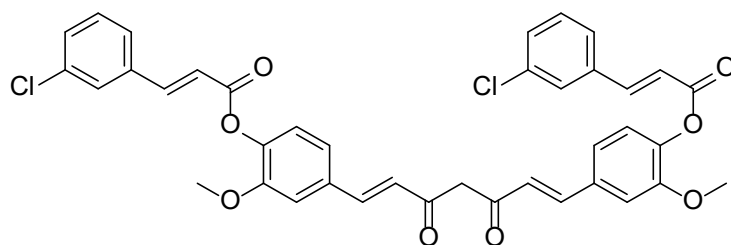


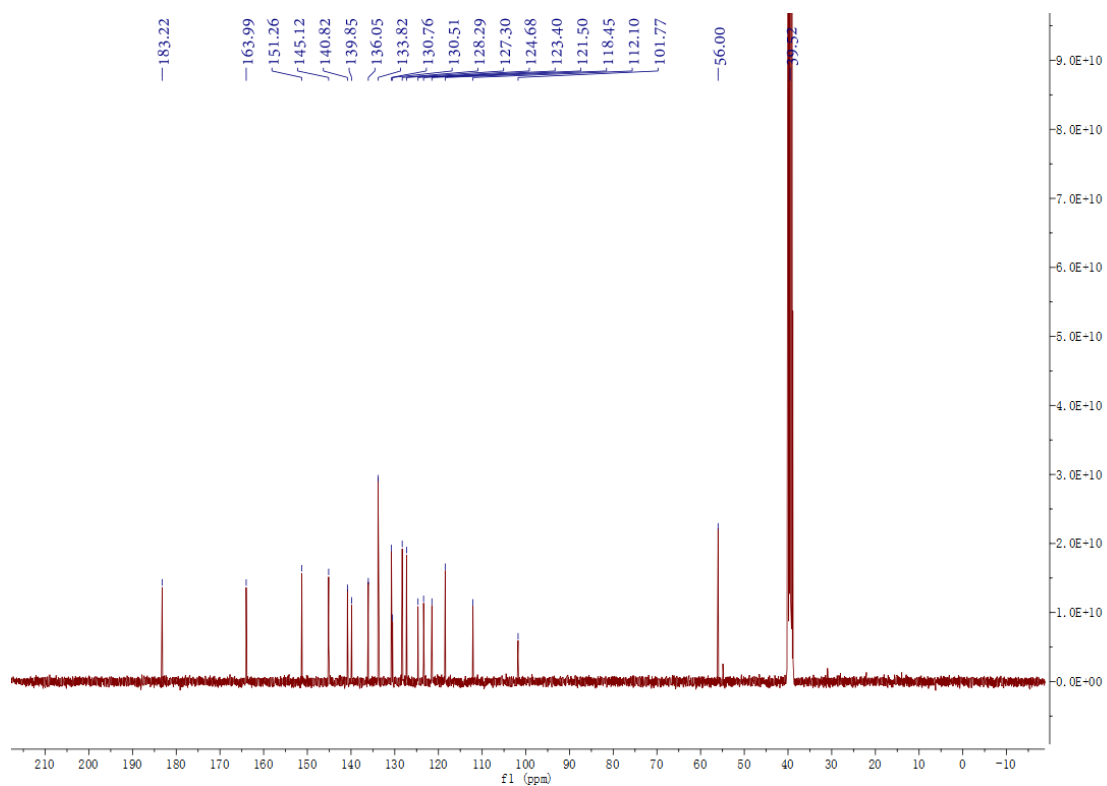
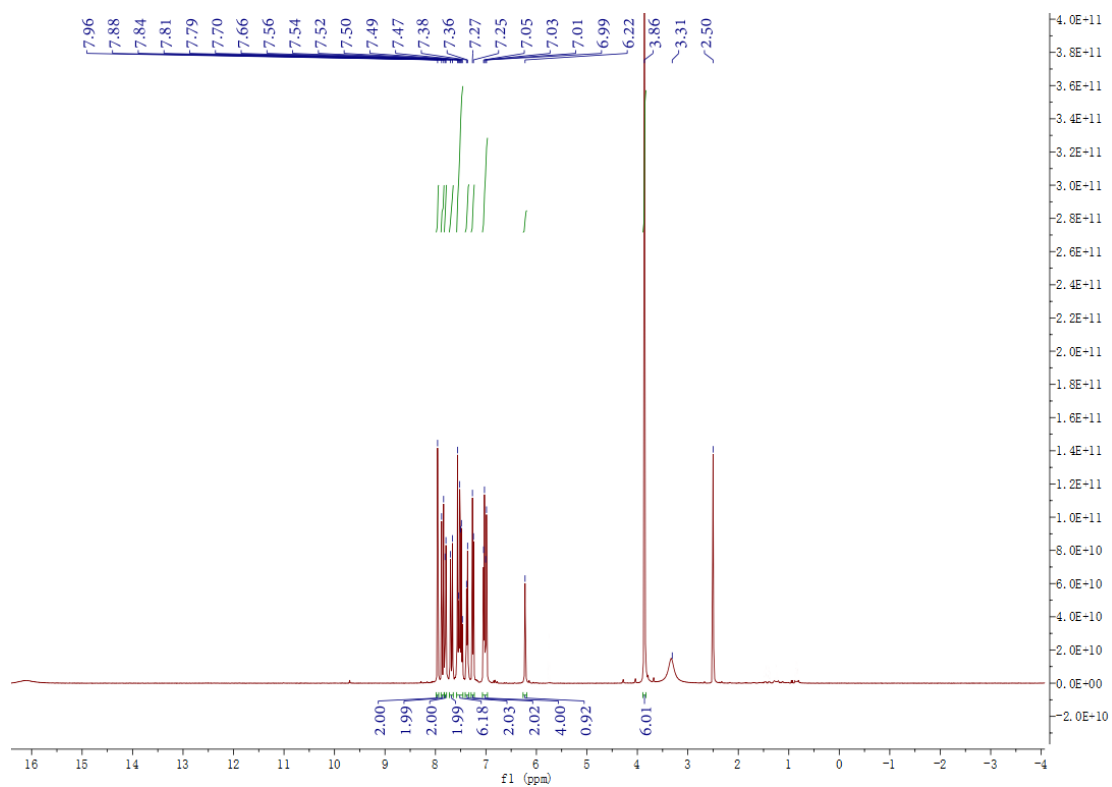


((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(2-chlorophenyl)acrylate) (A2)

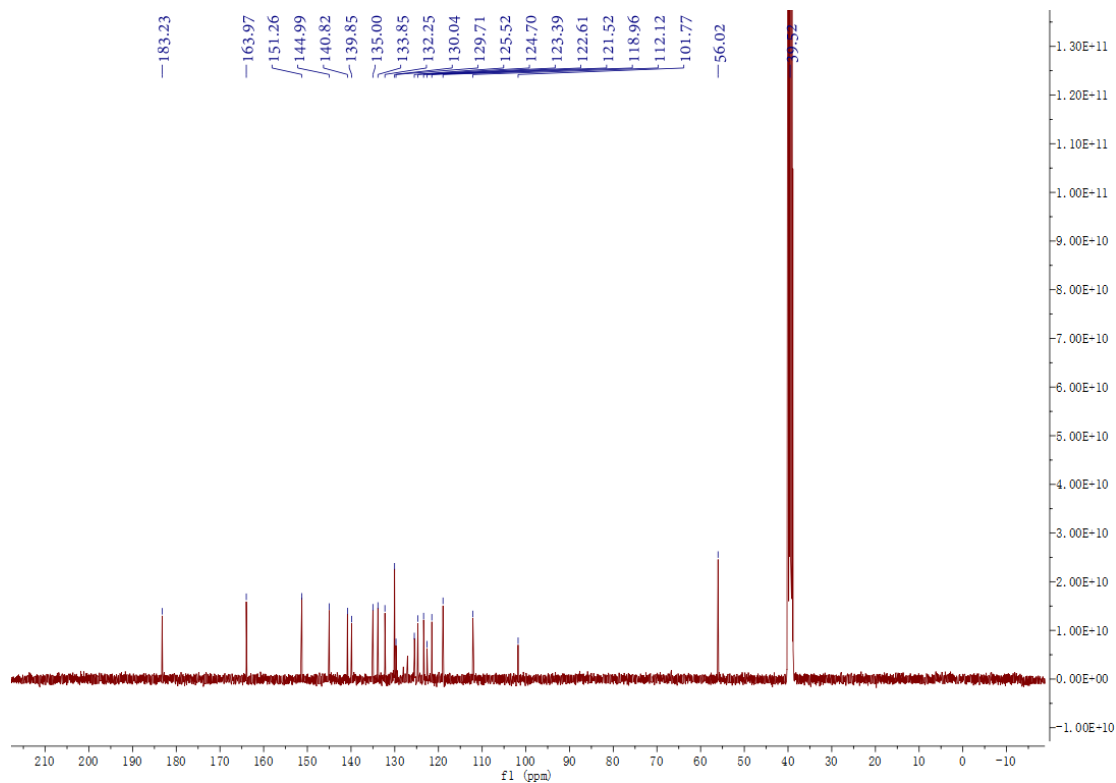
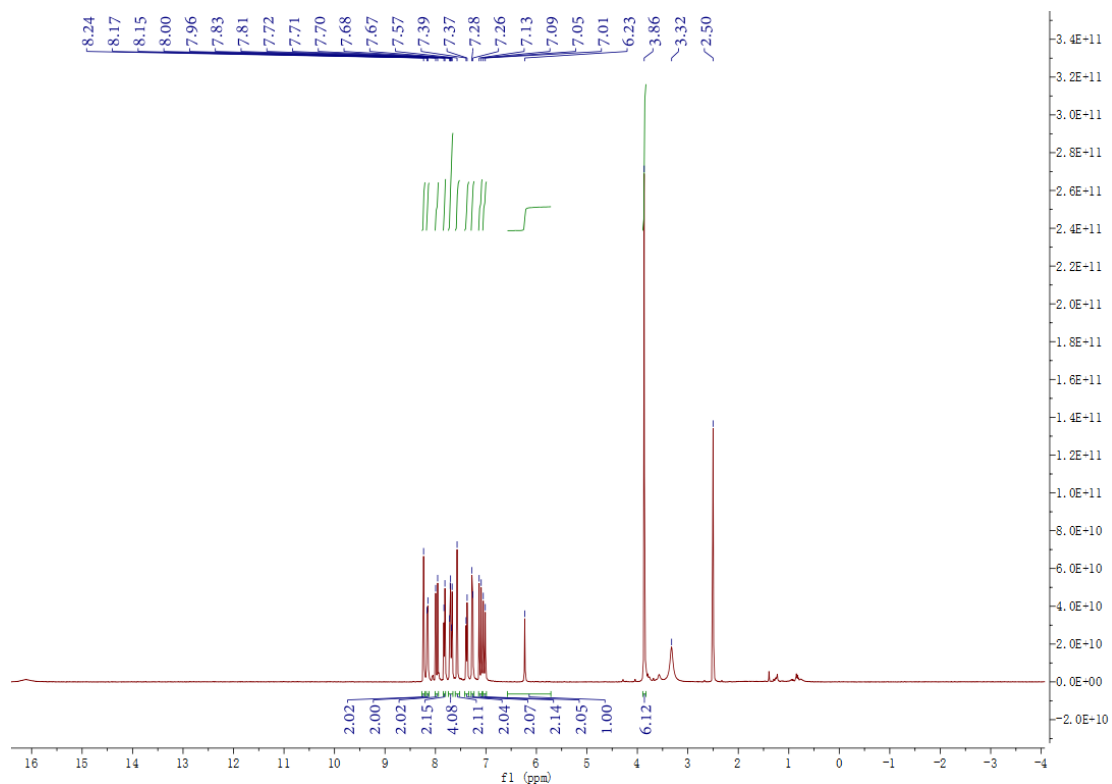
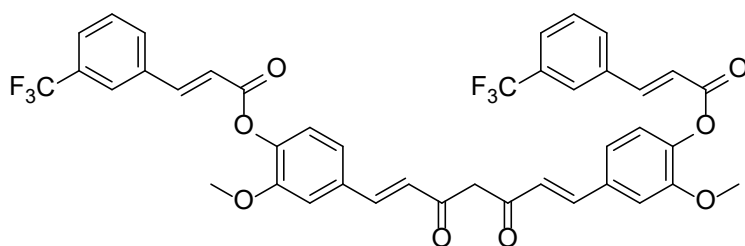


((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(3-chlorophenyl)acrylate) (**A3**)

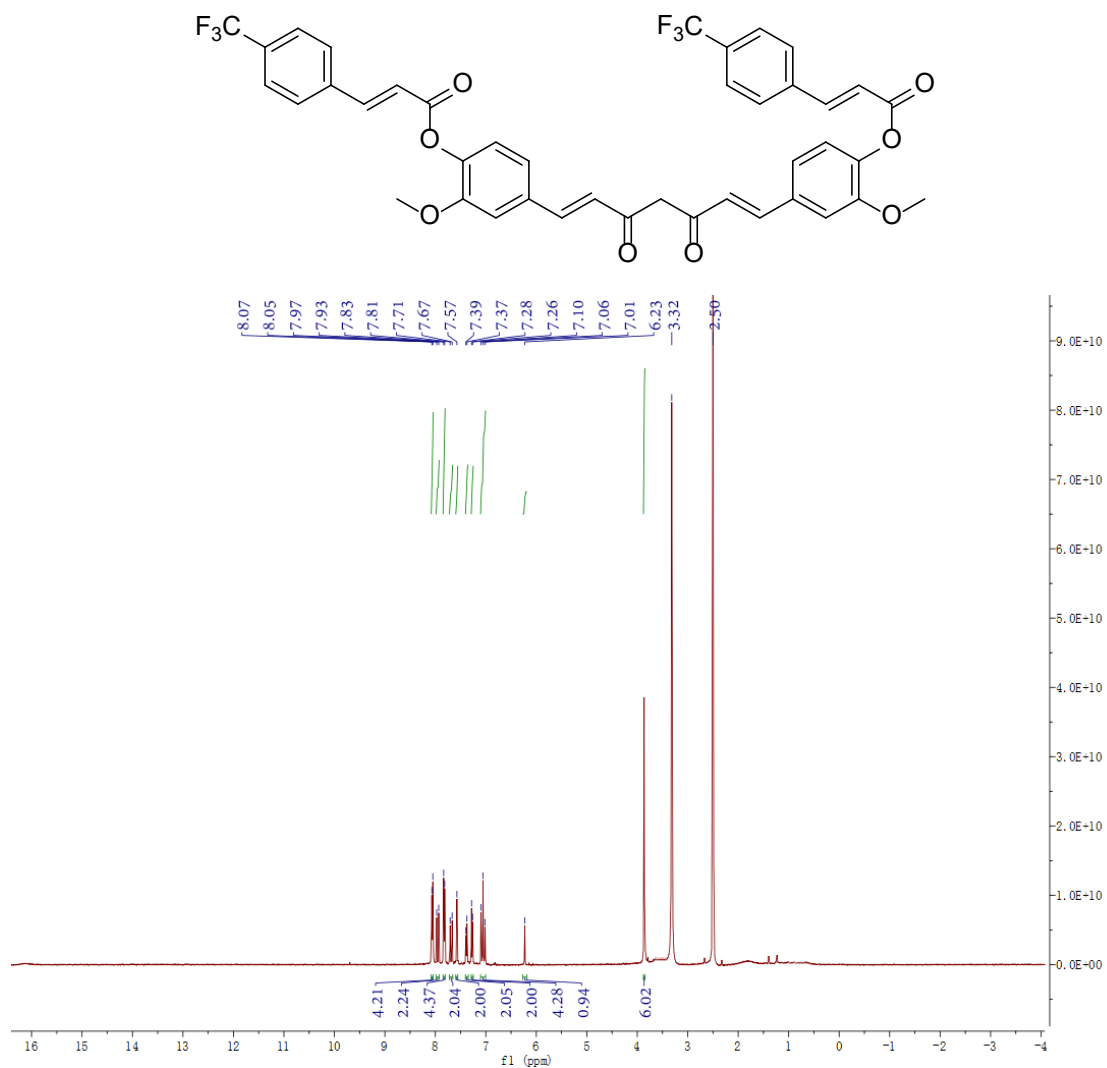




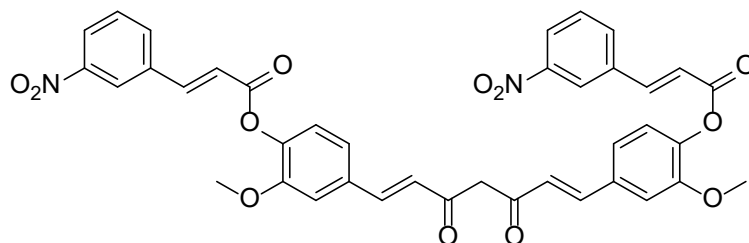
((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(3-(trifluoromethyl)phenyl)acrylate) (A4)

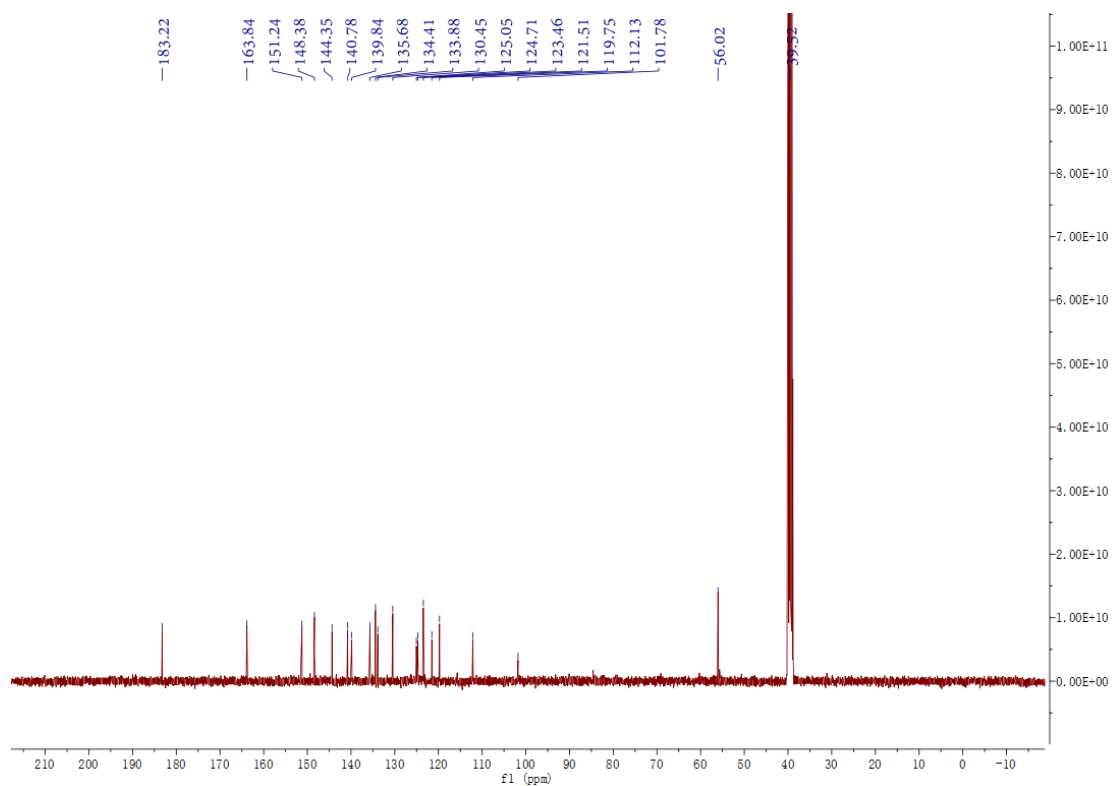
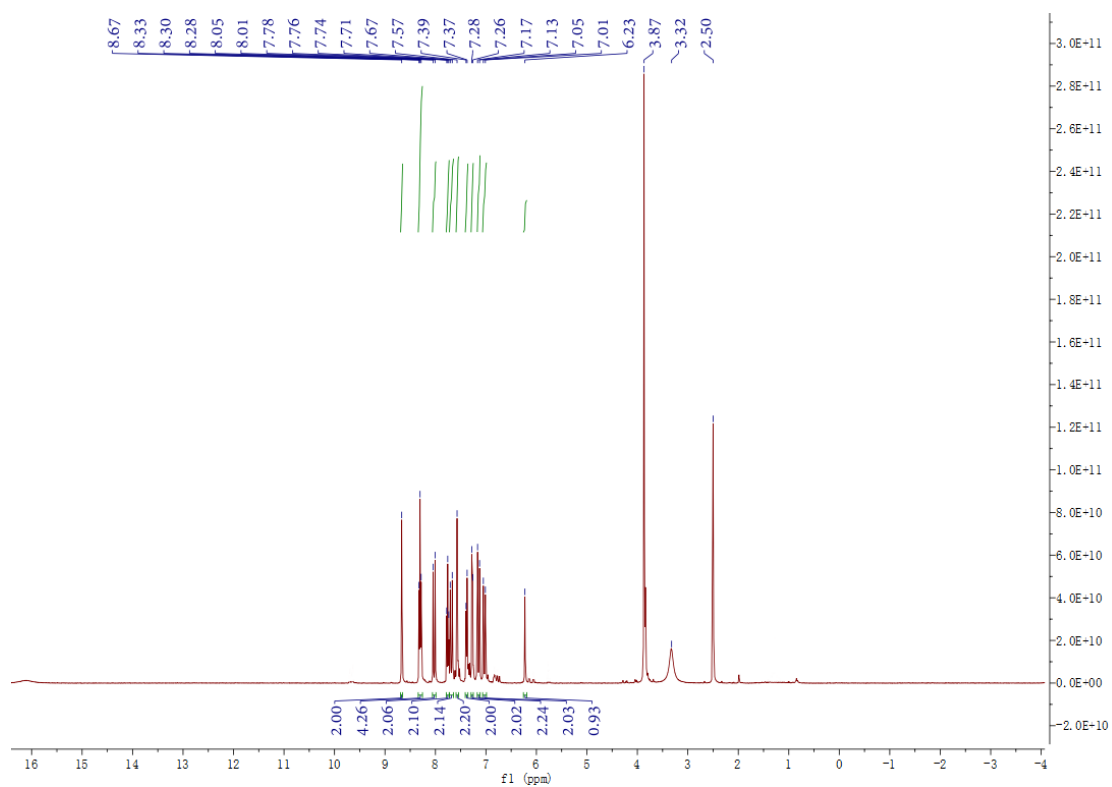


((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(4-(trifluoromethyl)phenyl)acrylate) (**A5**)

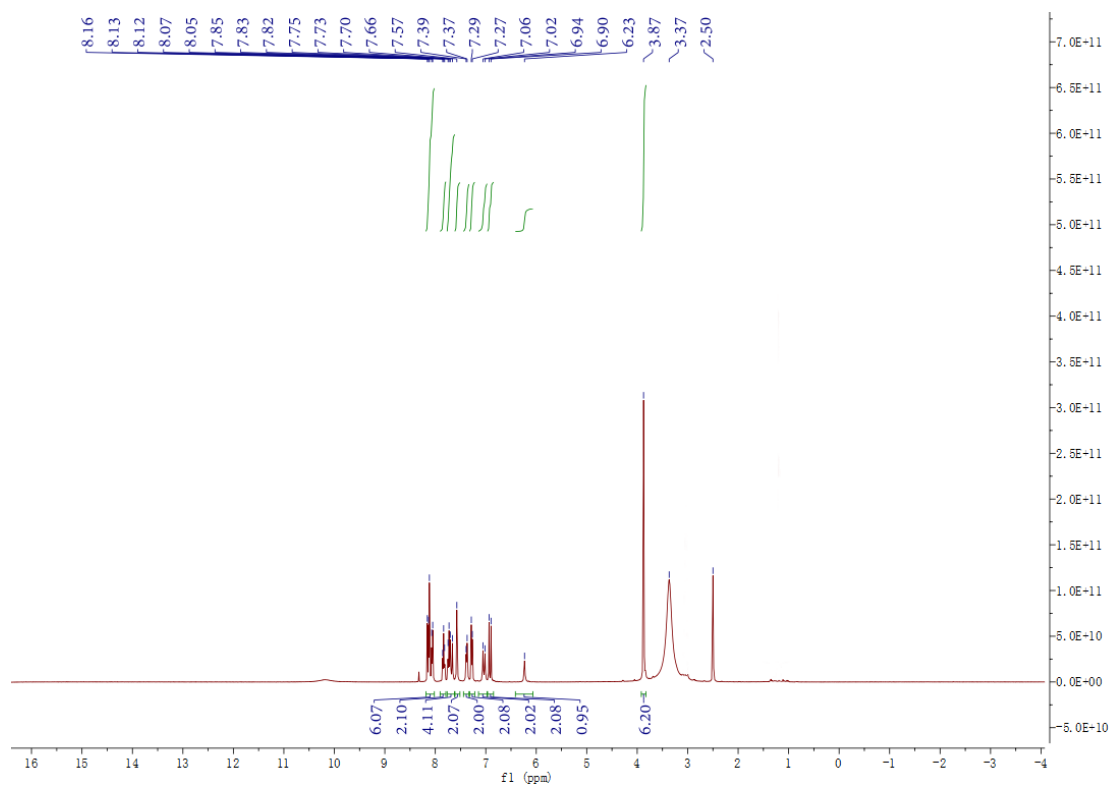
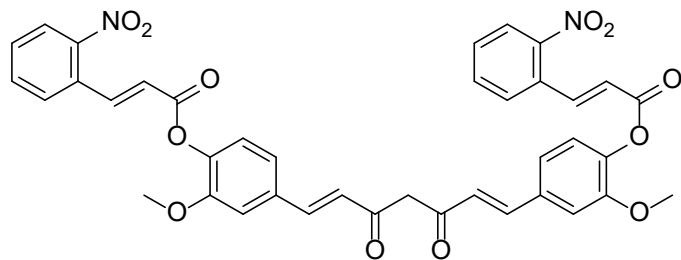


((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(3-nitrophenyl)acrylate) (**A6**)

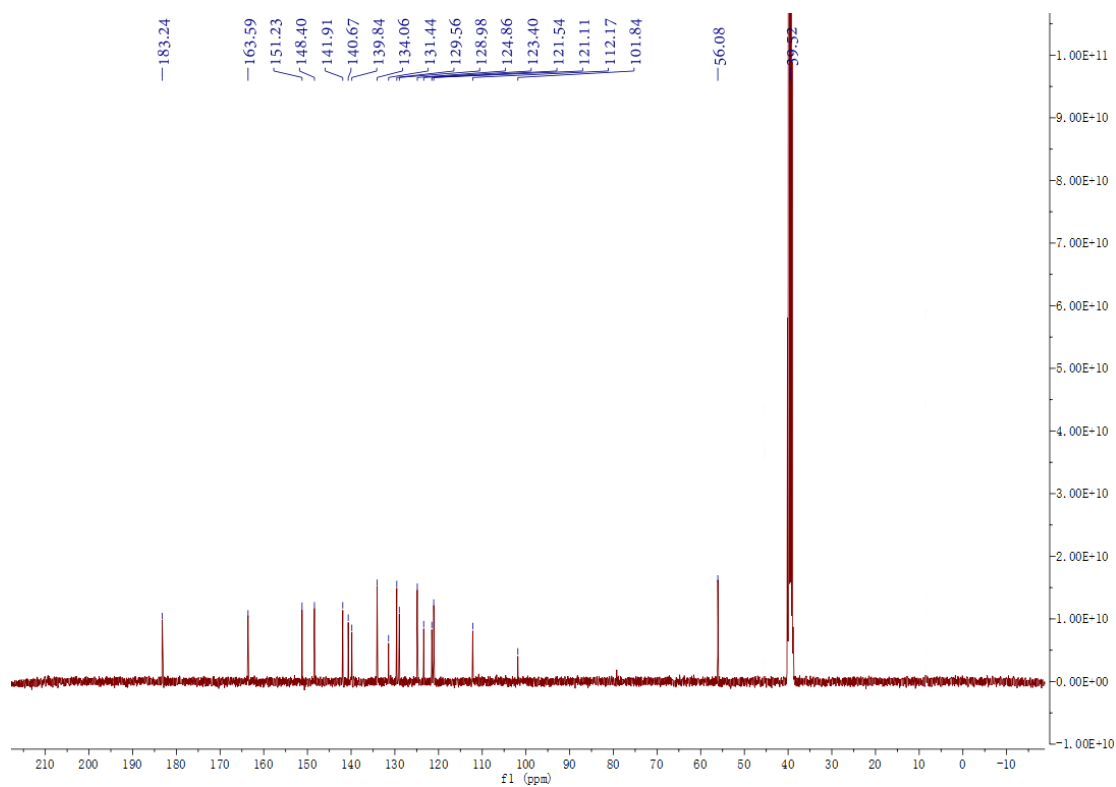




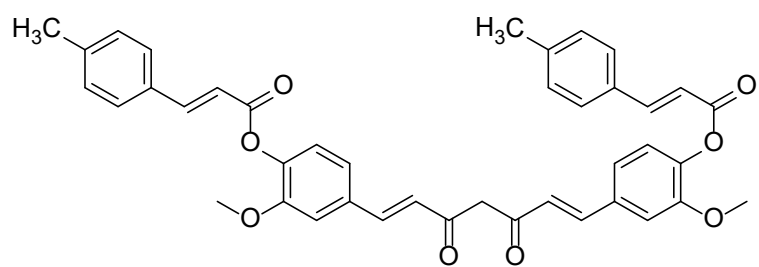
((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(2-nitrophenyl)acrylate) (A7)

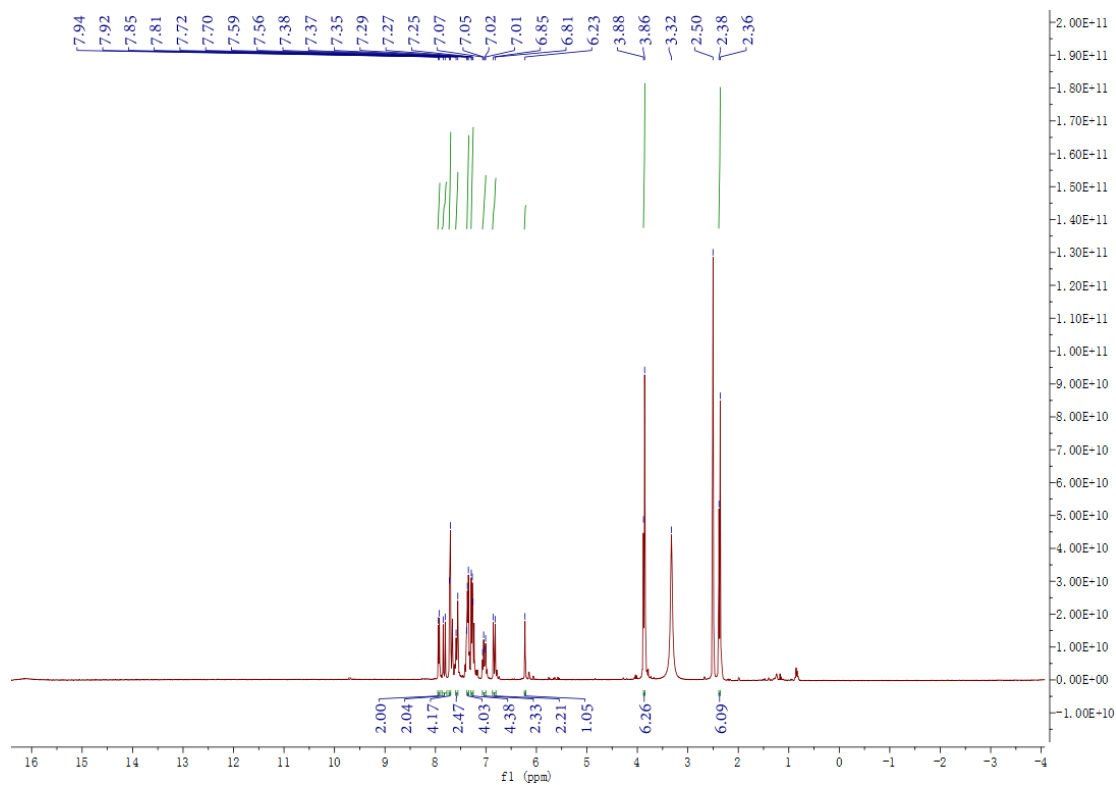






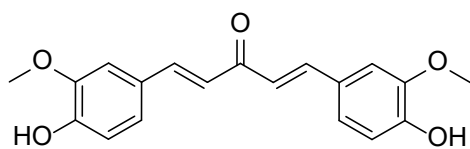
((1E,6E)-3,5-dioxohepta-1,6-diene-1,7-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(p-tolyl)acrylate) (**A8**)

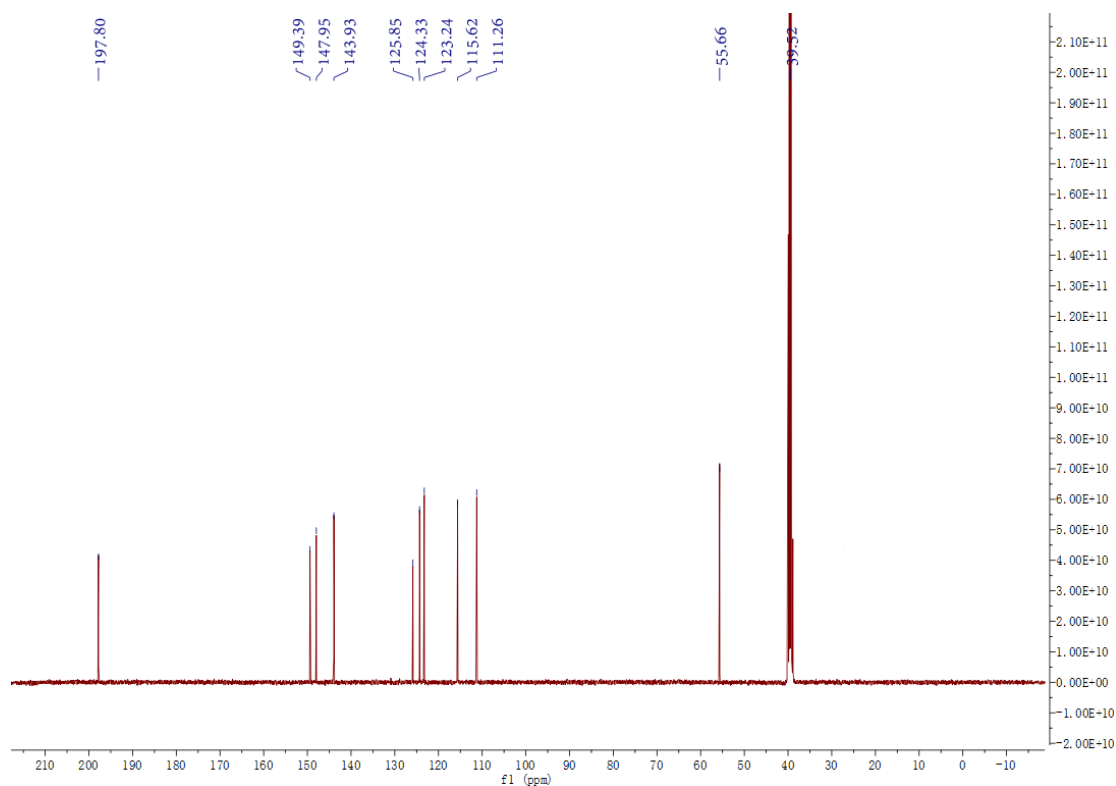
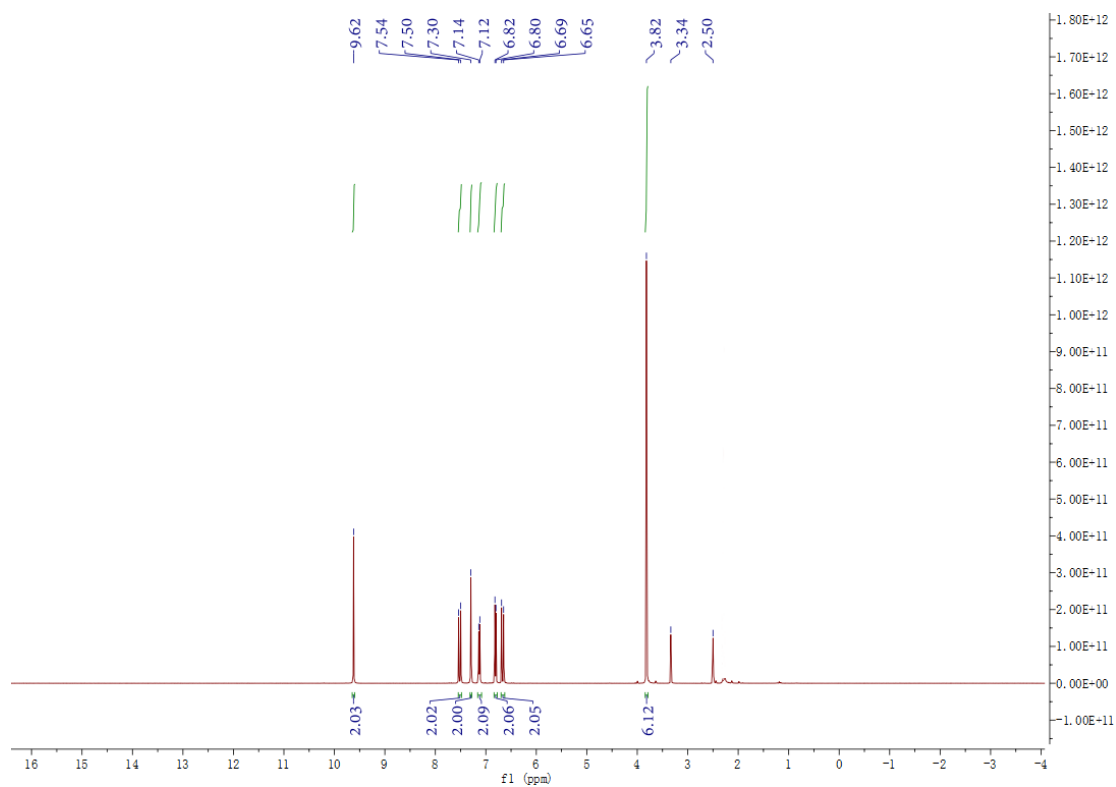




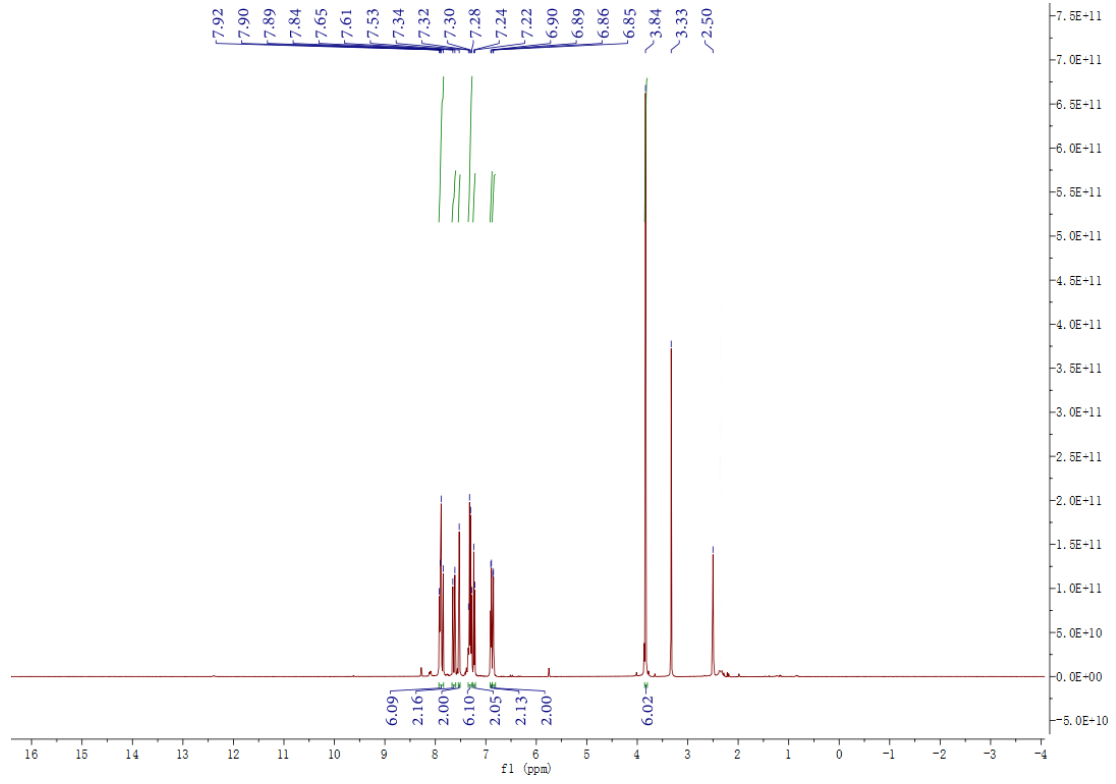
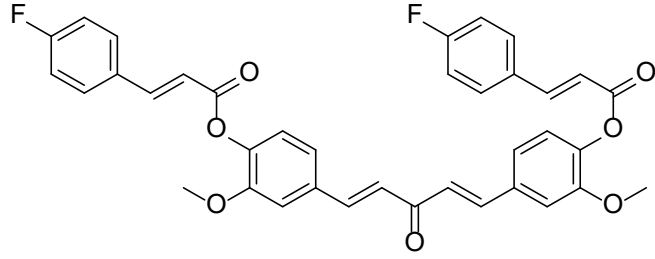
### <sup>1</sup>H NMR, <sup>13</sup>C NMR of target compounds B1-B7

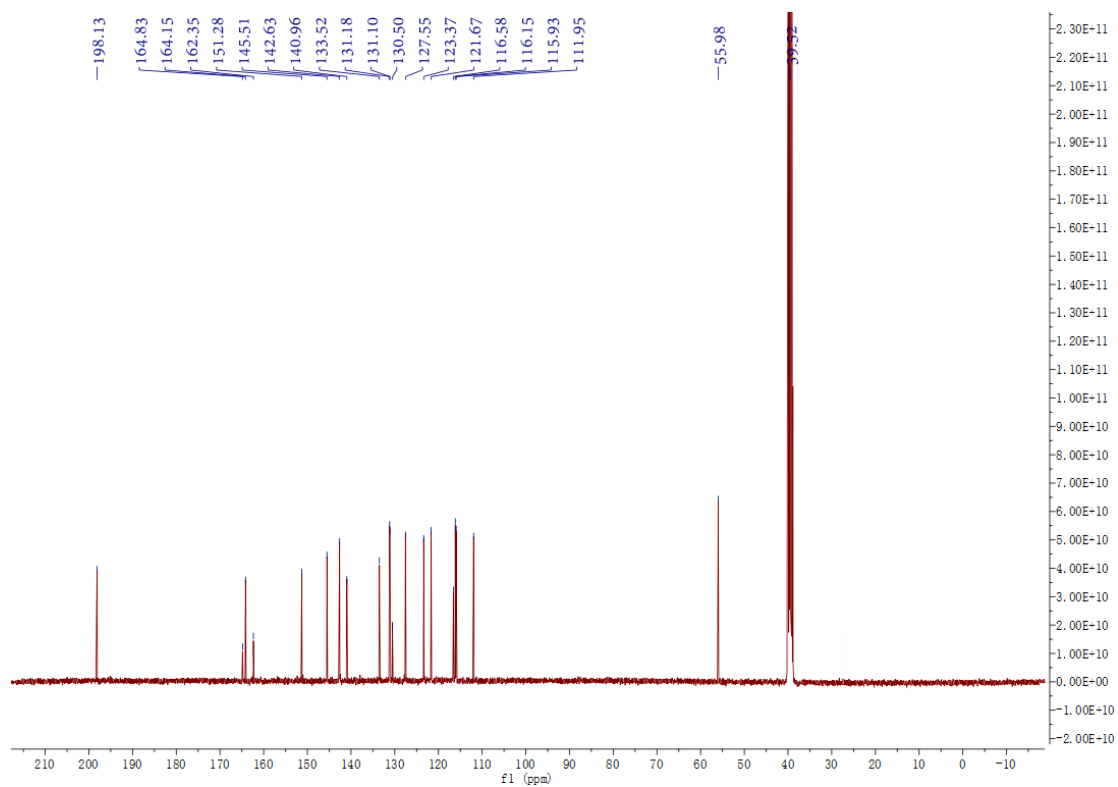
(1E,4E)-1,5-bis(4-hydroxy-3-methoxyphenyl)penta-1,4-dien-3-one (**3**)



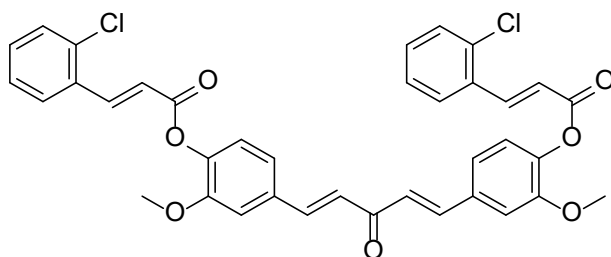


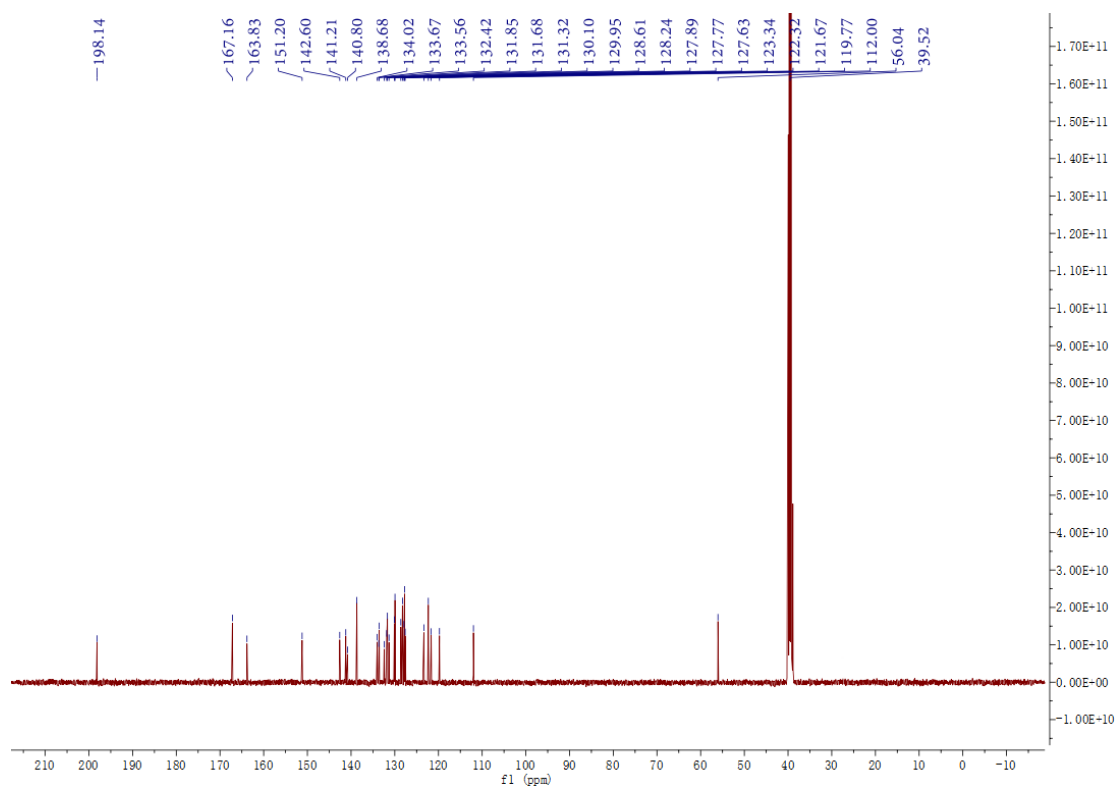
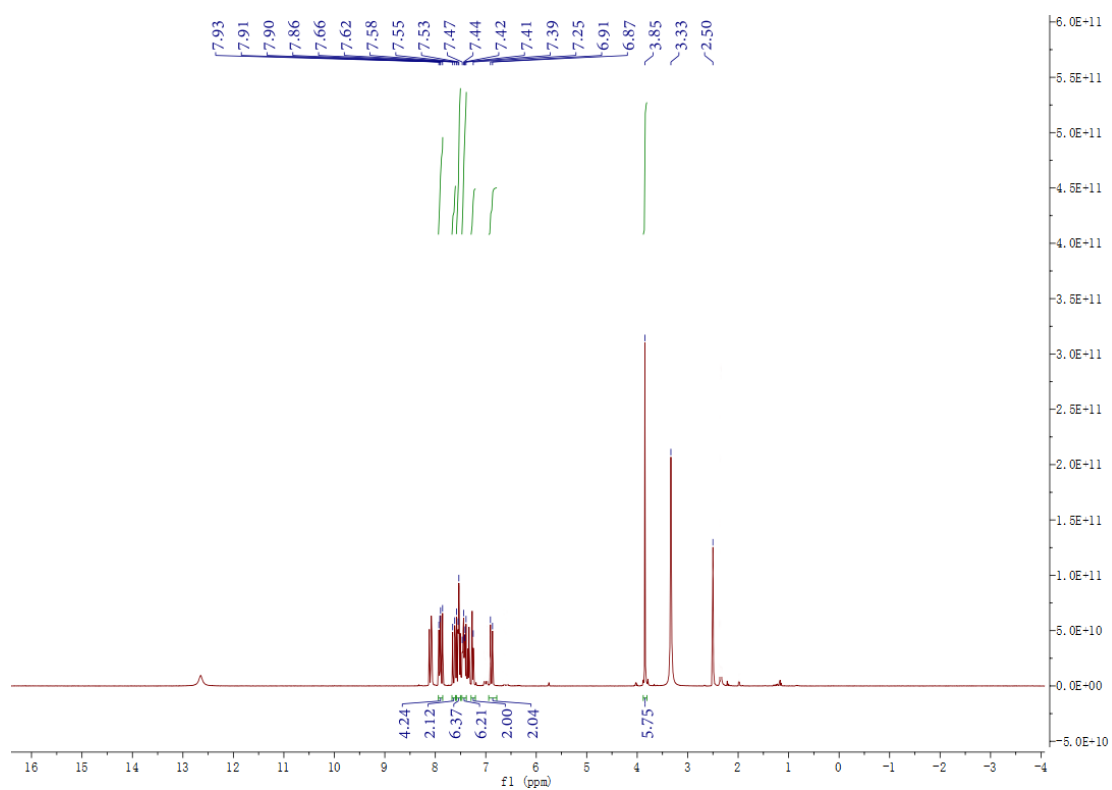
((1E,4E)-3-oxopenta-1,4-diene-1,5-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(4-fluorophenyl)acrylate) (**B1**)



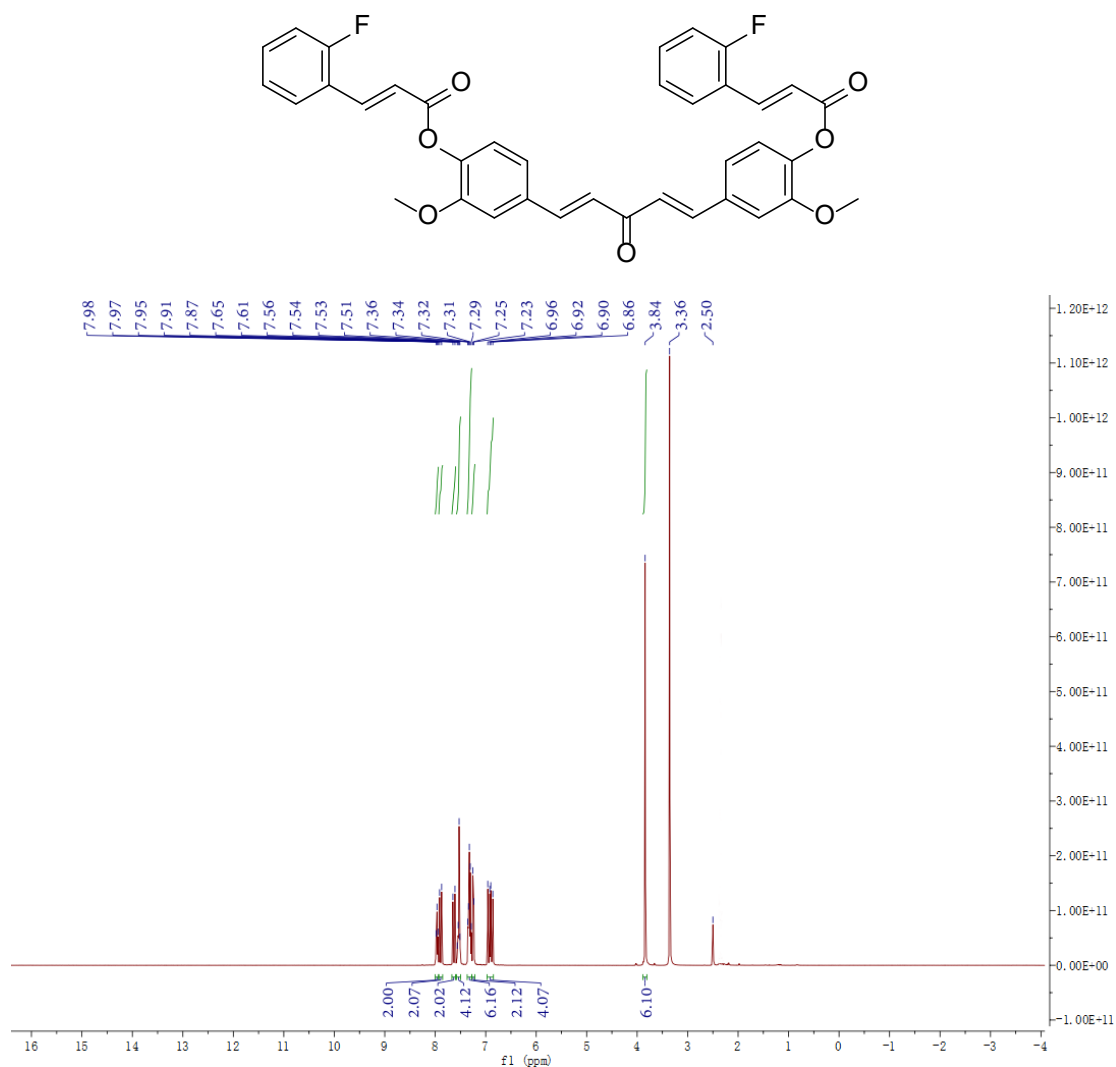


((1E,4E)-3-oxopenta-1,4-diene-1,5-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(2-chlorophenyl)acrylate) (**B2**)

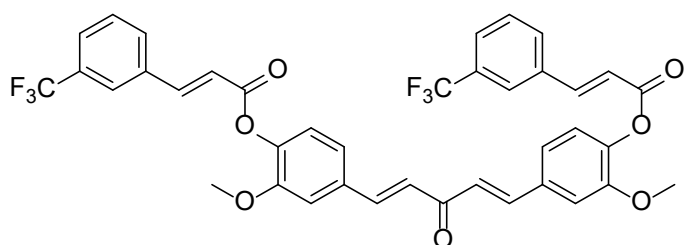


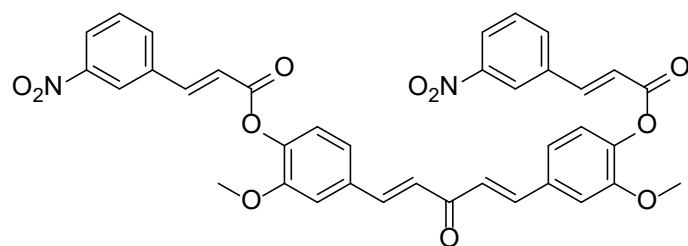
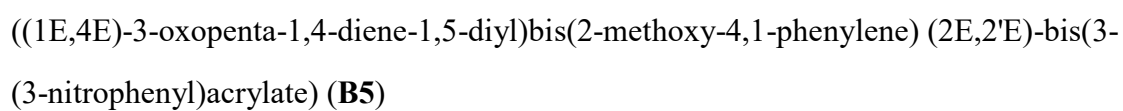


((1E,4E)-3-oxopenta-1,4-diene-1,5-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(2-fluorophenyl)acrylate) (**B3**)

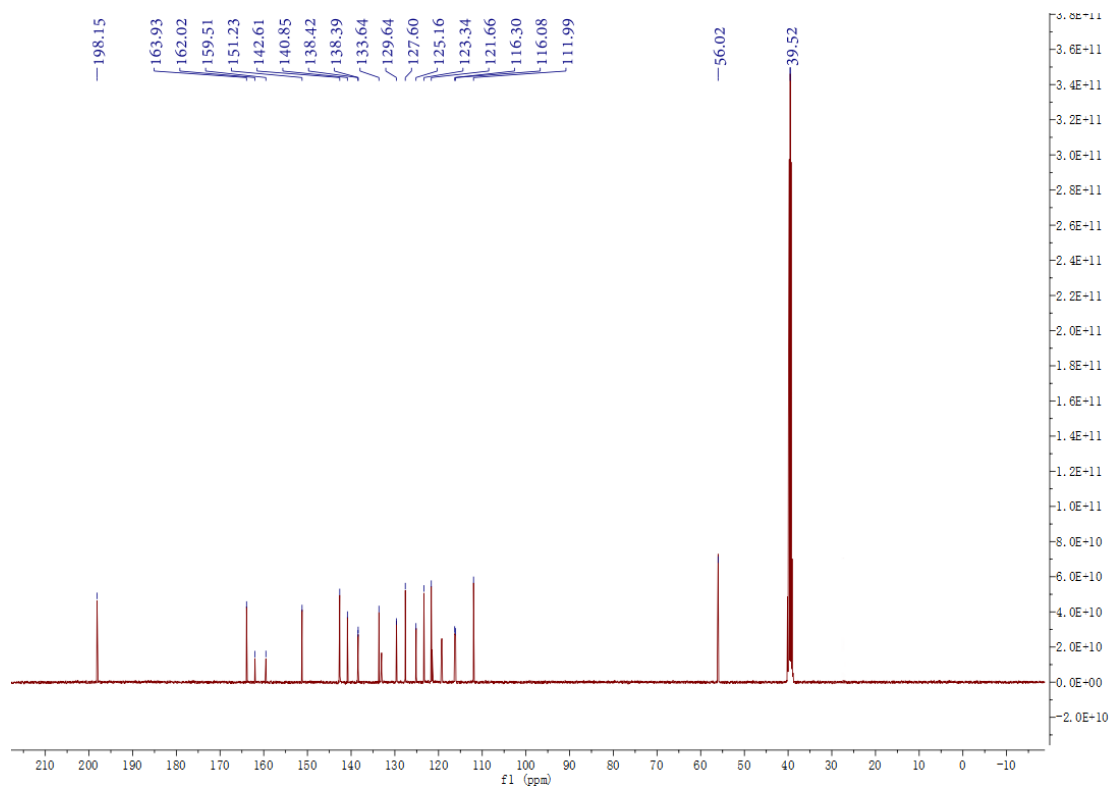
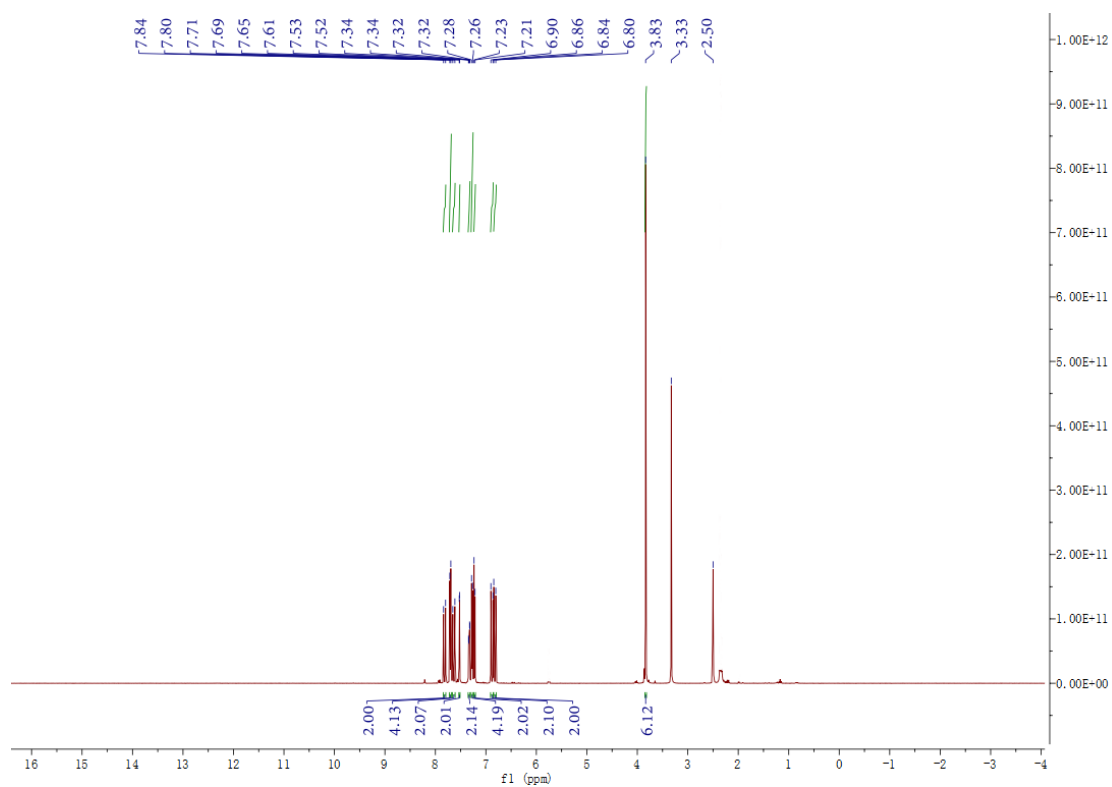


((1E,4E)-3-oxopenta-1,4-diene-1,5-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(3-(trifluoromethyl)phenyl)acrylate) (**B4**)

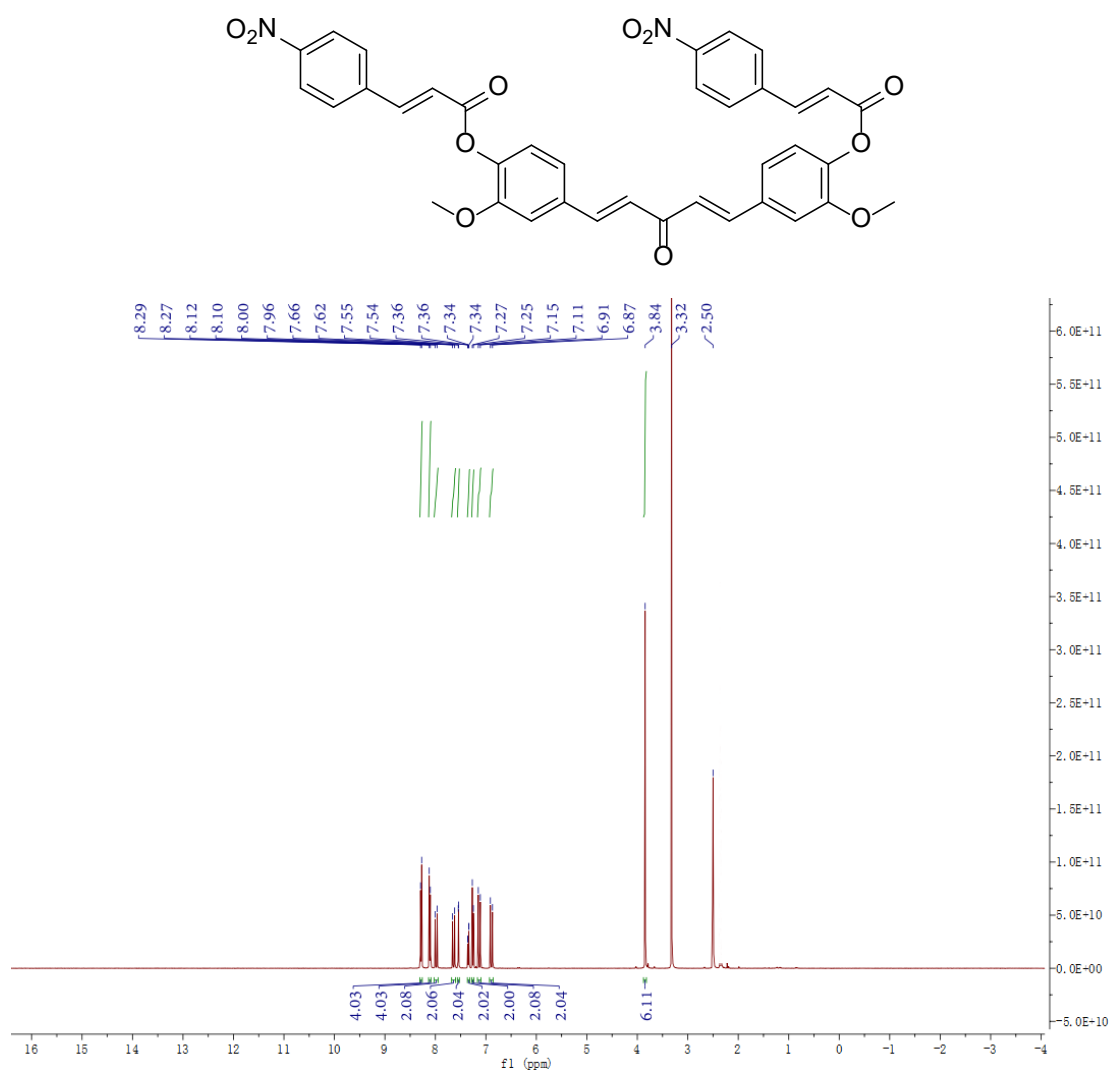




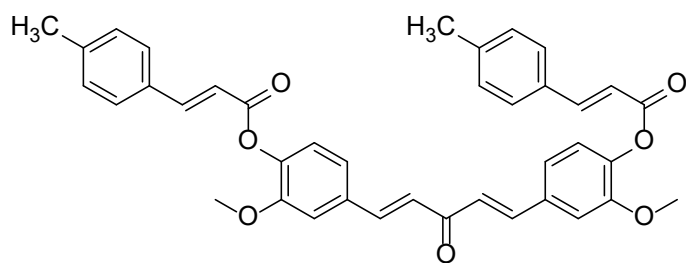


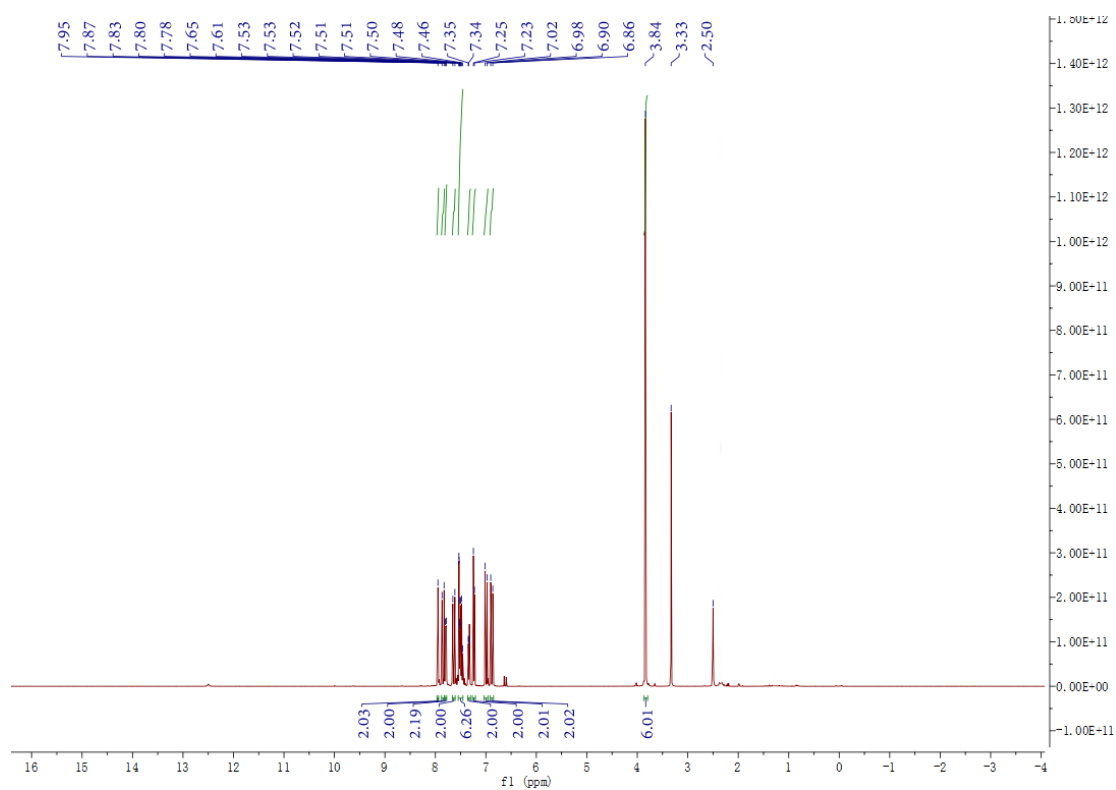


((1E,4E)-3-oxopenta-1,4-diene-1,5-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(4-nitrophenyl)acrylate) (**B6**)



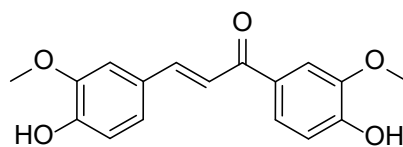
((1E,4E)-3-oxopenta-1,4-diene-1,5-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(p-tolyl)acrylate) (**B7**)

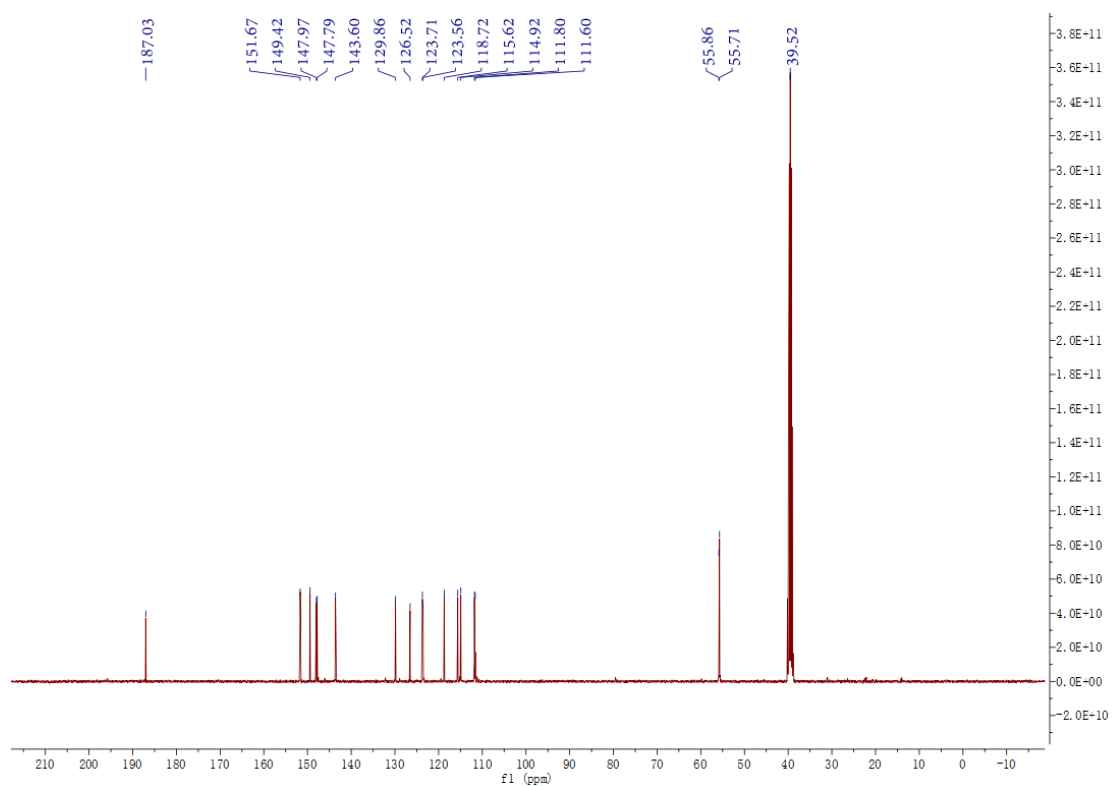
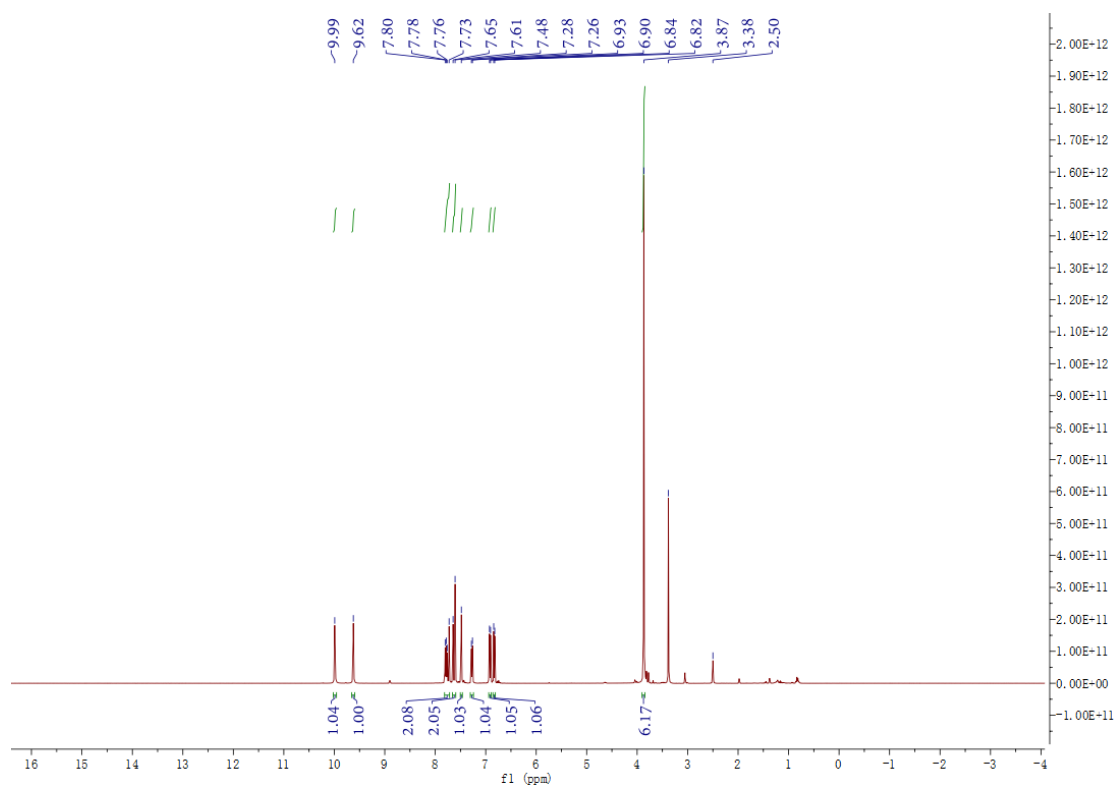




# **<sup>1</sup>H NMR, <sup>13</sup>C NMR of target compounds C1-C6**

**(E)-1,3-bis(4-hydroxy-3-methoxyphenyl)prop-2-en-1-one (8)**

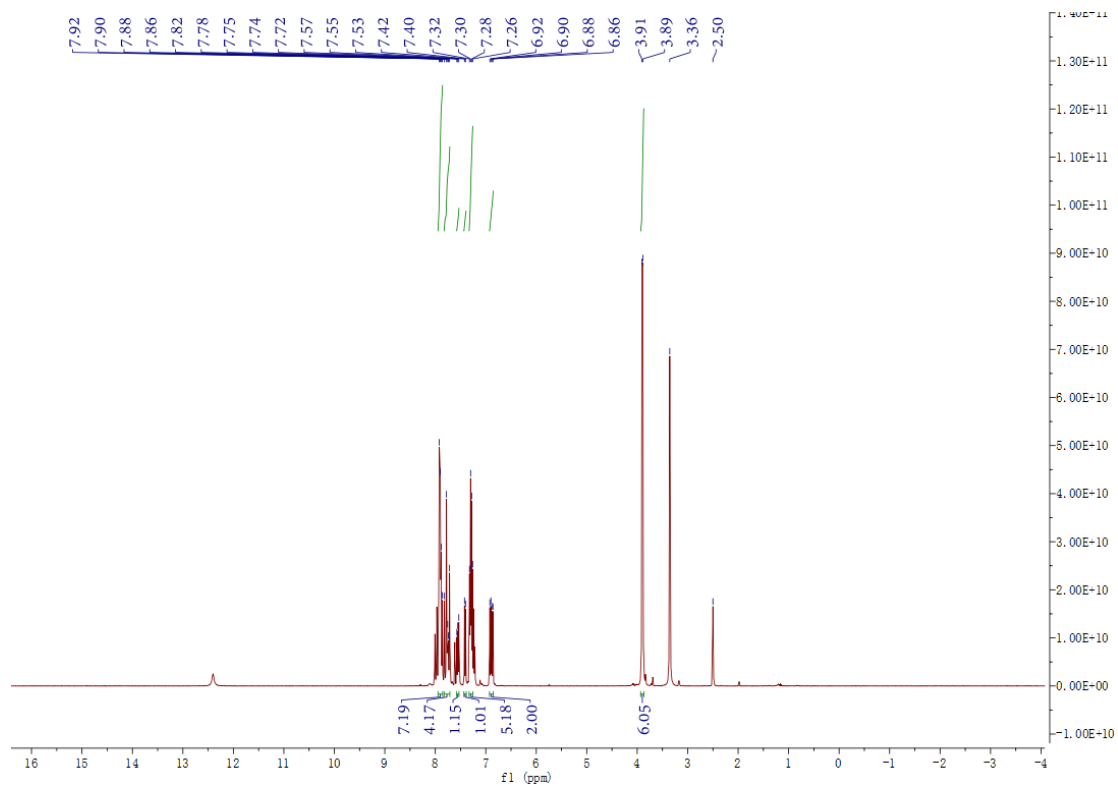
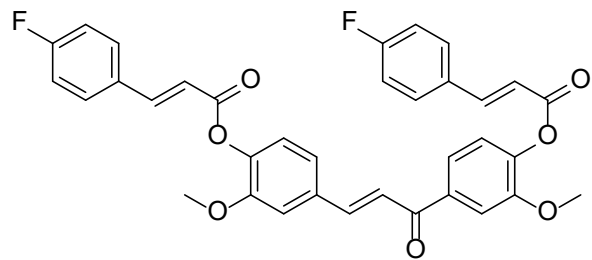


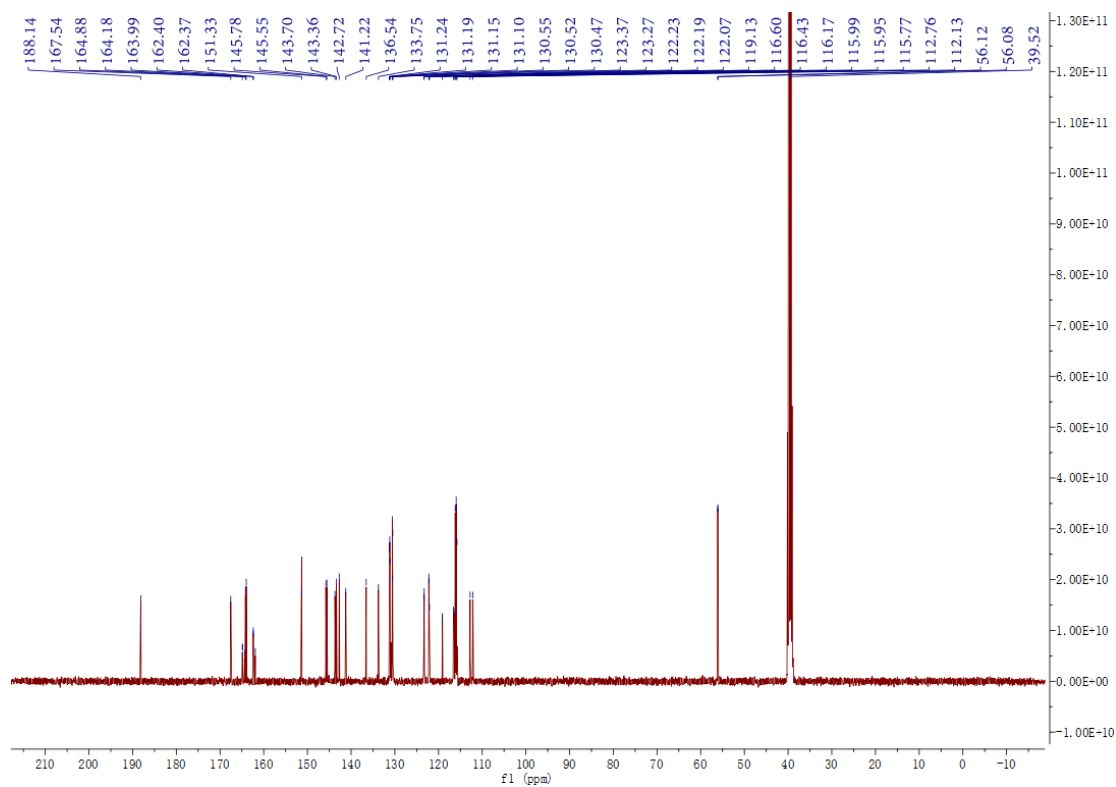


((E)-3-oxoprop-1-ene-1,3-diyl)bis(2-methoxy-4,1-phenylene)

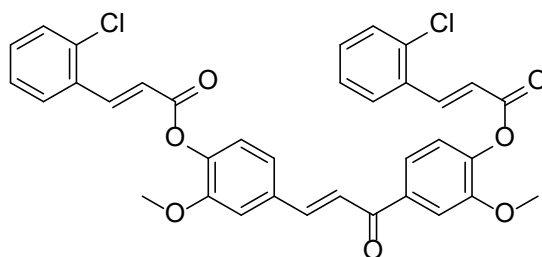
(2E,2'E)-bis(3-(4-

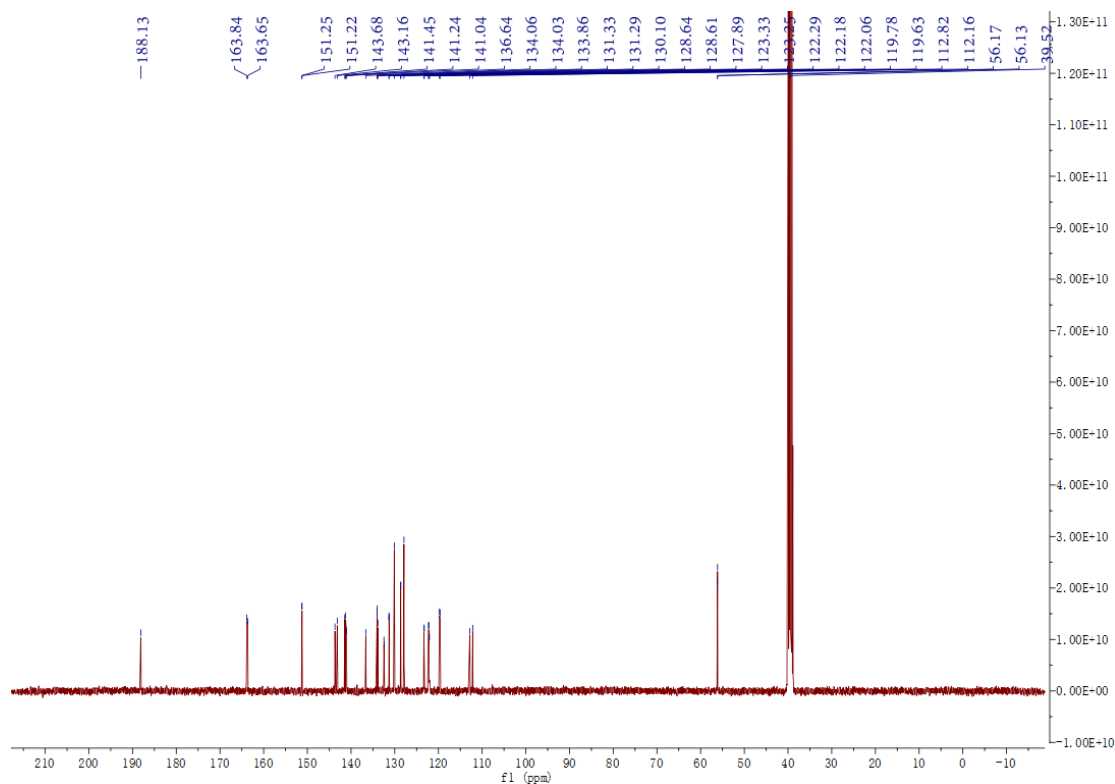
fluorophenyl)acrylate) (C1)



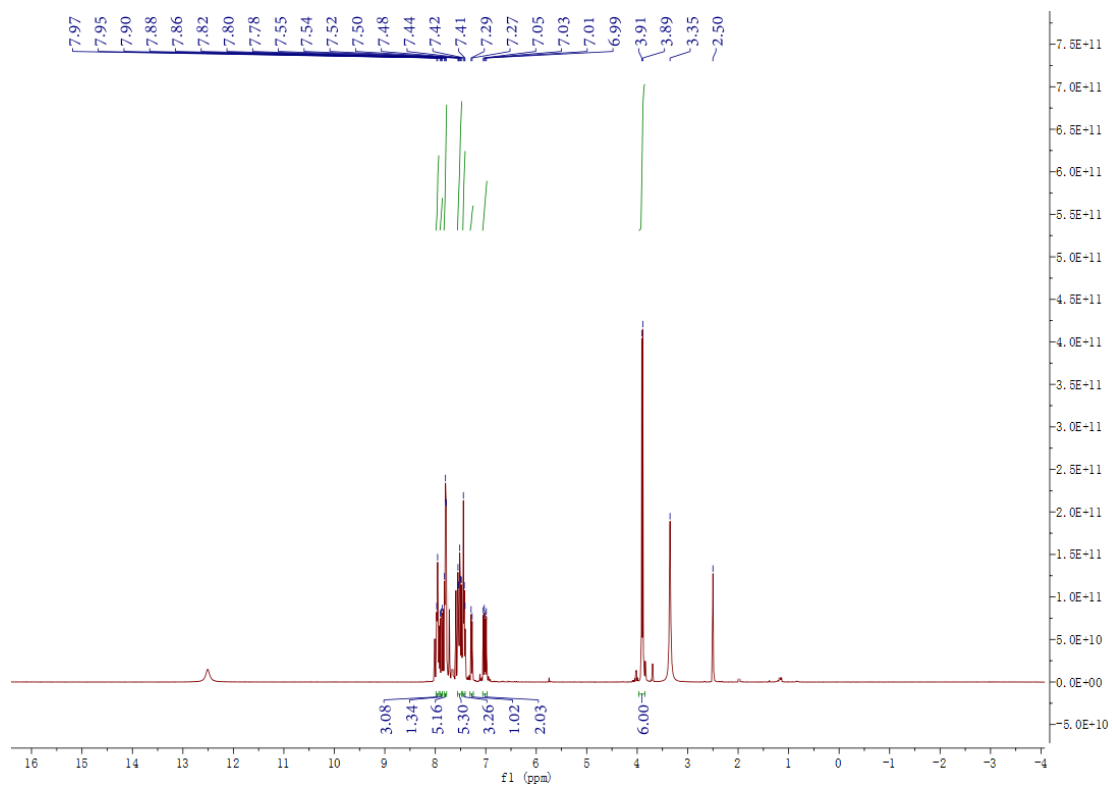
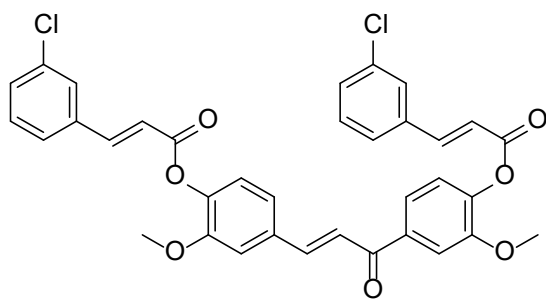


((E)-3-oxoprop-1-ene-1,3-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(2-chlorophenyl)acrylate) (C2)

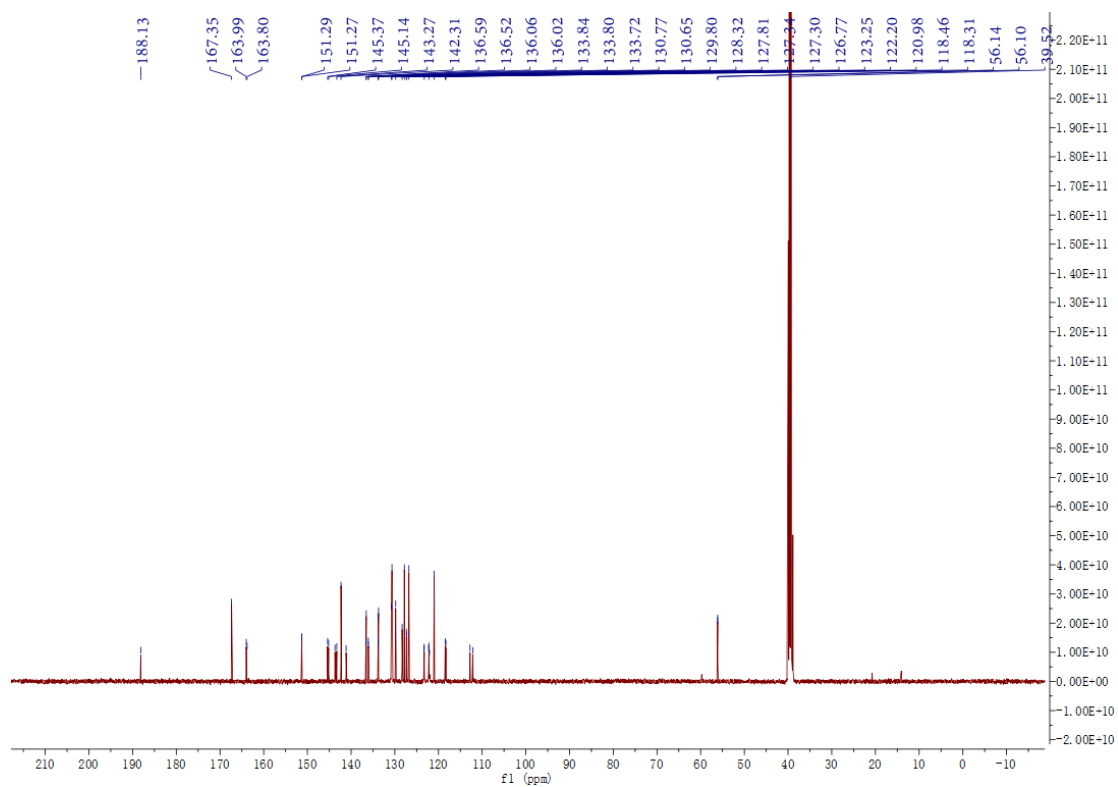




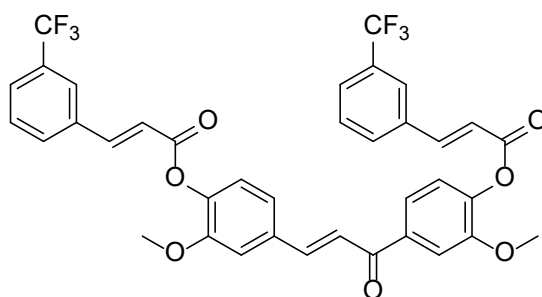
((E)-3-oxoprop-1-ene-1,3-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(3-chlorophenyl)acrylate) (**C3**)

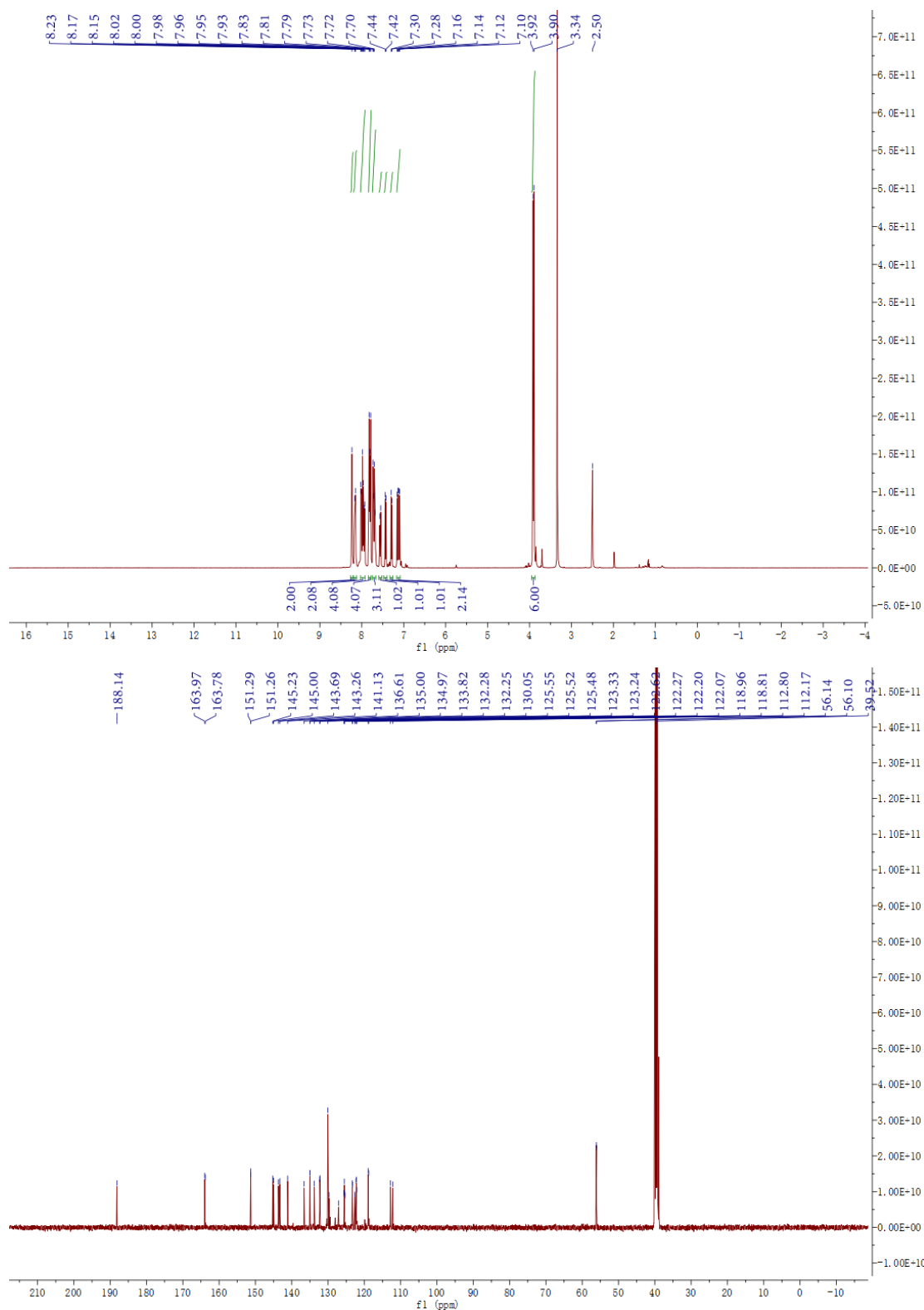




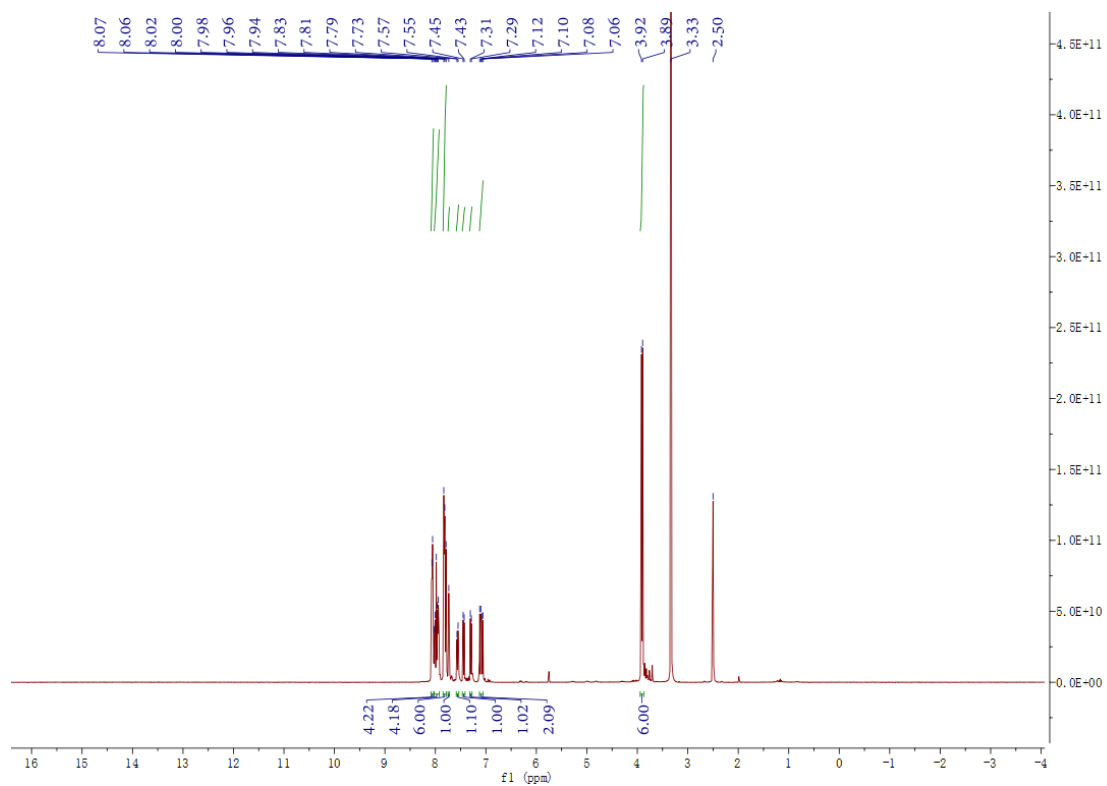
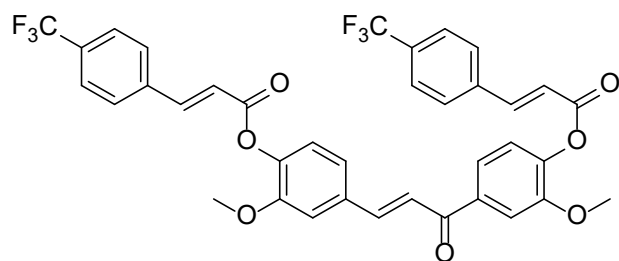


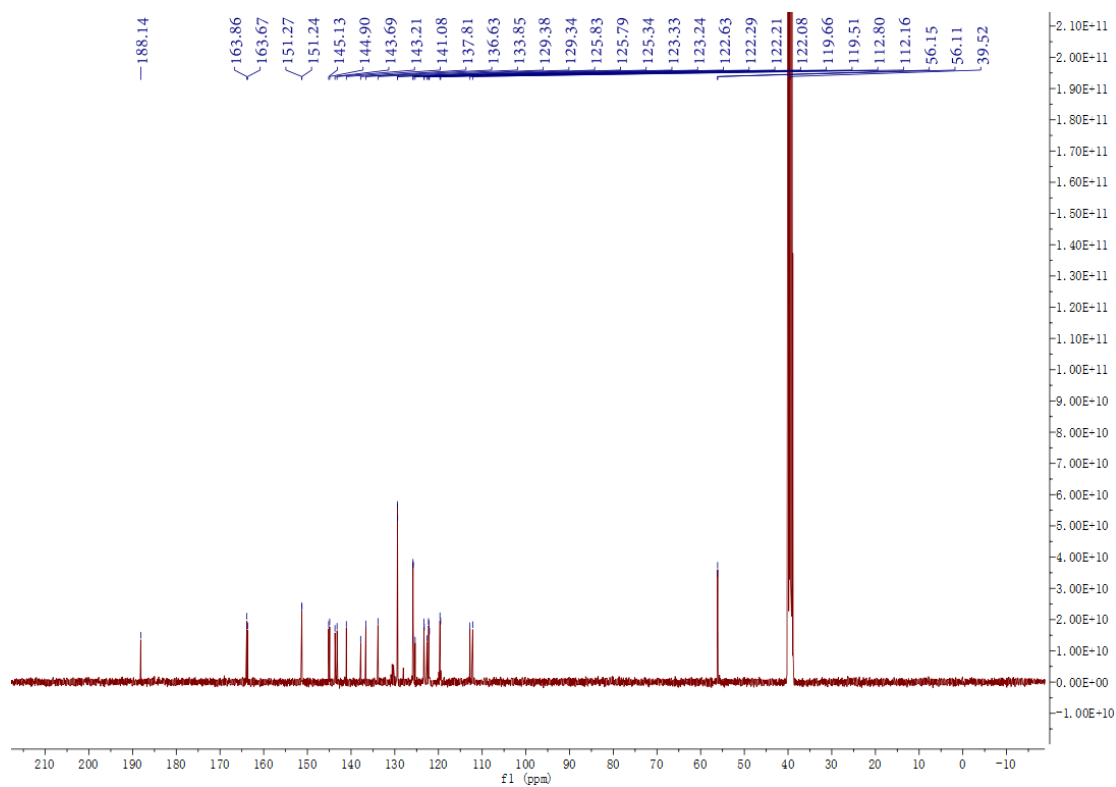
((E)-3-oxoprop-1-ene-1,3-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(3-(trifluoromethyl)phenyl)acrylate) (**C4**)





((E)-3-oxoprop-1-ene-1,3-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(4-(trifluoromethyl)phenyl)acrylate) (C5)





((E)-3-oxoprop-1-ene-1,3-diyl)bis(2-methoxy-4,1-phenylene) (2E,2'E)-bis(3-(p-tolyl)acrylate) (C6)

