

An Efficient Synthesis of Spiro[indoline-3,9'-xanthene]trione Derivatives Catalyzed by Magnesium Perchlorate

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Received Date; Accepted Date

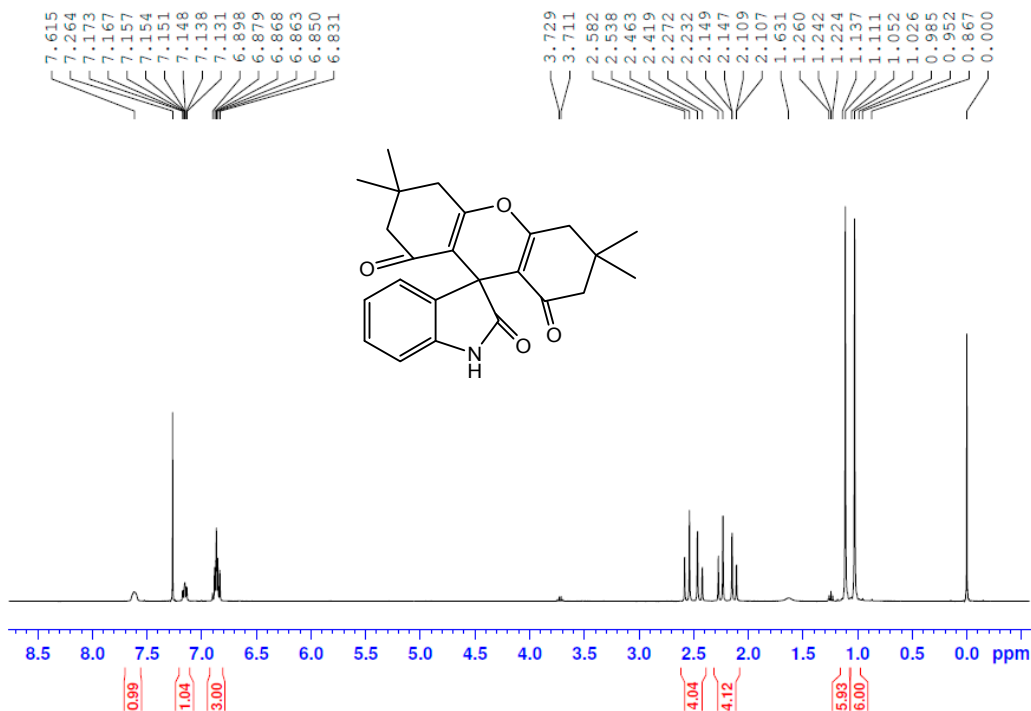
Abstract : A simple and efficient method for the synthesis of spiro[indoline-3,9'-xanthene]trione derivatives by means of condensation between isatins and 1,3-cyclohexanedione in the presence of catalytic amount of magnesium perchlorate at 80 °C in 50% aqueous ethanol medium has been described. Notably, the present method offers desirable advantages of good yields, simplicity of work-up procedure, easy purification, reduced reaction times.

Keywords : Aqueous; isatin; spiro[indoline-3,9'-xanthene]trione; magnesium perchlorate

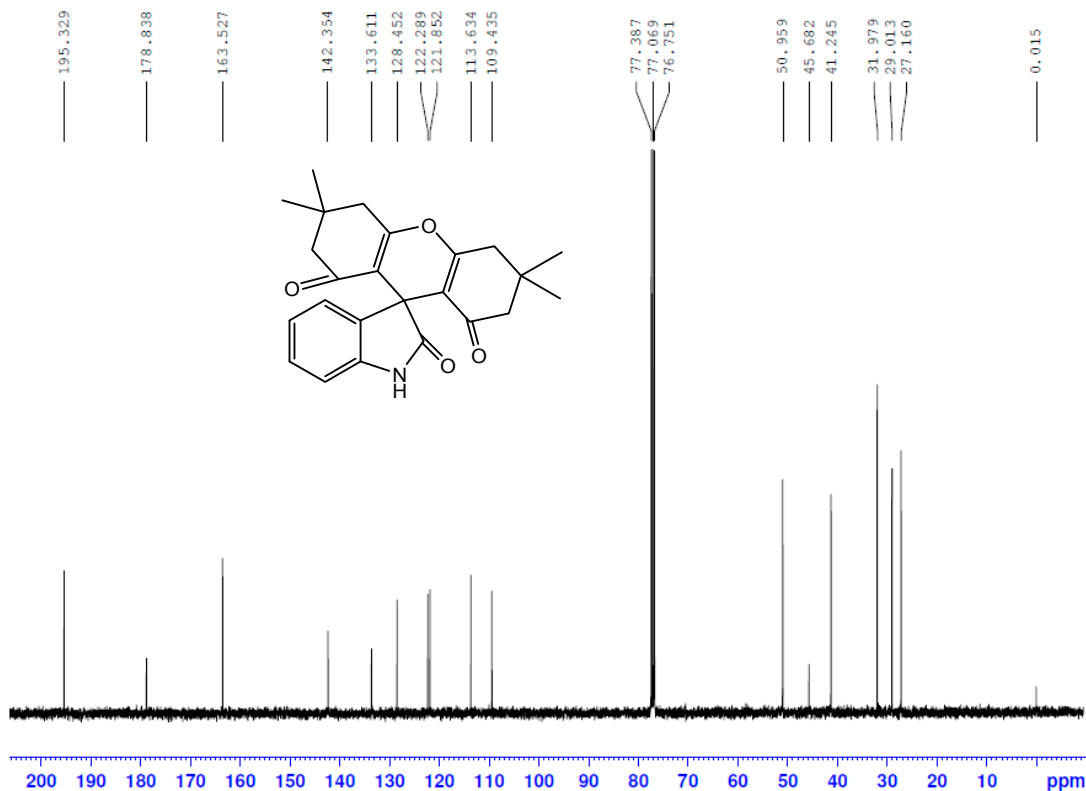
The ^1H NMR and ^{13}C NMR spectrum of the product 3a-3m:

3',3',6',6'-Tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione (3a)

131125-1H-475-CDCl₃-3

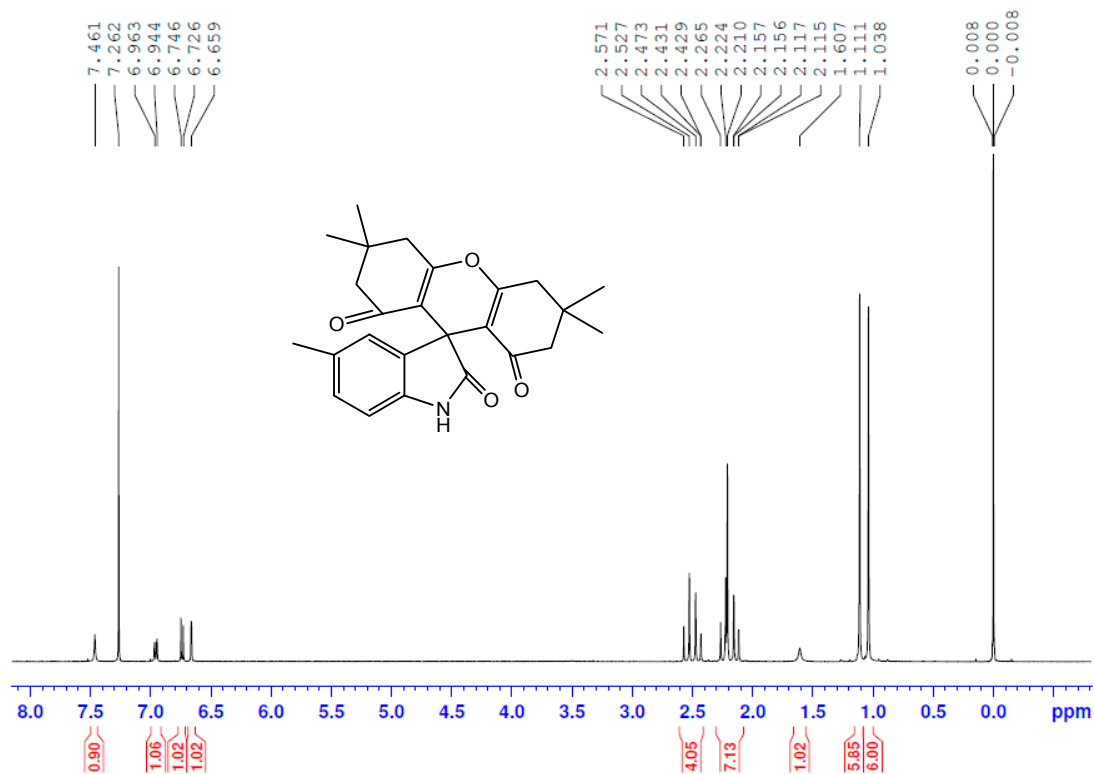


131126-CDCl₃-13C-515-3

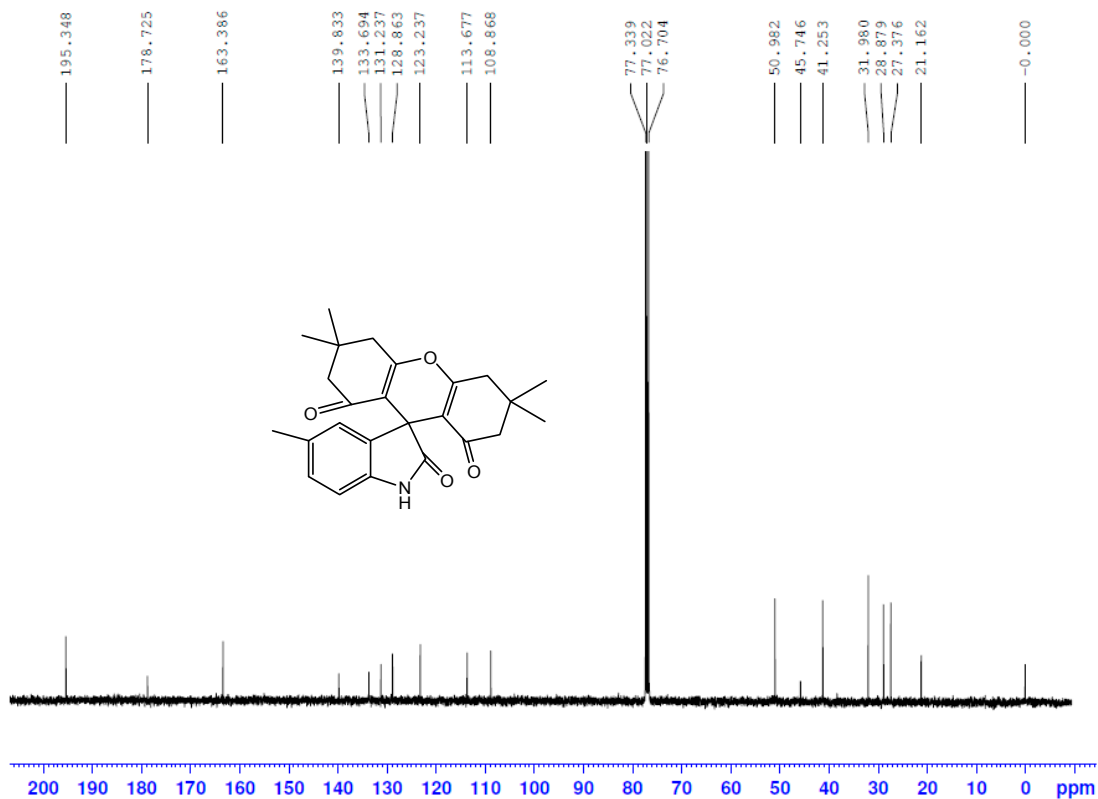


5,3',3',6',6'-Pentamethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]- 1',2,8' (2'H, 5'H)-trione(3b)

131118-1H-338-CDCl3-5

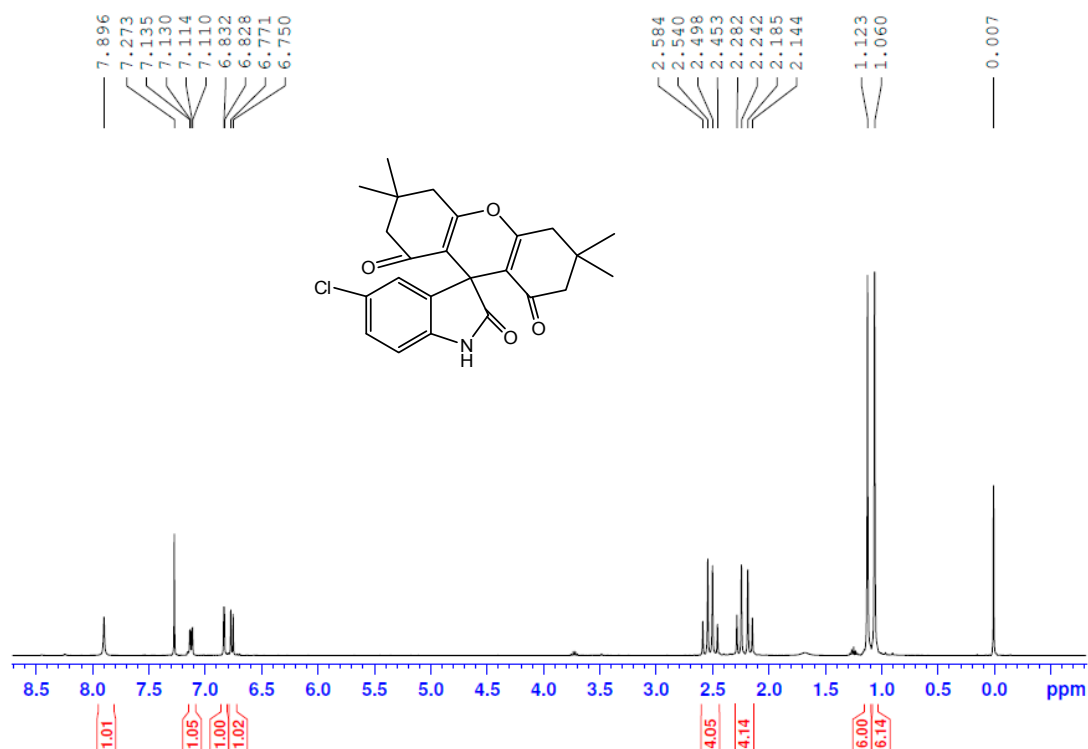


131119-360-13C-CDCl3-5

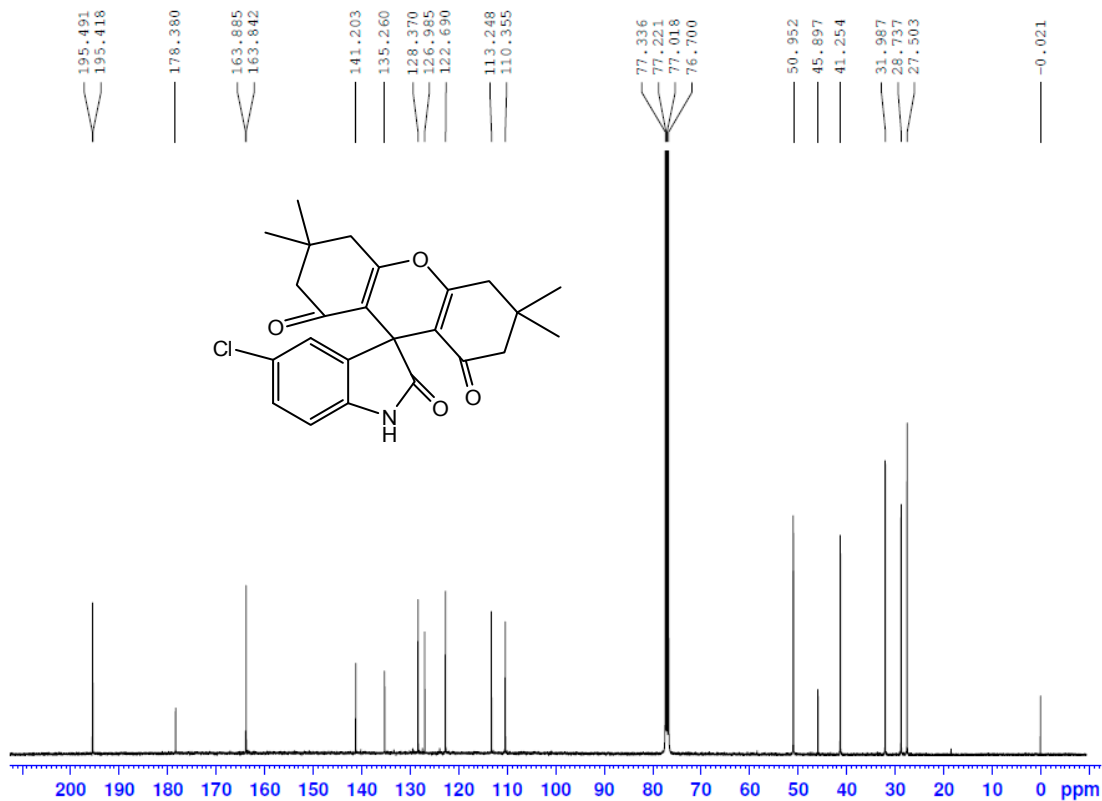


5-Chloro-3',3',6',6'-tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'- xanthene]-1',2,8'(2'H, 5'H)-trione (3c)

1311104-27-1H-CDC13

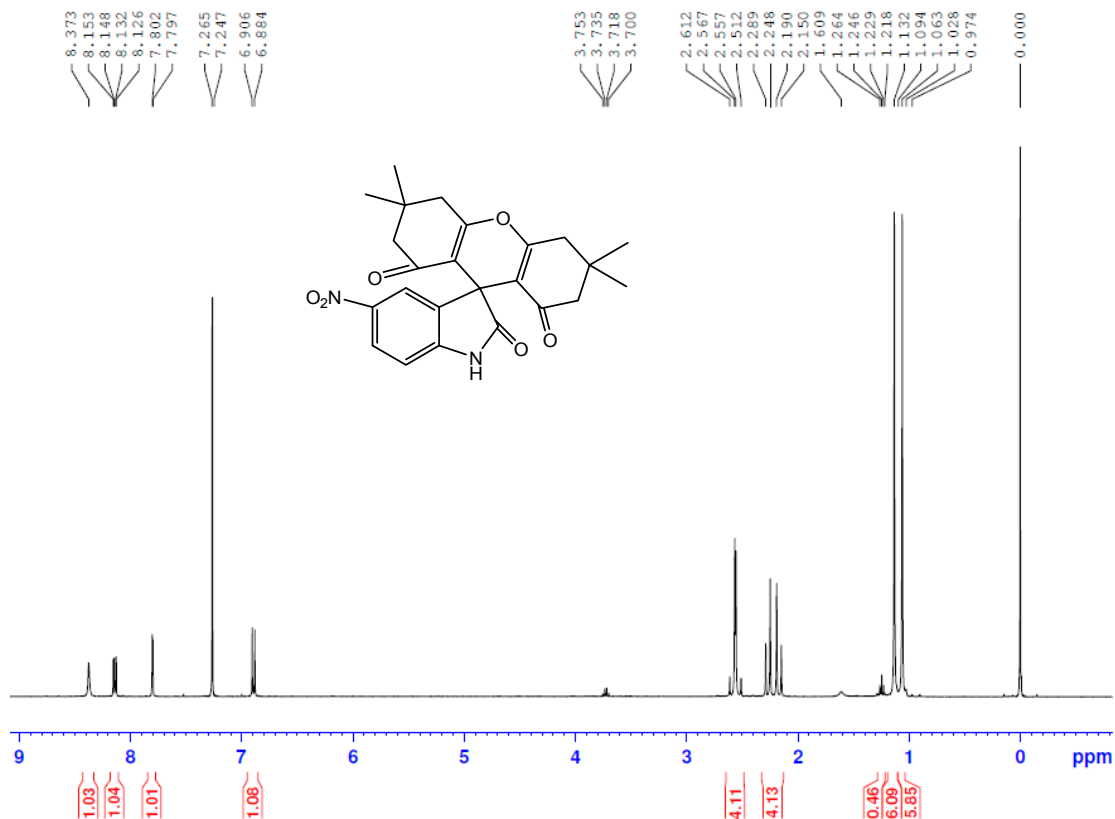


131105-761-13C-CDC13

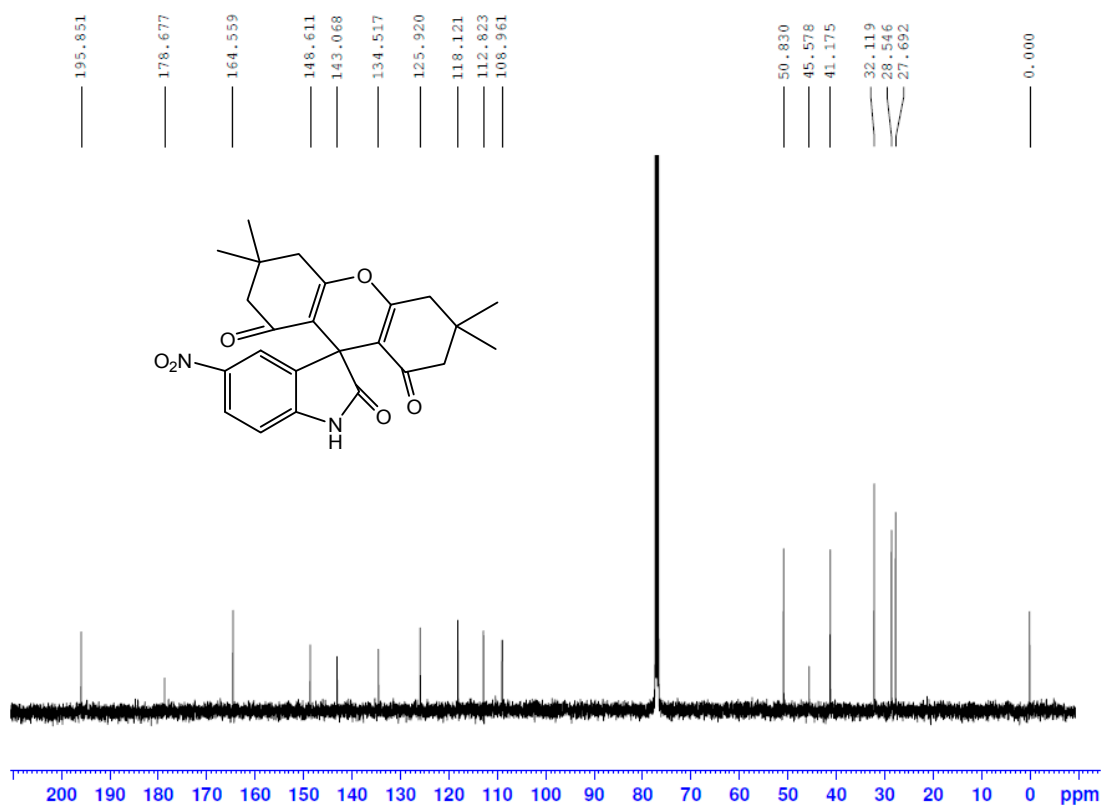


5-Nitro-3',3',6',6'-tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione (3d)

131219-281-1H-CDC13-1

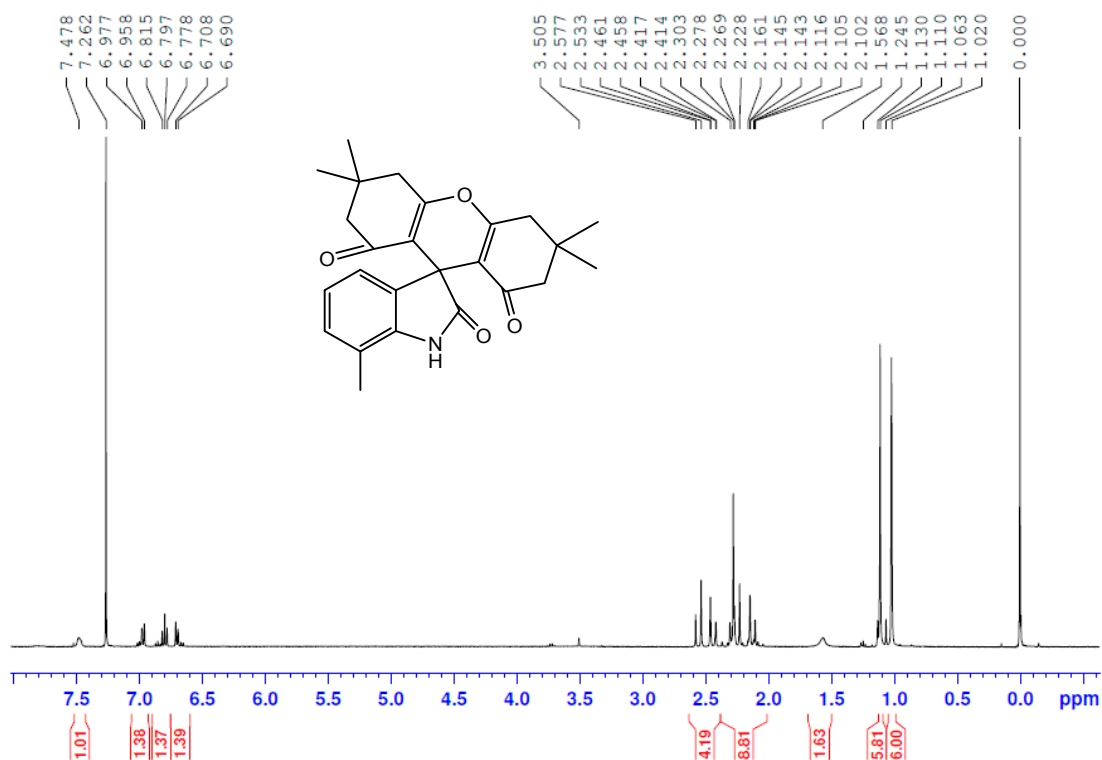


131220-360-13C-CDC13-1

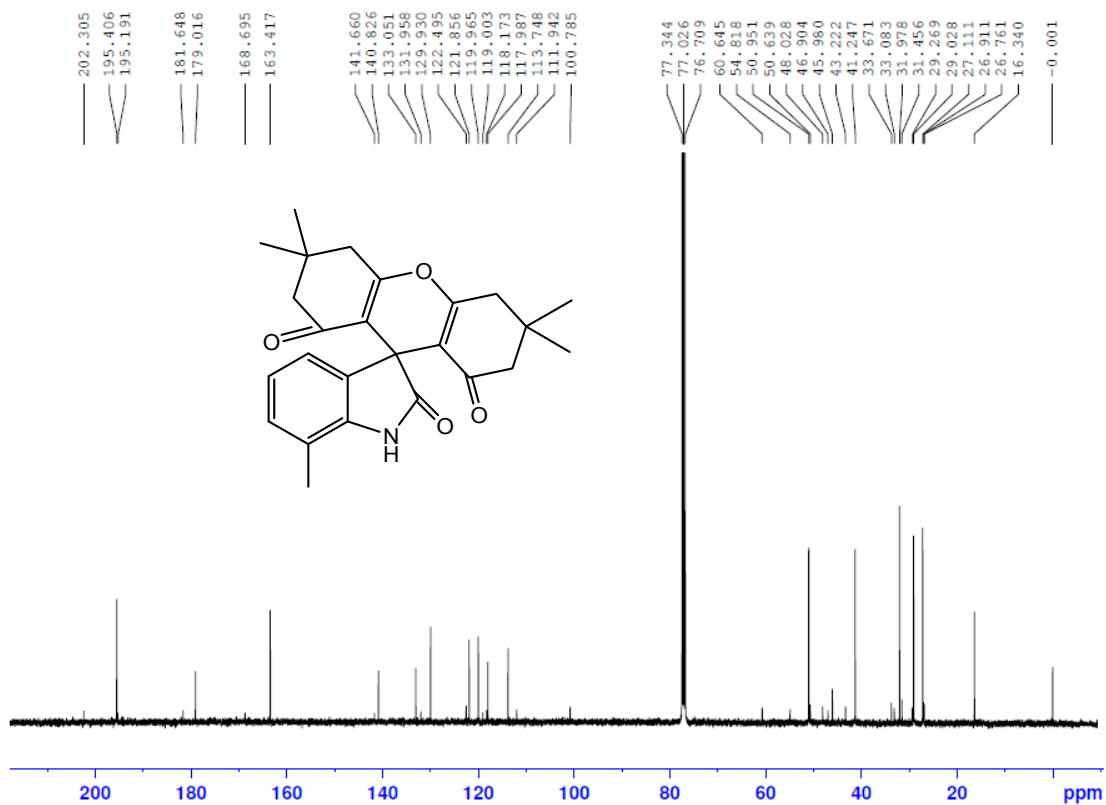


**7,3',3',6',6'-Pentamethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]
1',2,8'(2*H*, 5'*H*)-trione (3e).**

131118-1H-339-CDC13-6

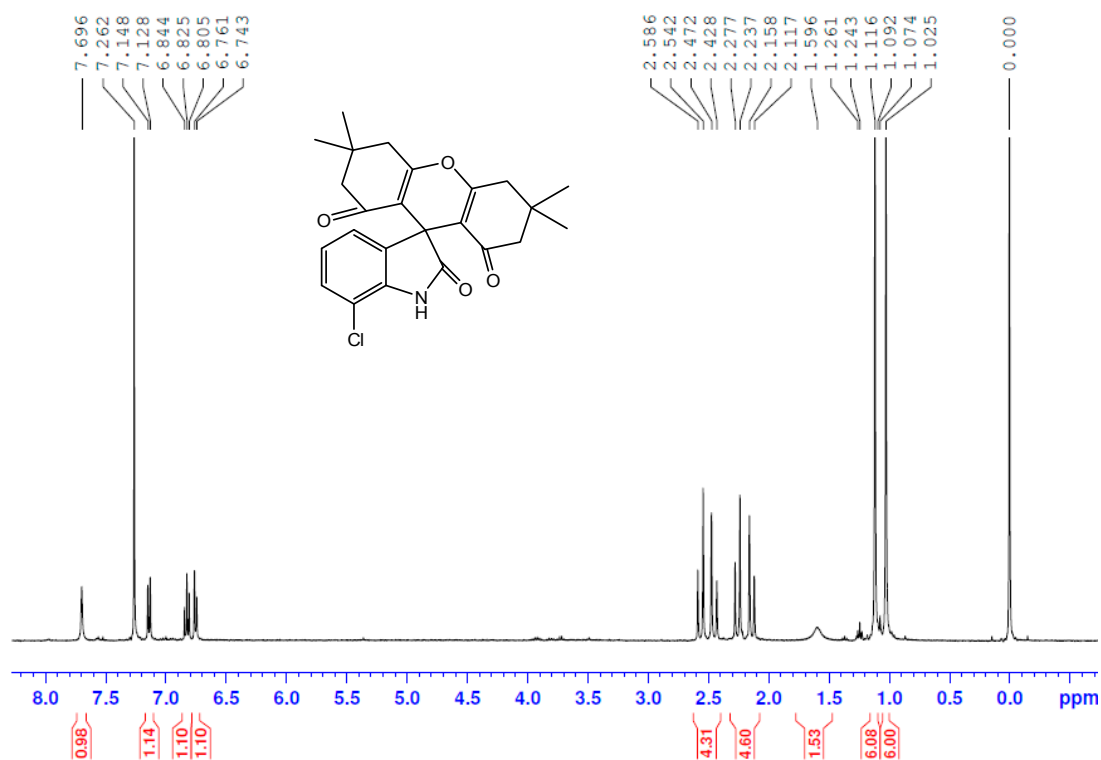


131119-361-13C-CDC13-6

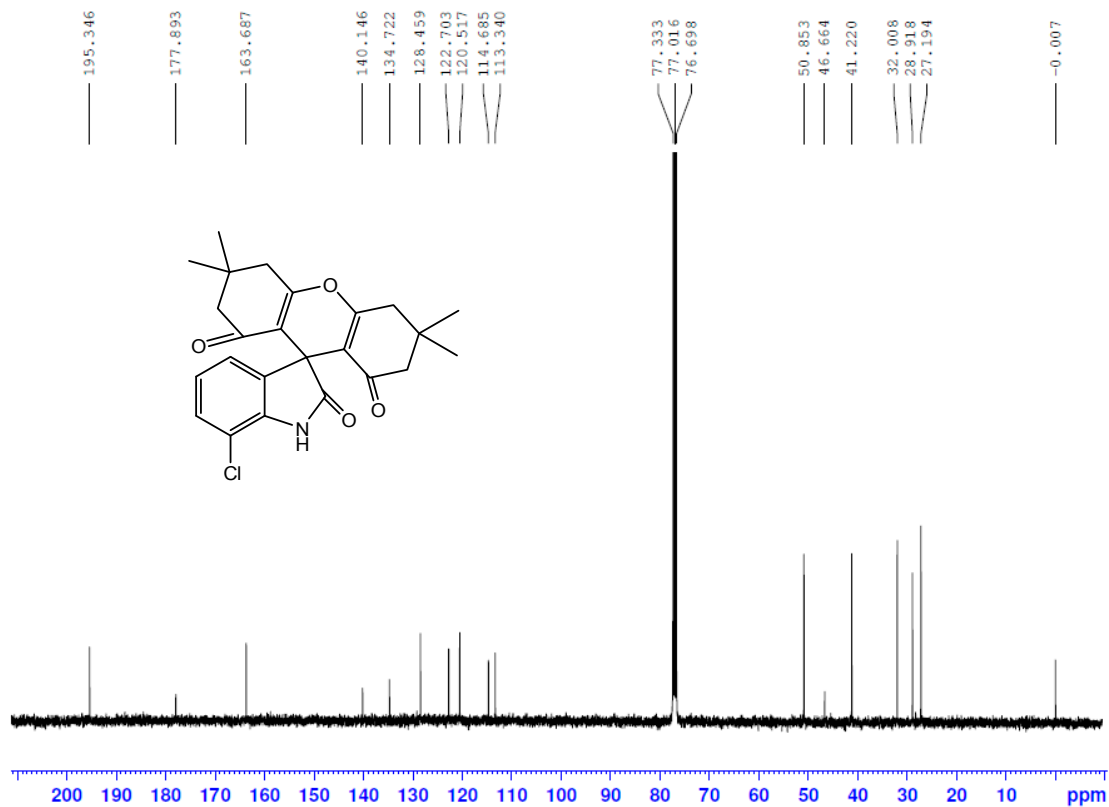


7-Chloro-3',3',6',6'-tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'- xanthene]-1',2,8'(2'H, 5'H)-trione (3f)

131118-1H-337-CDC13-4

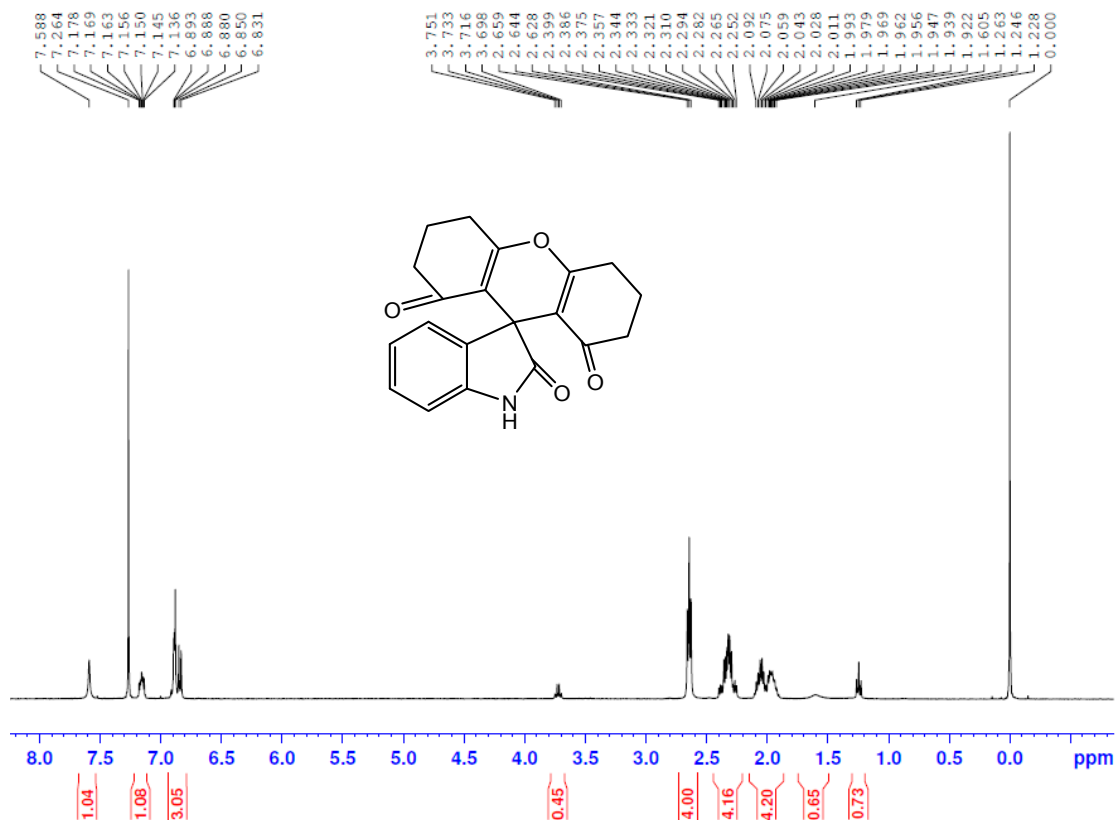


131119-359-13C-CDC13-4

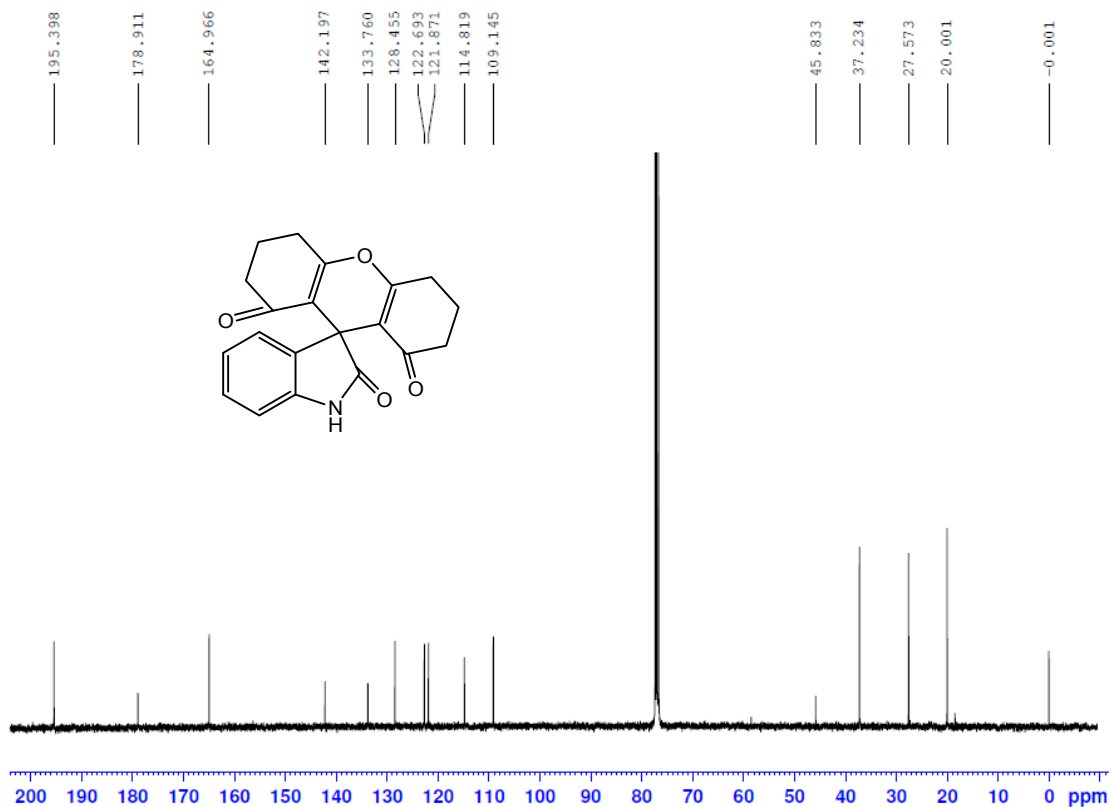


3',4',6',7'-Tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione (3g)

131219-284-1H-CDC13-4

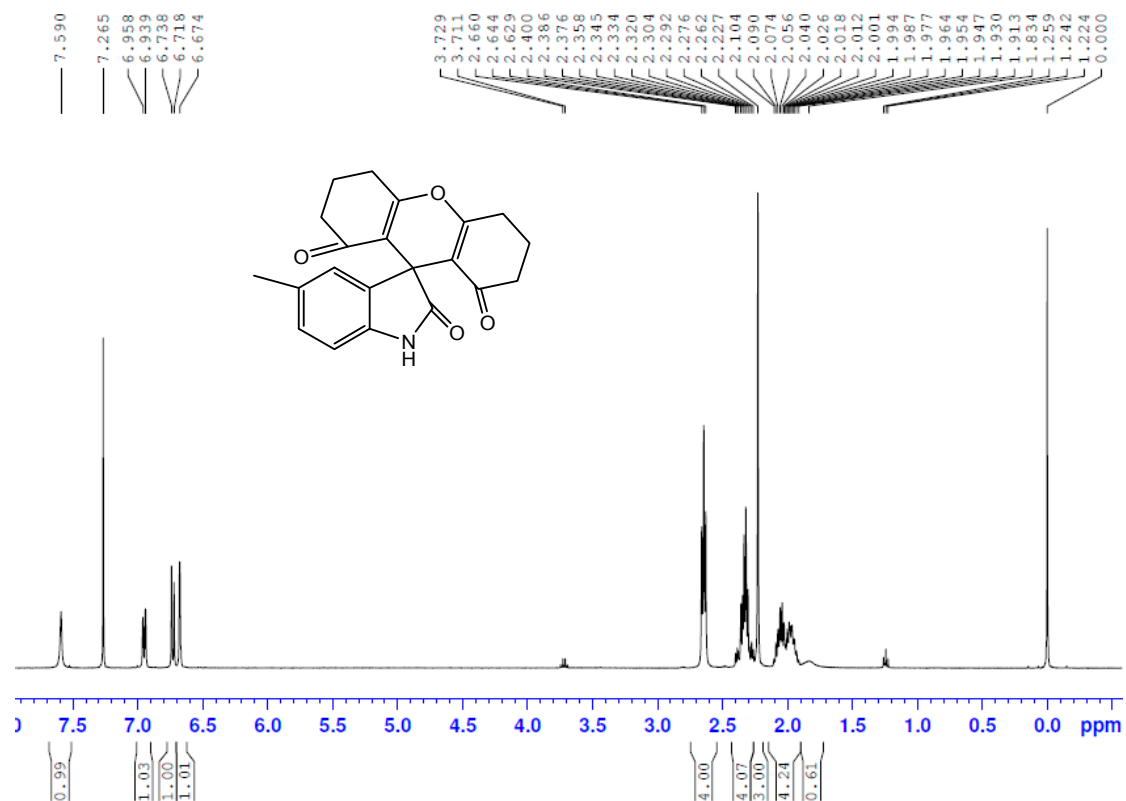


131220-361-CDCl3-4

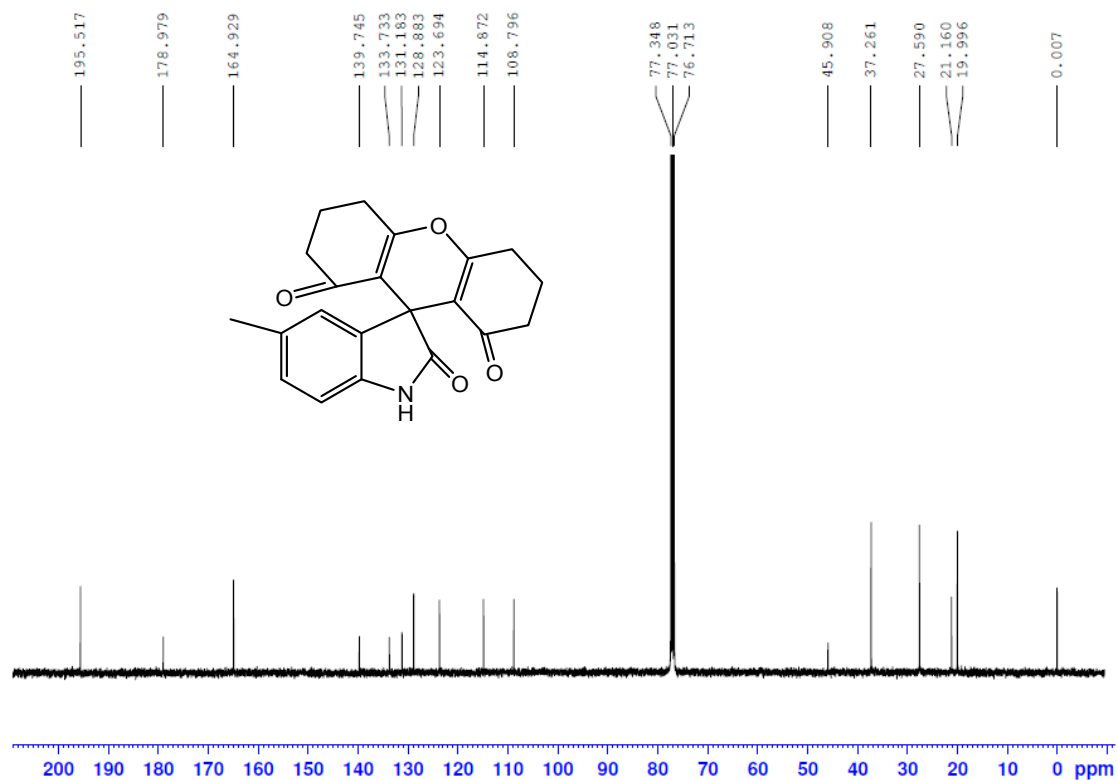


5-Methyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'*H*, 5'*H*)-trione (3h)

140425-451-HNMR-yangzaen

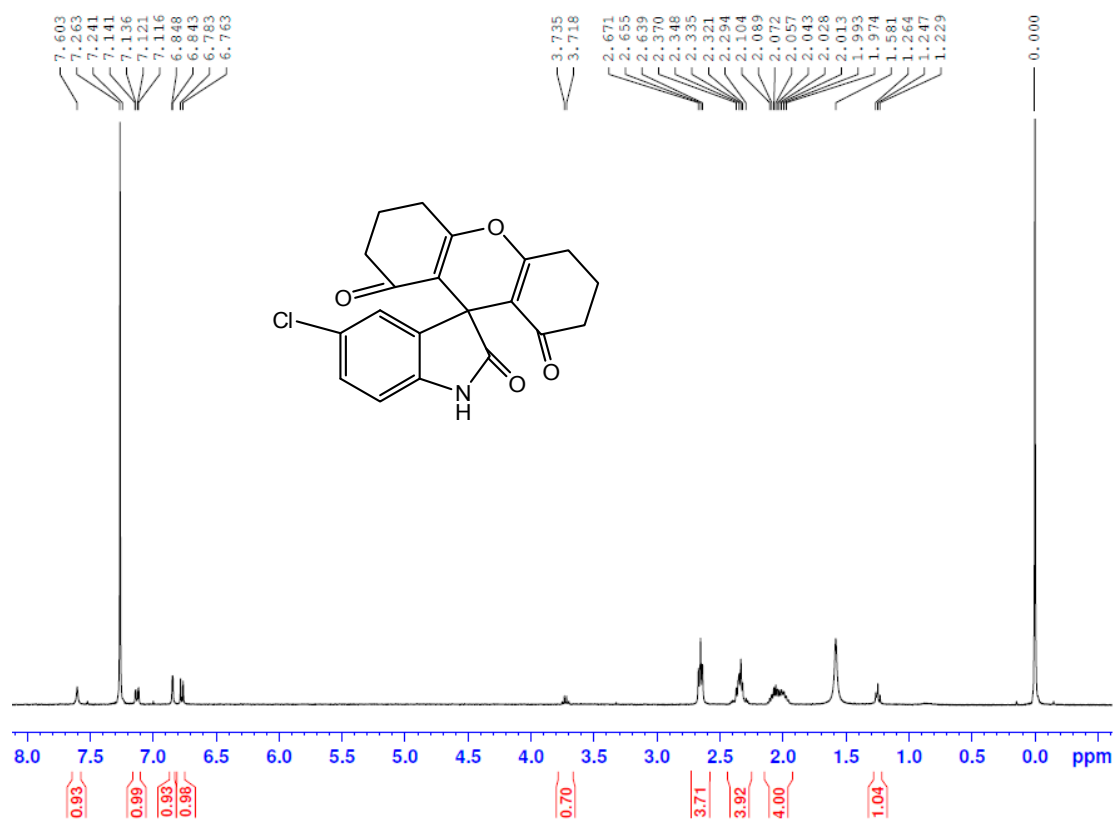


140428-506-CDC13-yangzaen

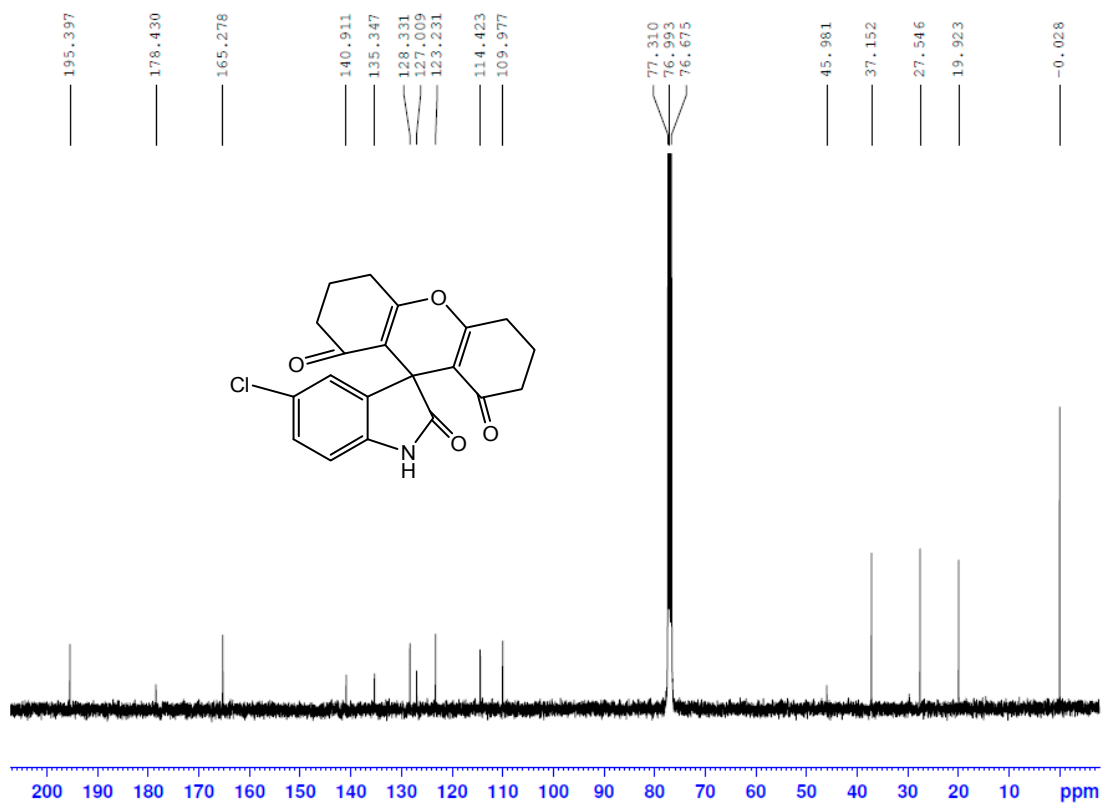


5-Chloro-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione
(3i)

131209-151-CDCl₃-1H

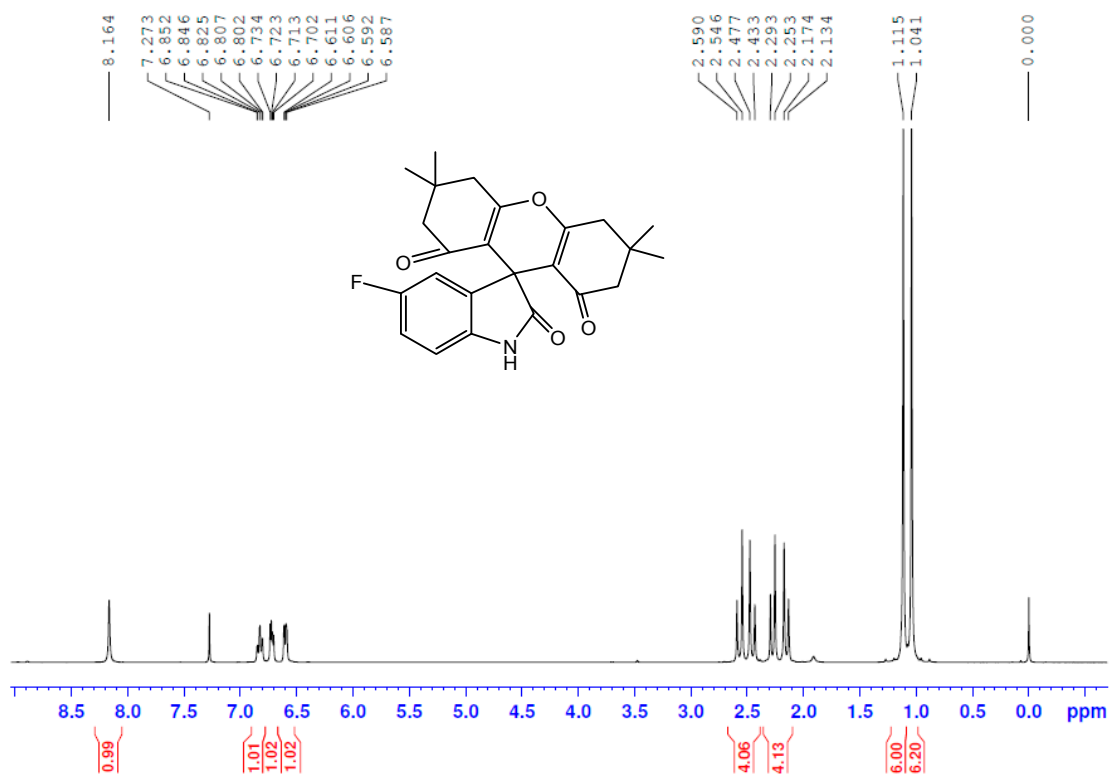


131210-159-CDCl₃-duilvdianhong

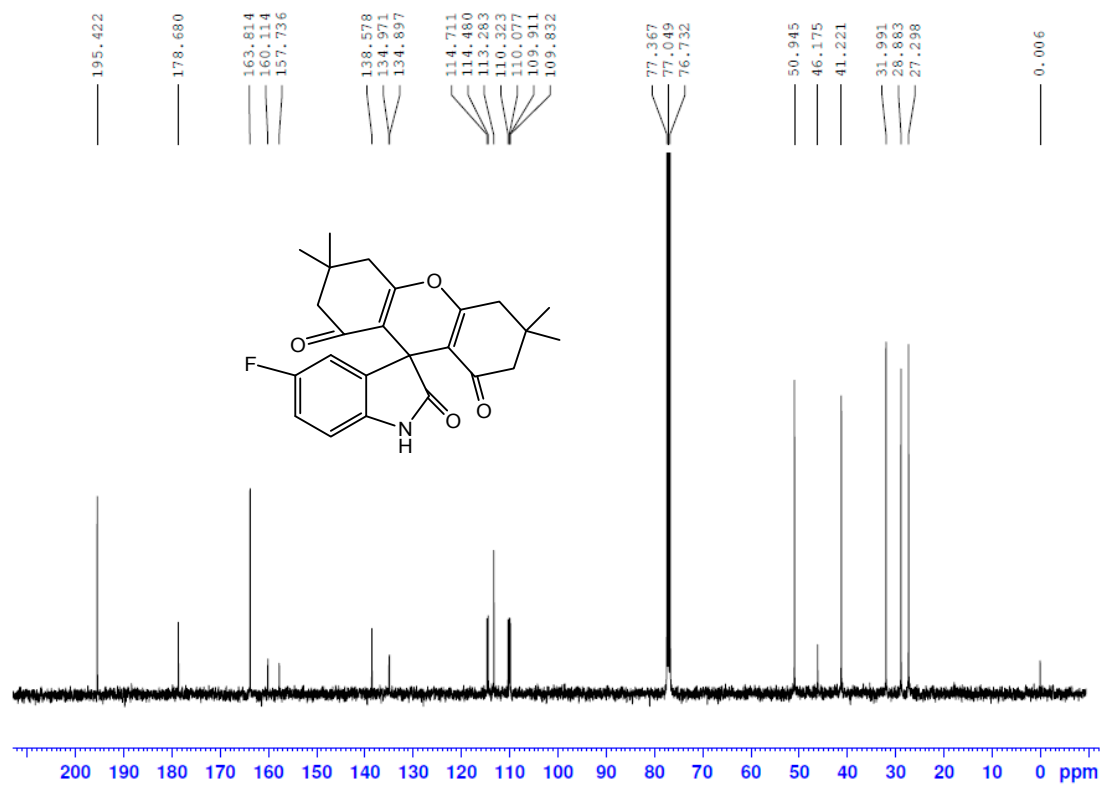


5-Fuloro-3',3',6',6'-tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'- xanthene]-1',2,8'(2'H, 5'H)-trione (3j)

141003-13-cdcl3

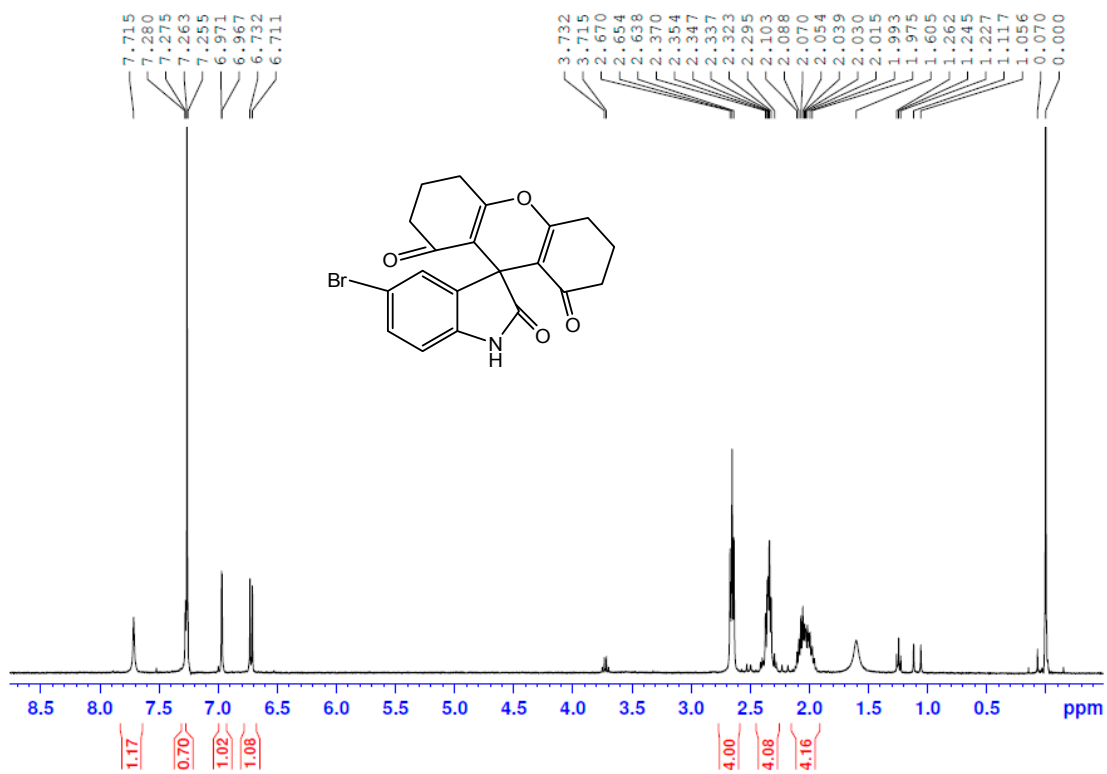


141008-131

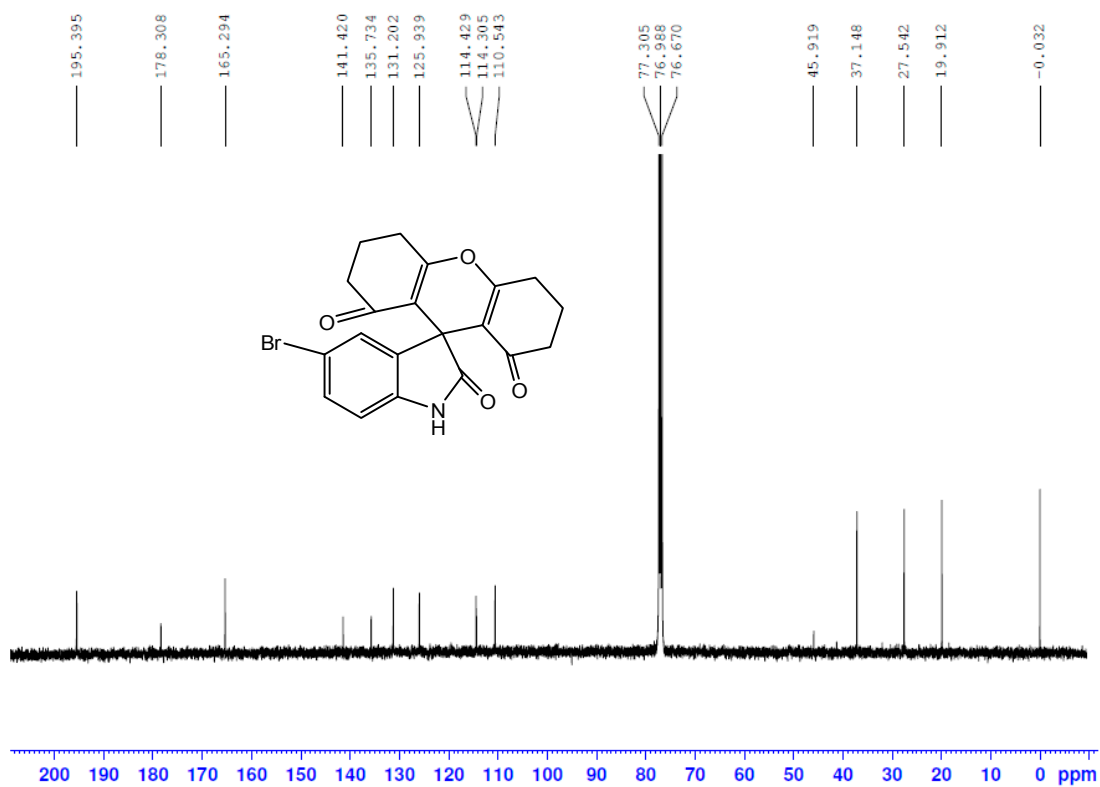


5-Bromo-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione (3k)

140928-426-2

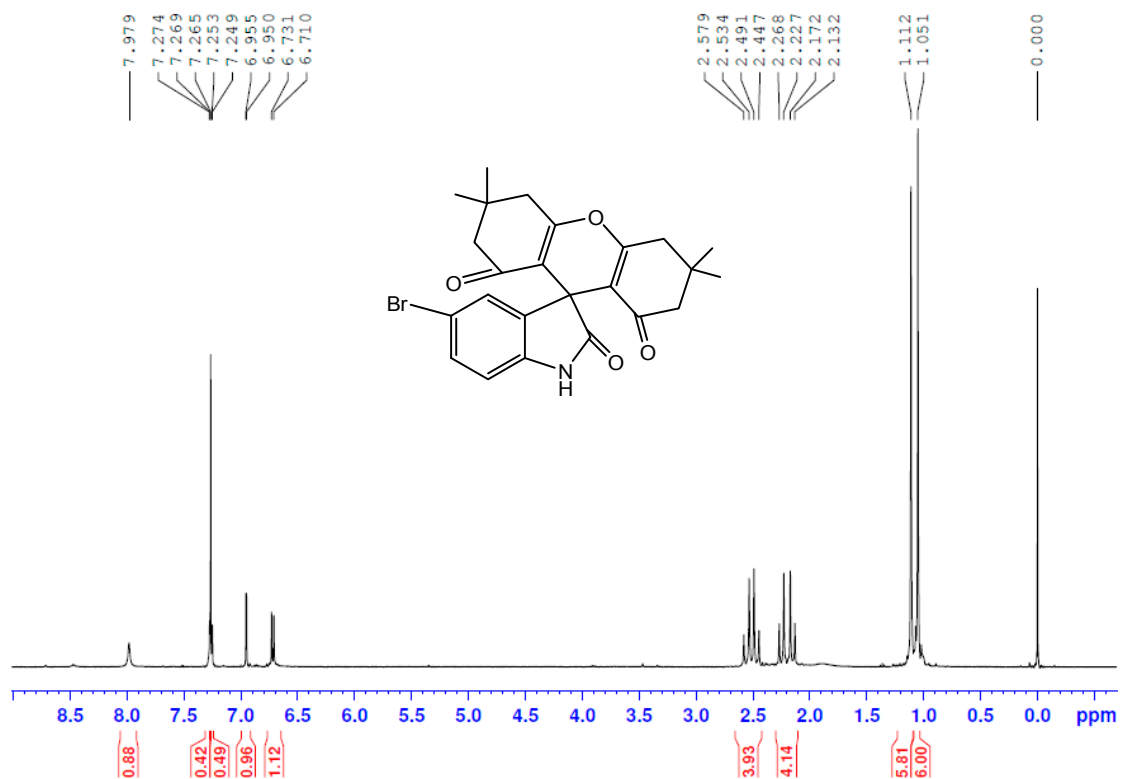


140928-454-2

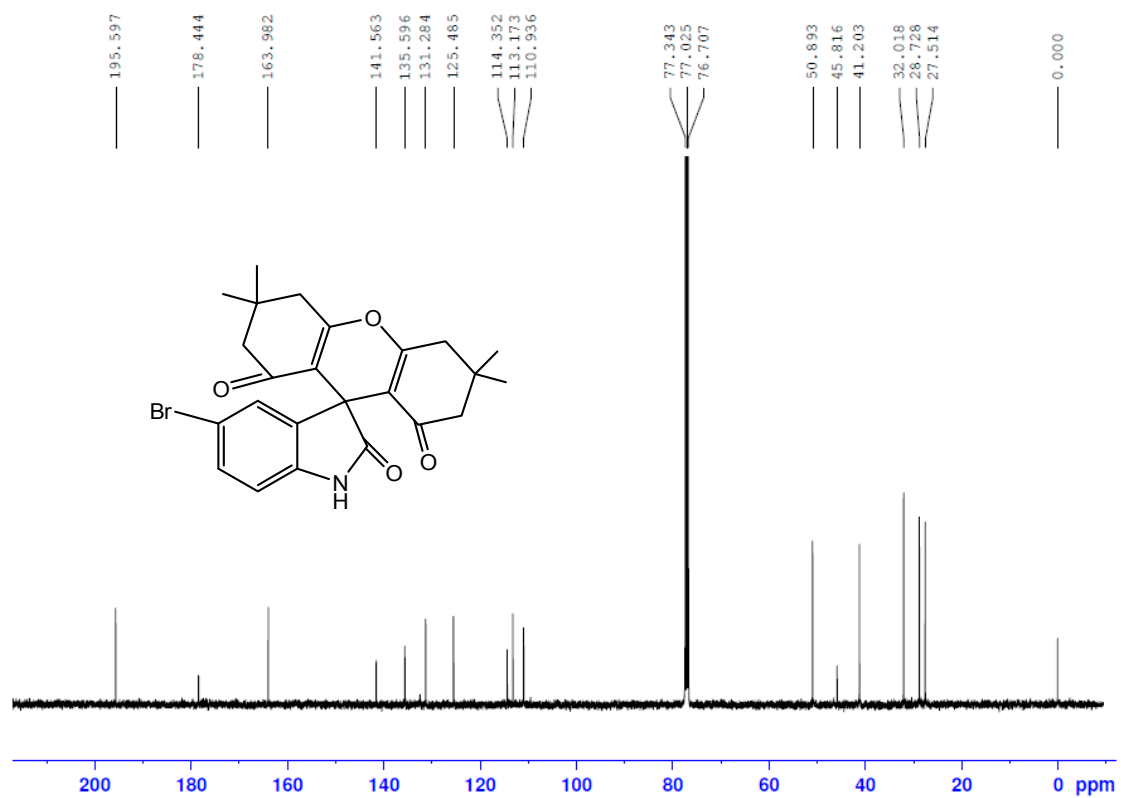


5-Bromo-3',3',6',6'-tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione (3l)

140928-425-1

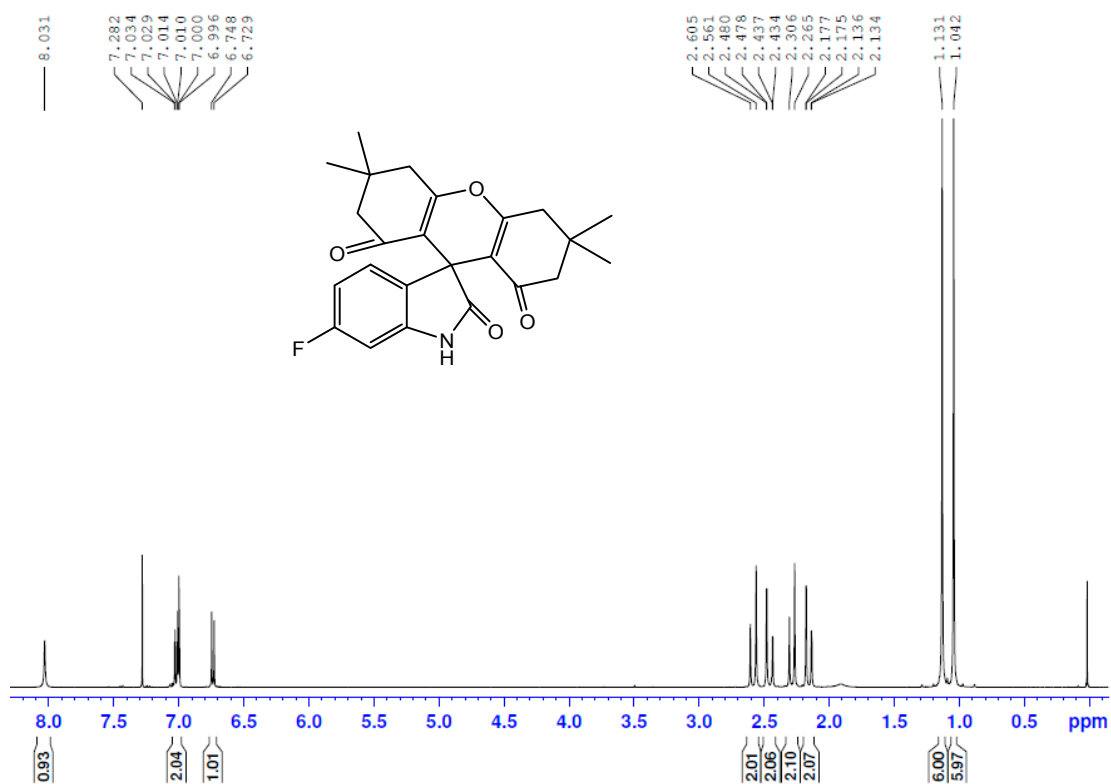


140928-453-1



6-Fuloro-3',3',6',6'-tetramethyl-3',4',6',7'-tetrahydrospiro[indoline-3,9'-xanthene]-1',2,8'(2'H, 5'H)-trione (3m).

170223-149-HNMR-CDCl₃



170302-9611-CNMR-CDCl₃

