

*Supplementary Data*

**PEG-SO<sub>3</sub>H catalyzed, environmentally benign synthesis of 14-aryl-14H-dibenzo[*a,j*]xanthenes under solvent-free conditions†**

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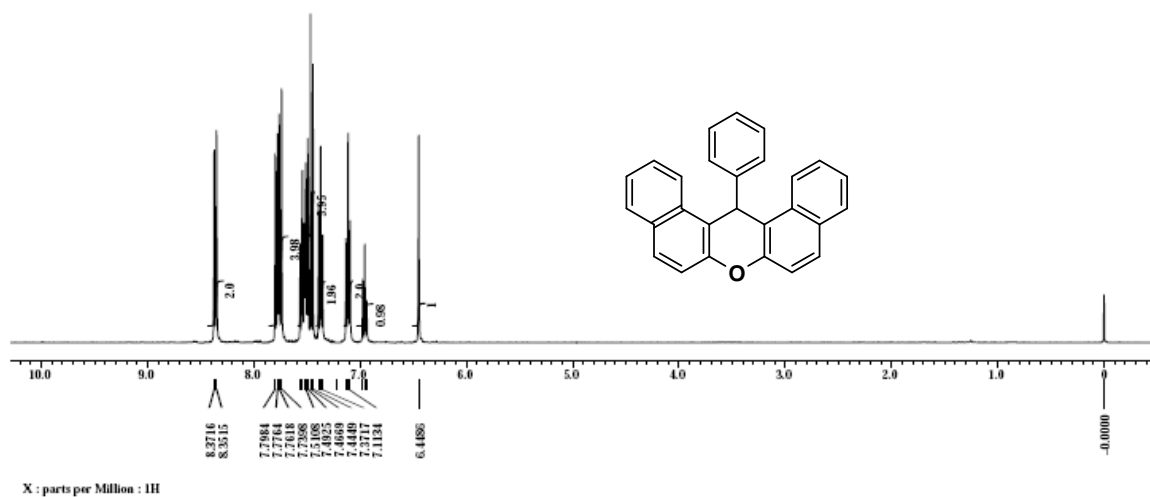


Fig 1.  $^1\text{H}$  NMR of 14-phenyl-14*H*-dibenzo[*a,j*]xanthene (3a).

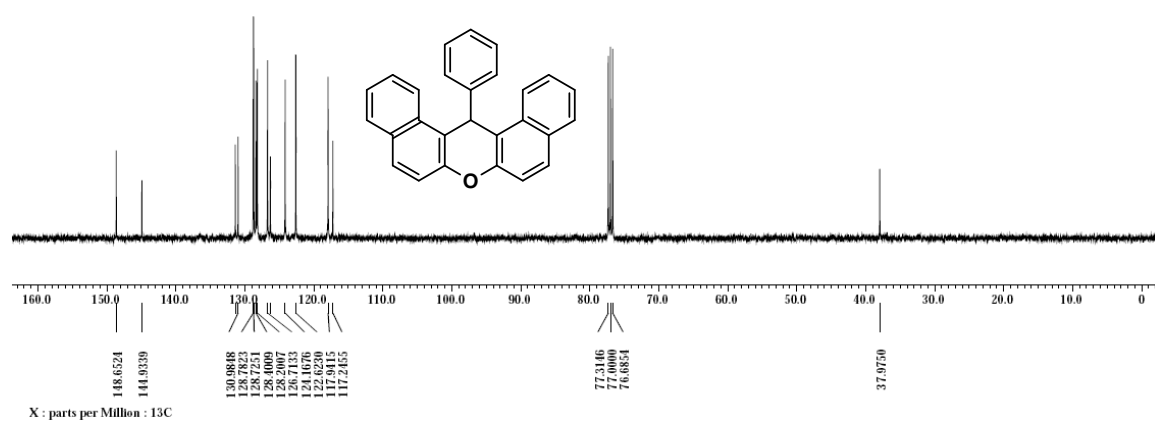
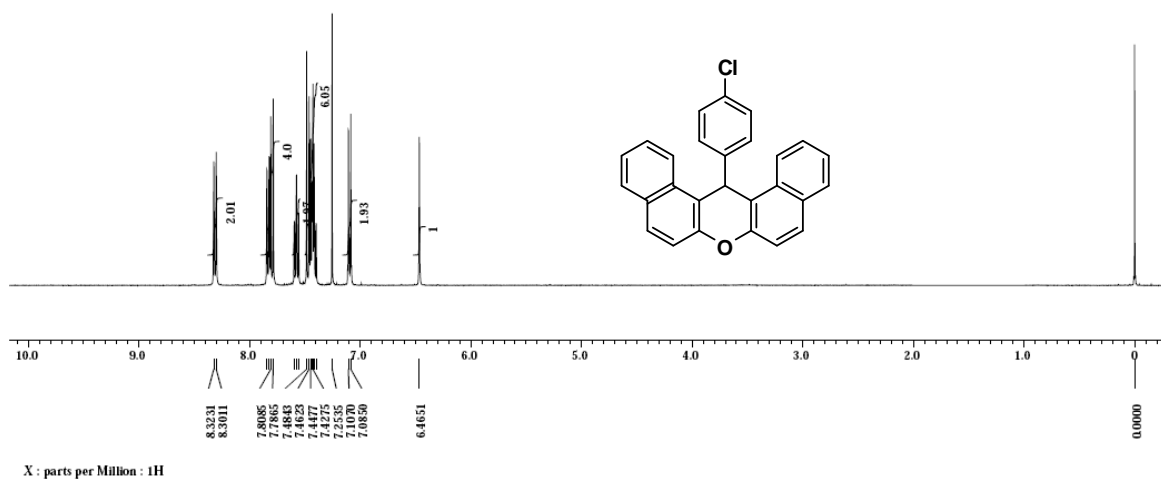
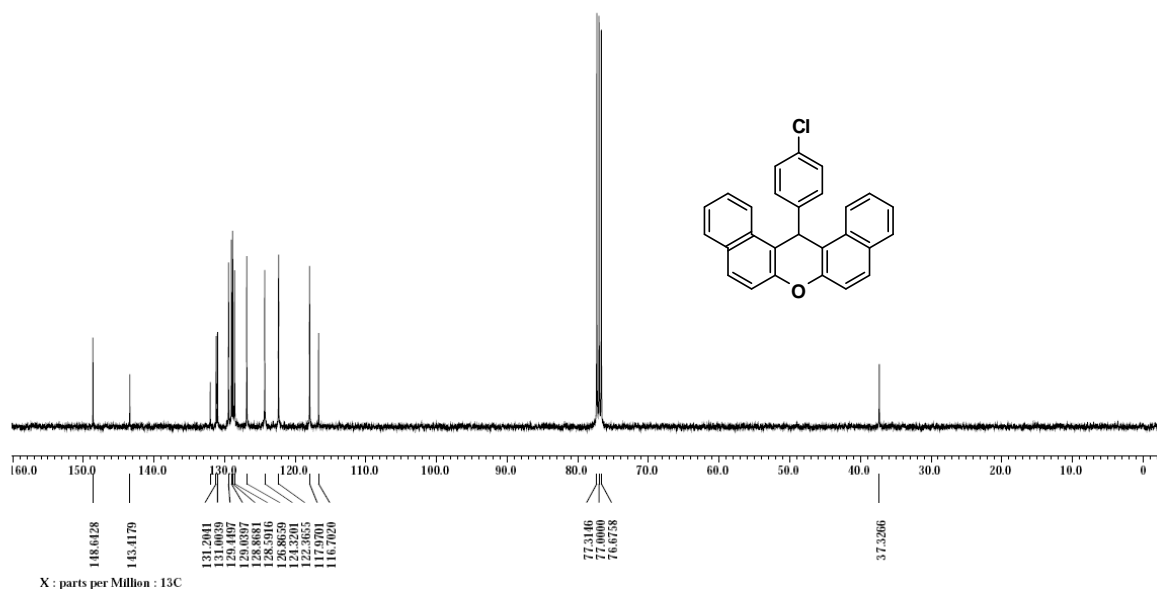


Fig 2.  $^{13}\text{C}$  NMR of 14-phenyl-14*H*-dibenzo[*a,j*]xanthene (3a).



**Fig 3.** <sup>1</sup>H NMR of 14-(4-chlorophenyl)-14H-dibenzo[*a,j*]xanthene (3b).



**Fig 4.** <sup>13</sup>C NMR of 14-(4-chlorophenyl)-14H-dibenzo[*a,j*]xanthene (3b).

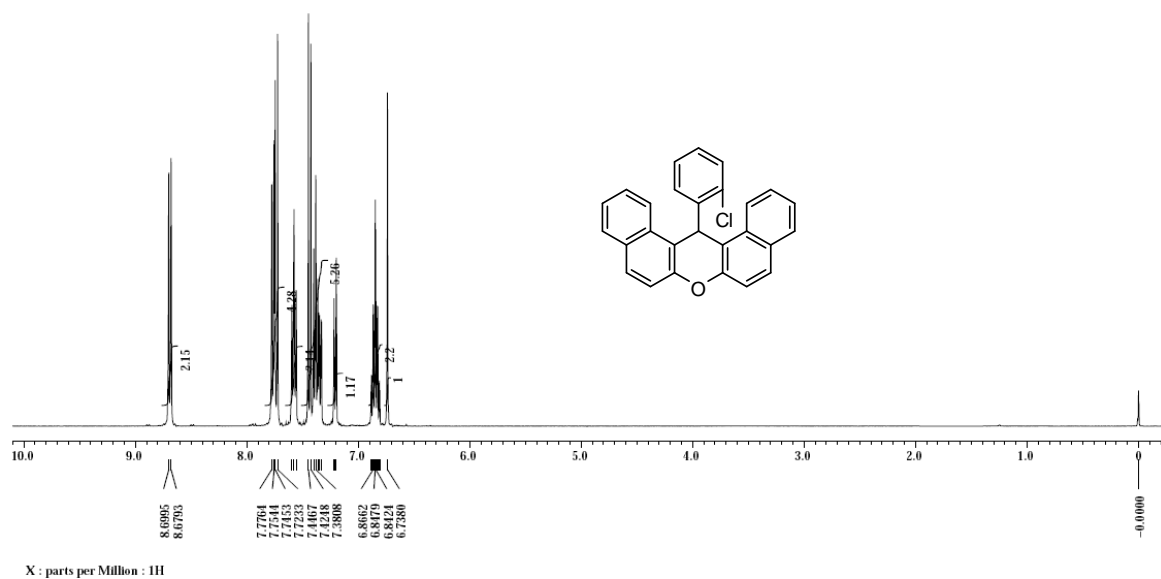


Fig 5. <sup>1</sup>H NMR of 14-(2-chlorophenyl)-14H-dibenzo[*a,j*]xanthene (3c).

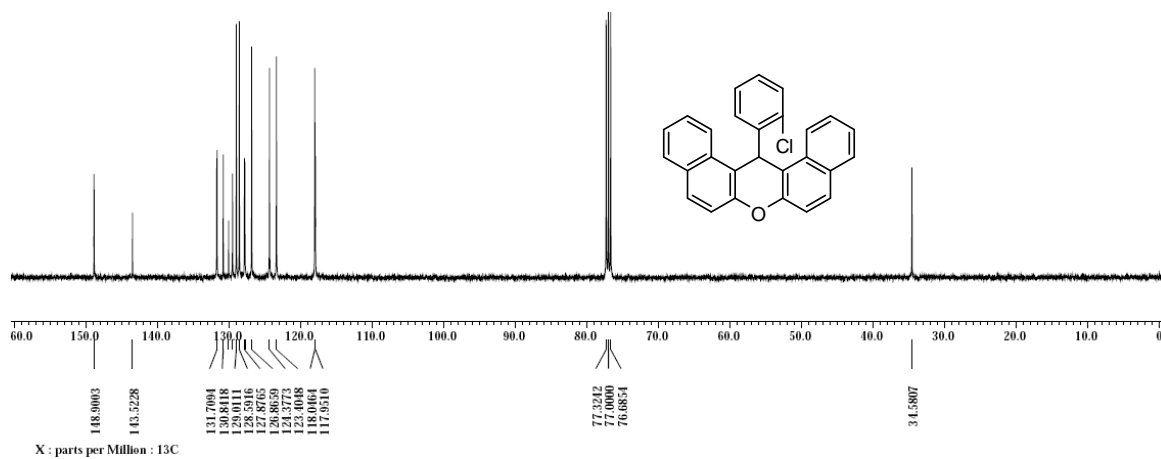


Fig 6. <sup>13</sup>C NMR of 14-(2-chlorophenyl)-14H-dibenzo[*a,j*]xanthene (3c).

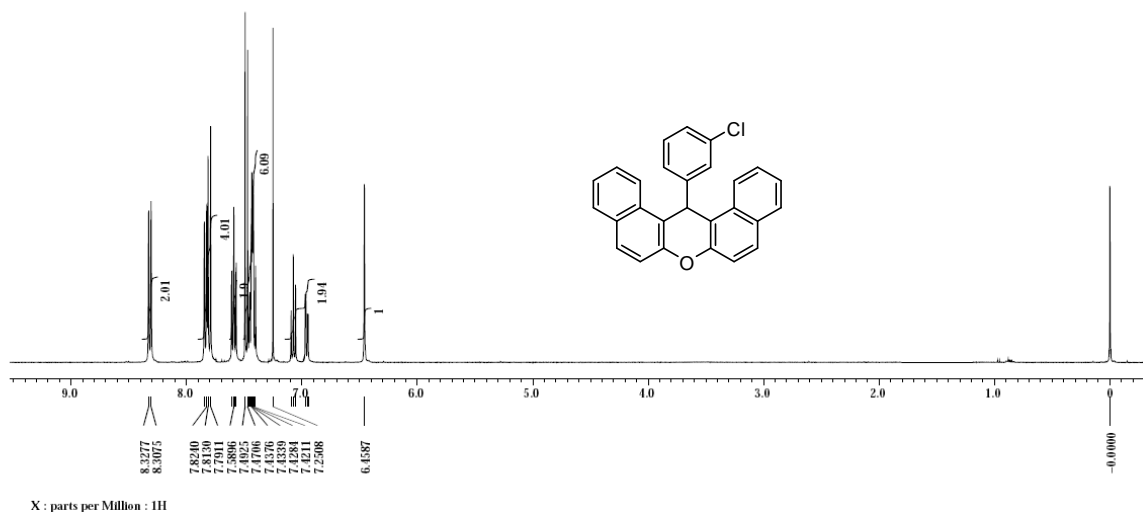


Fig 7.  $^1\text{H}$  NMR of 14-(3-chlorophenyl)-14*H*-dibenzo[*a,j*]xanthene (3d).

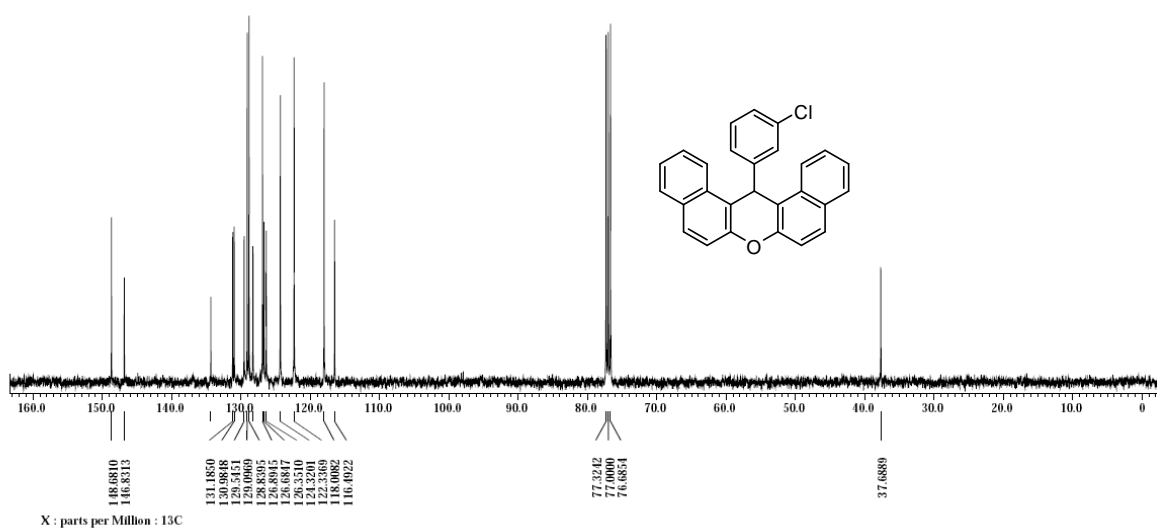


Fig 8.  $^{13}\text{C}$  NMR of 14-(3-chlorophenyl)-14*H*-dibenzo[*a,j*]xanthene (3d).

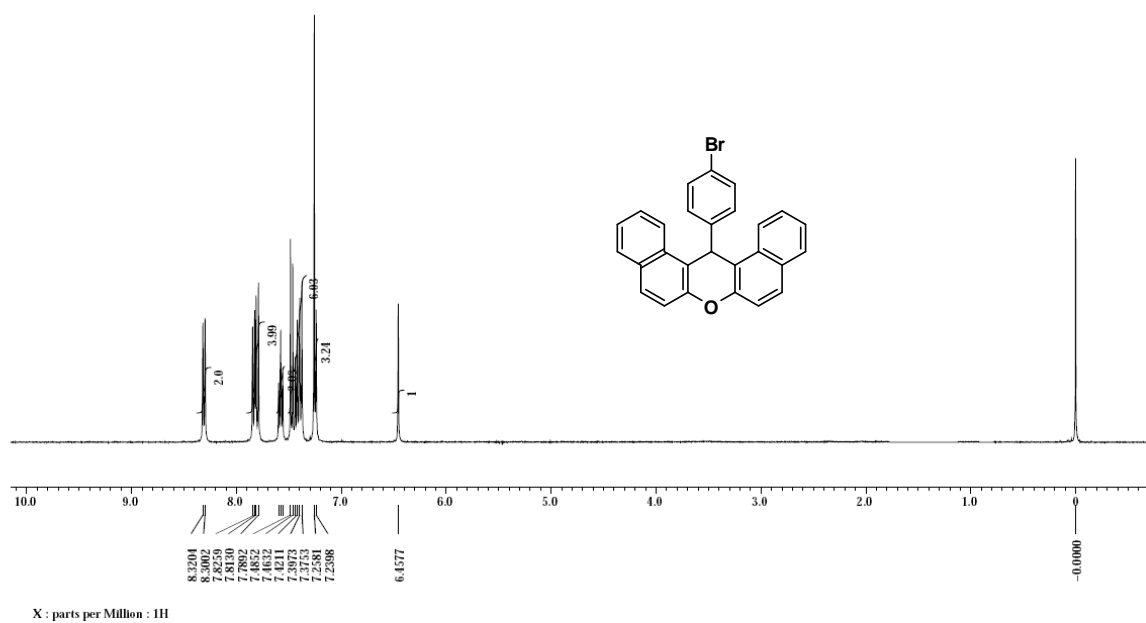


Fig 9.  $^1\text{H}$  NMR of 14-(4-bromophenyl)-14*H*-dibenzo[*a,j*]xanthene (3e).

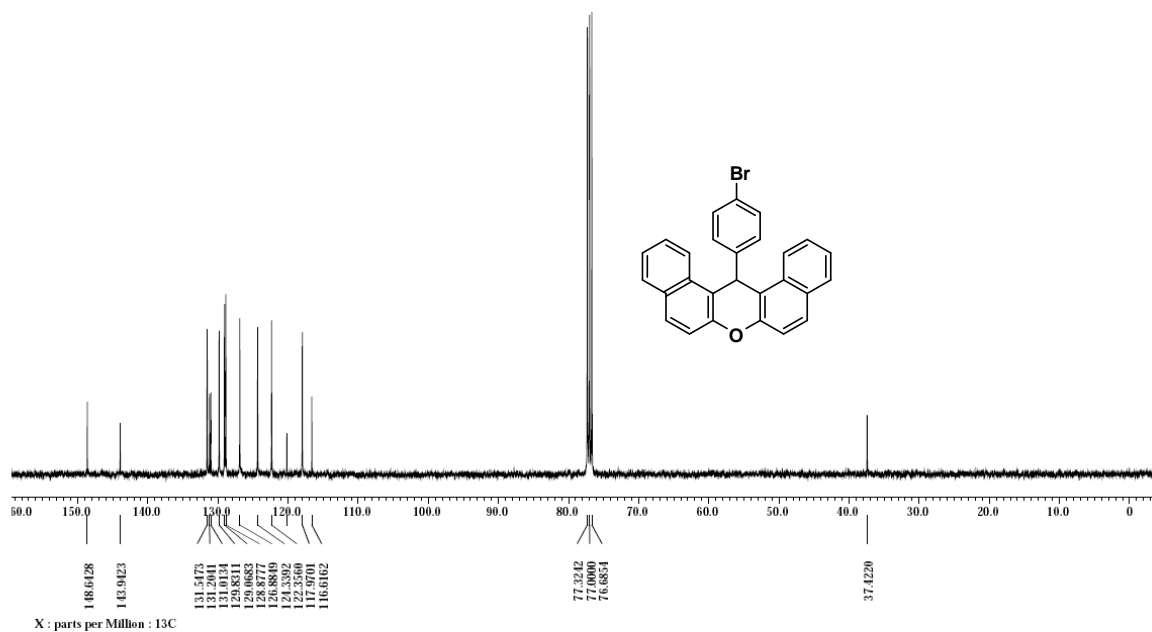


Fig 10.  $^{13}\text{C}$ -NMR of 14-(4-bromophenyl)-14*H*-dibenzo[*a,j*]xanthene (3e).

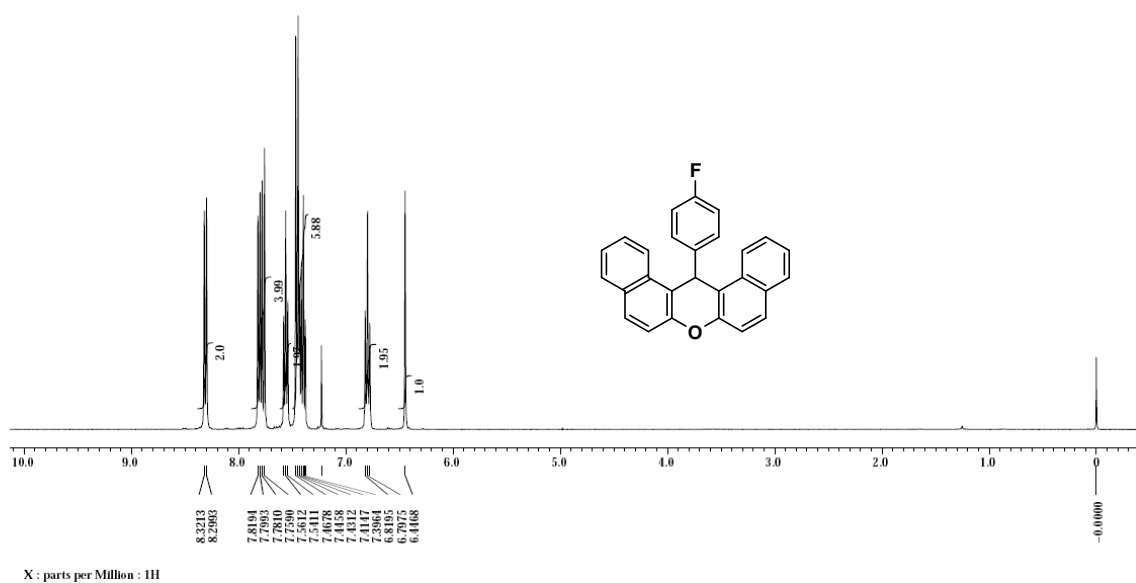


Fig 11. <sup>1</sup>H NMR of 14-(4-fluorophenyl)-14H-dibenzo[*a,j*]xanthene (3f).

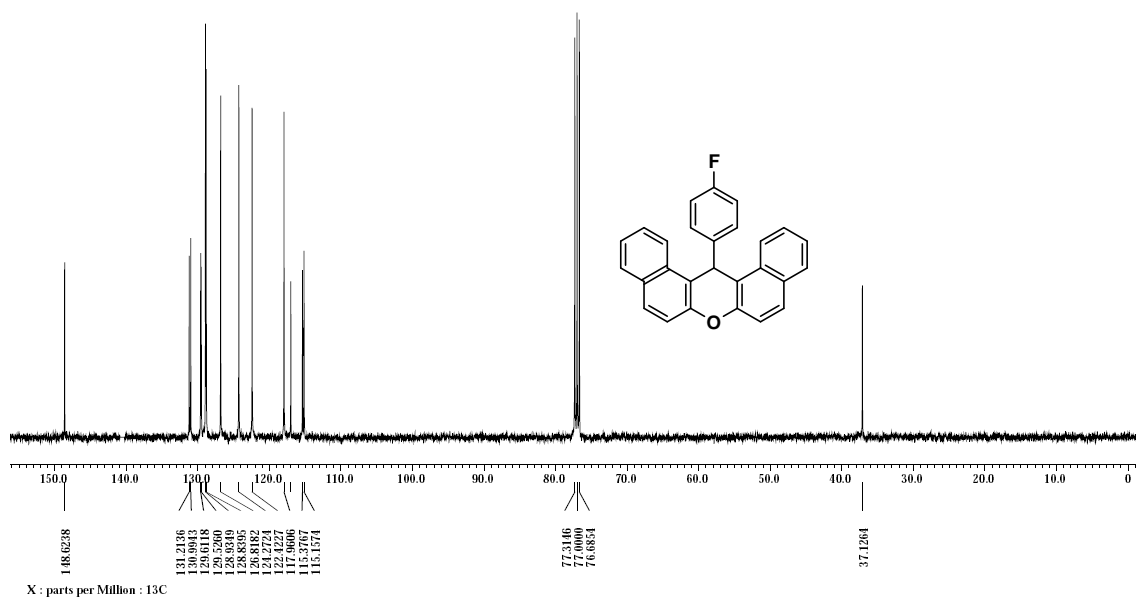


Fig 12. <sup>13</sup>C NMR of 14-(4-fluorophenyl)-14H-dibenzo[*a,j*]xanthene (3f).

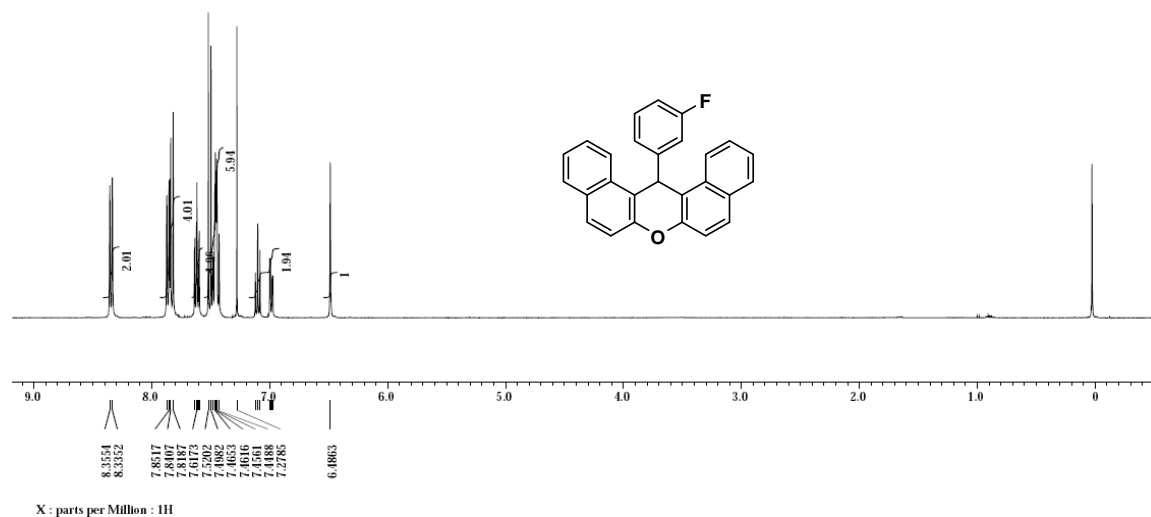


Fig 13. <sup>1</sup>H NMR of 14-(3-fluorophenyl)-14H-dibenzo[*a,j*]xanthene (3g).

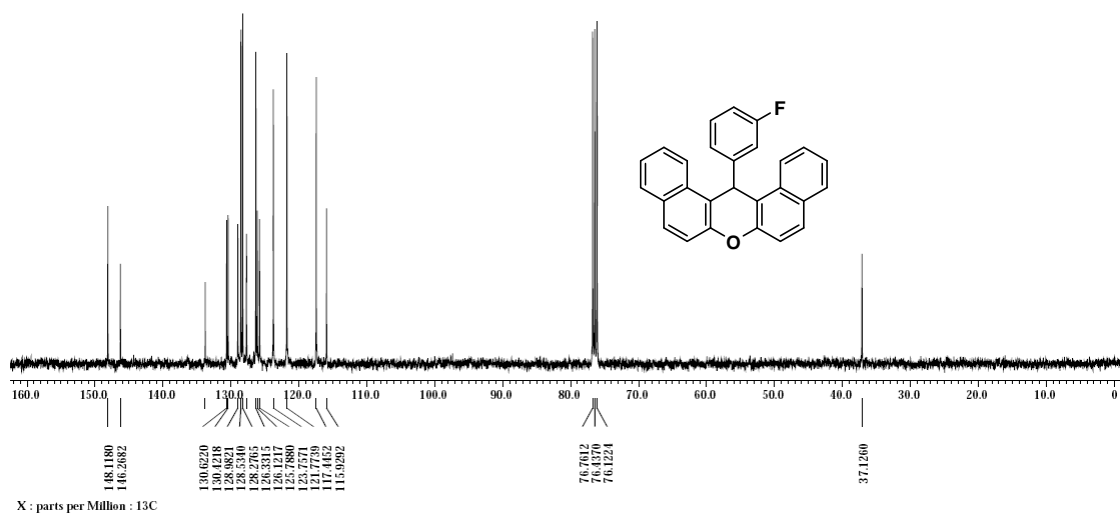


Fig 14. <sup>13</sup>C NMR of 14-(3-fluorophenyl)-14H-dibenzo[*a,j*]xanthene (3g).



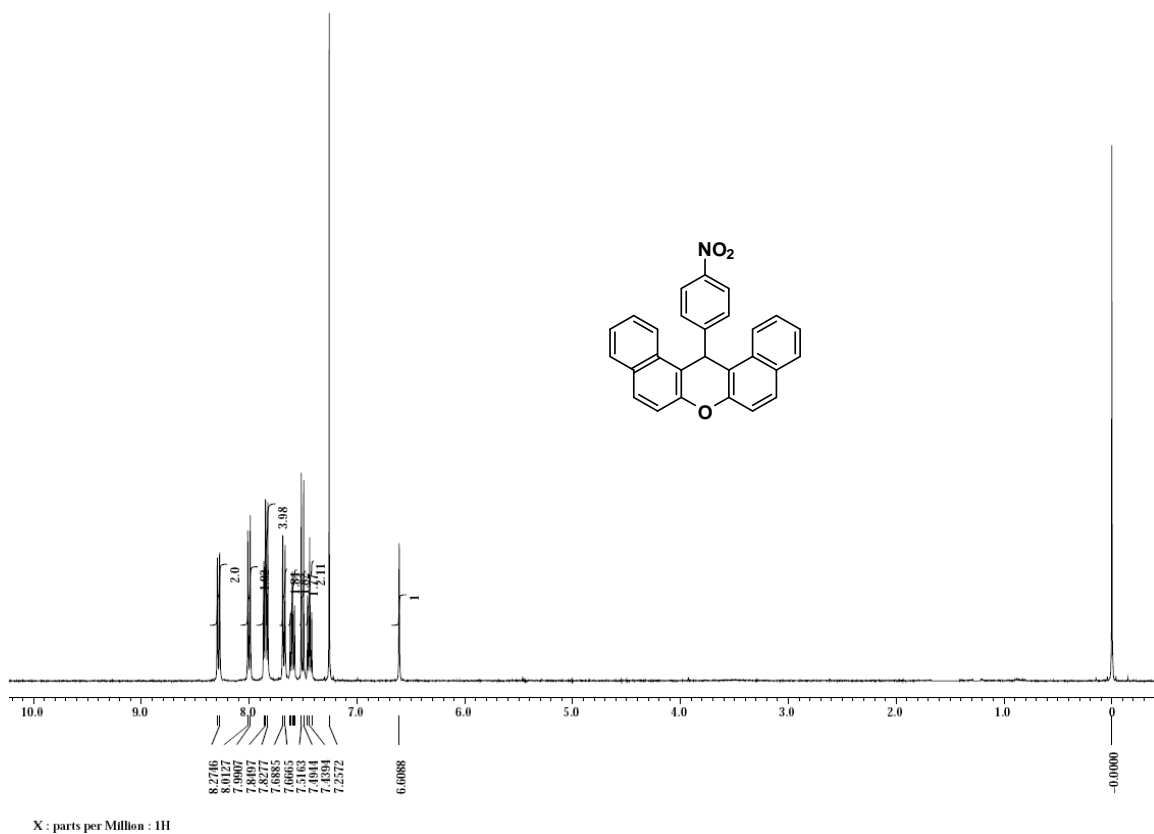


Fig 15.  $^1\text{H}$  NMR of 14-(4-nitrophenyl)-14*H*-dibenzo[*a,j*]xanthene (3h).

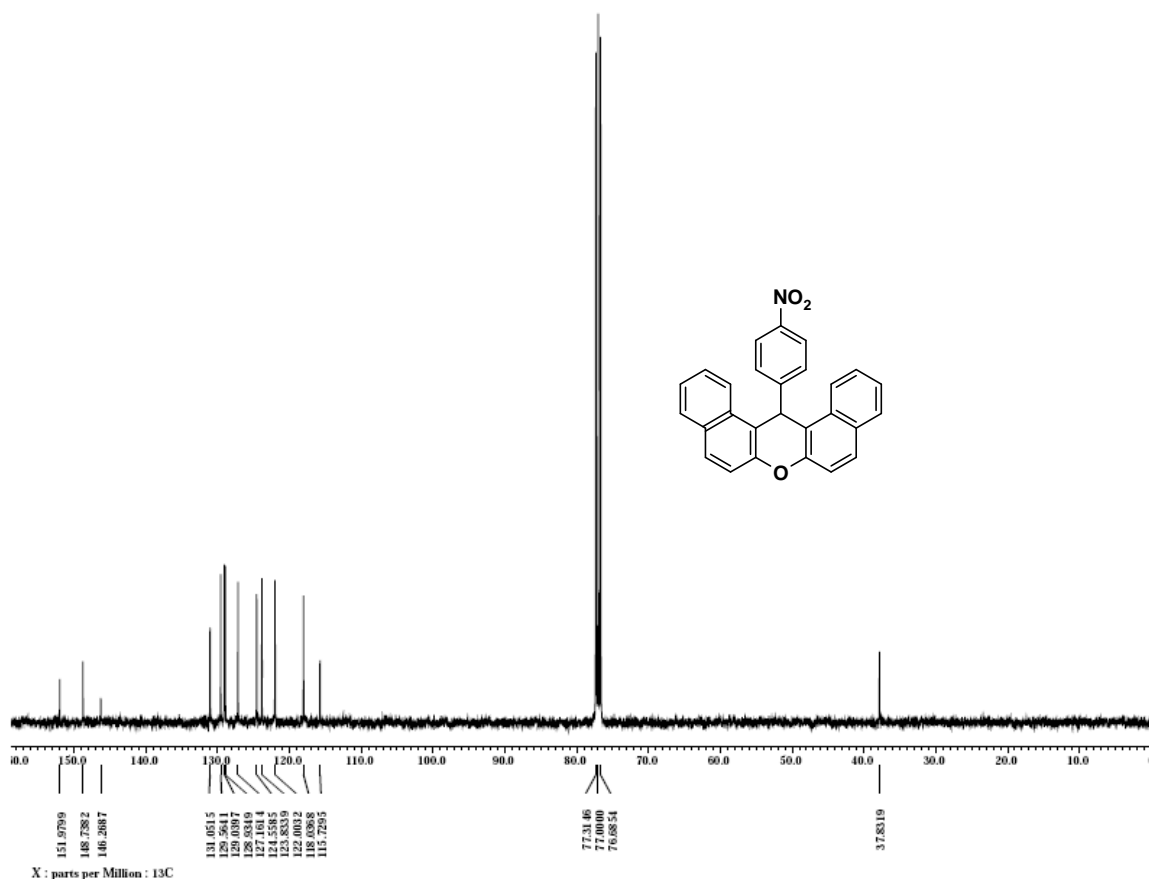


Fig 16.  $^{13}\text{C}$  NMR of 14-(4-nitrophenyl)-14*H*-dibenzo[*a,j*]xanthene (3h).

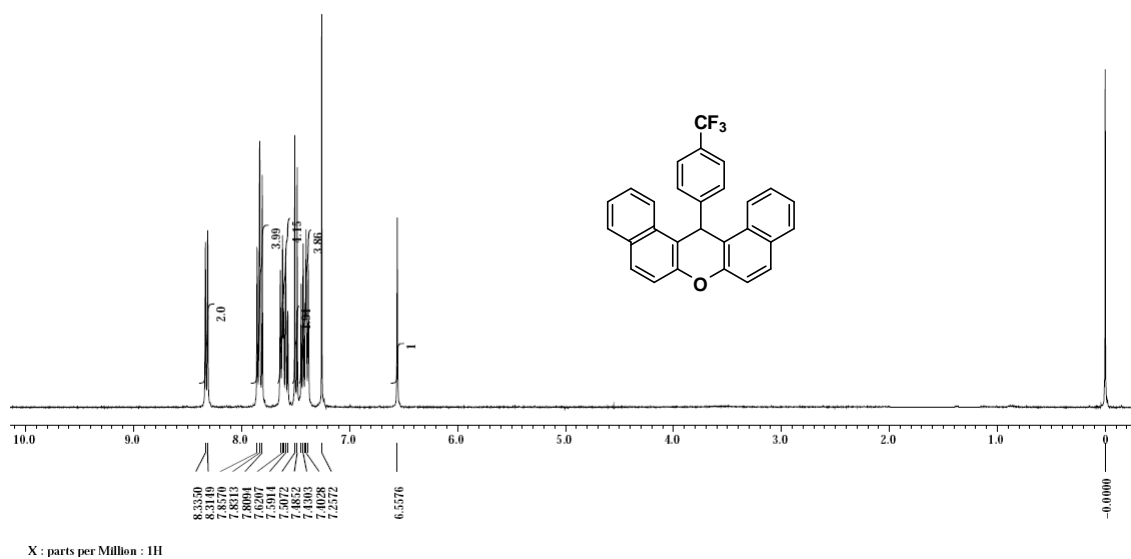


Fig 17.  $^1\text{H}$  NMR of 14-(4-(trifluoromethyl)phenyl)-14H-dibenzo[*a,j*]xanthene (3i).

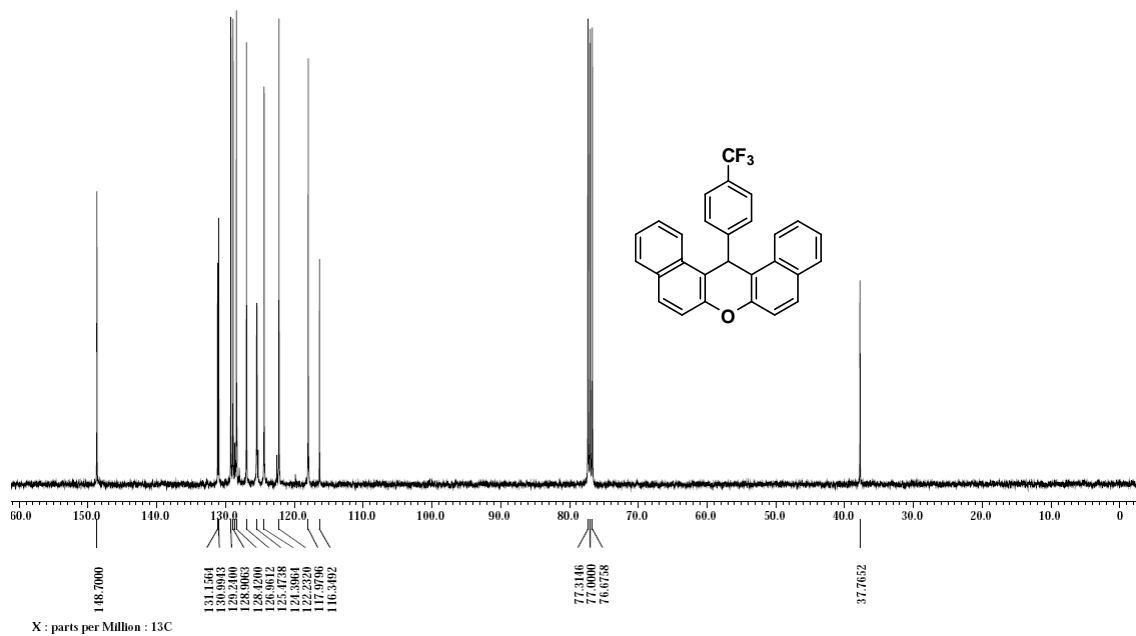


Fig 18.  $^{13}\text{C}$  NMR of 14-(4-(trifluoromethyl)phenyl)-14H-dibenzo[*a,j*]xanthene (3i).

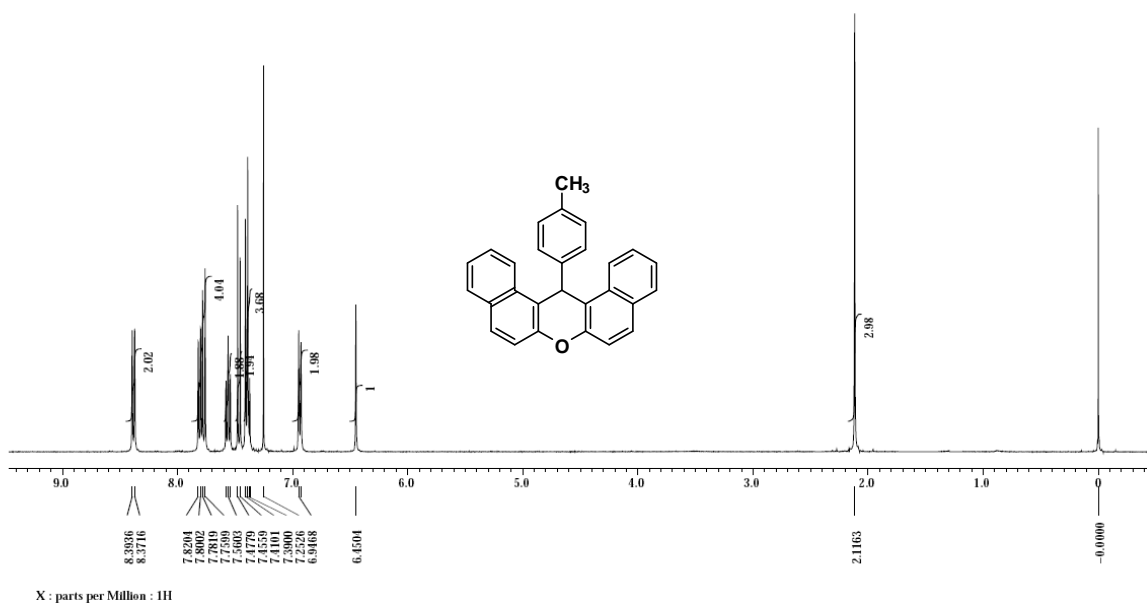


Fig 19. <sup>1</sup>H NMR of 14-*p*-tolyl-14*H*-dibenzo[*a,j*]xanthene (3j).

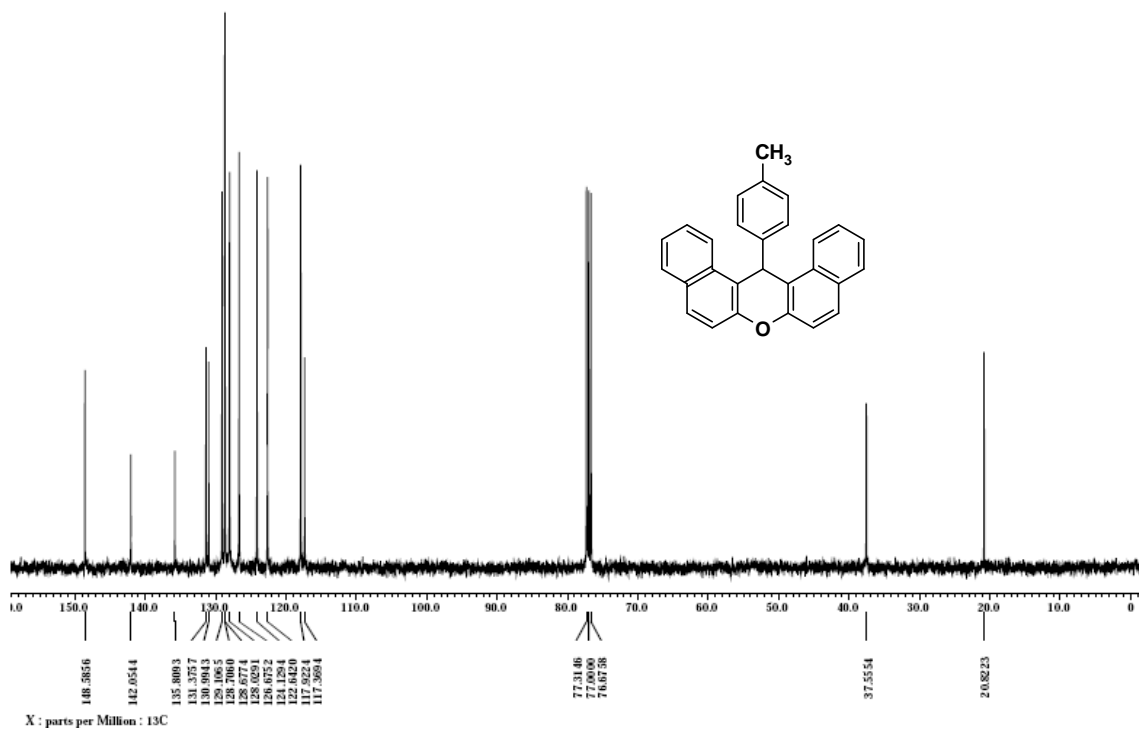


Fig 20. <sup>13</sup>C NMR of 14-*p*-tolyl-14*H*-dibenzo[*a,j*]xanthene (3j).

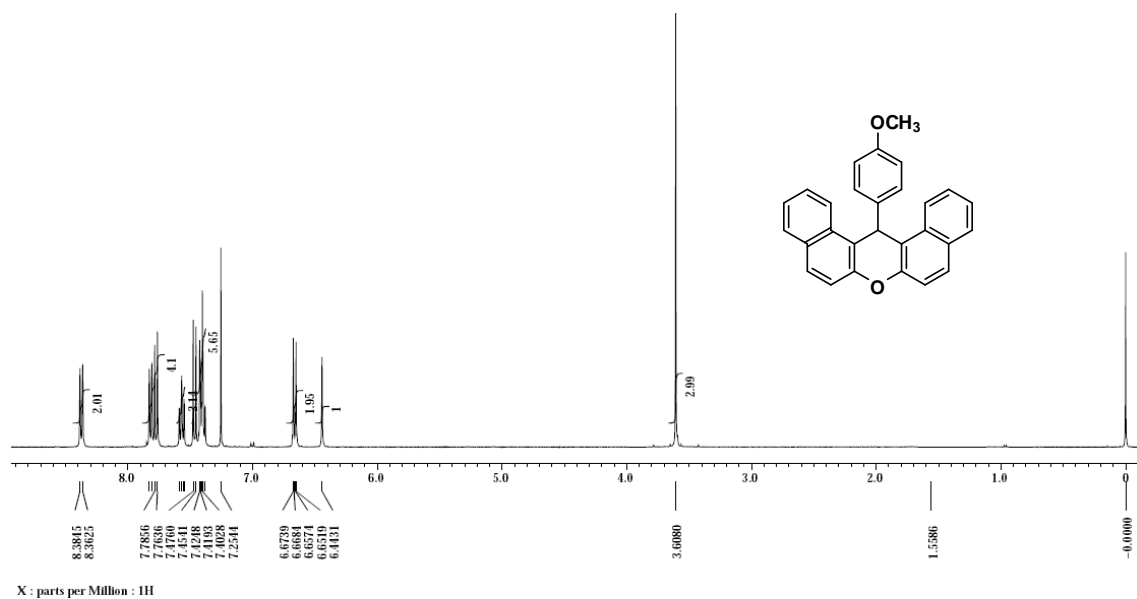


Fig 21.  $^1\text{H}$  NMR of 14-(4-methoxyphenyl)-14*H*-dibenzo[*a,j*]xanthene (3k).

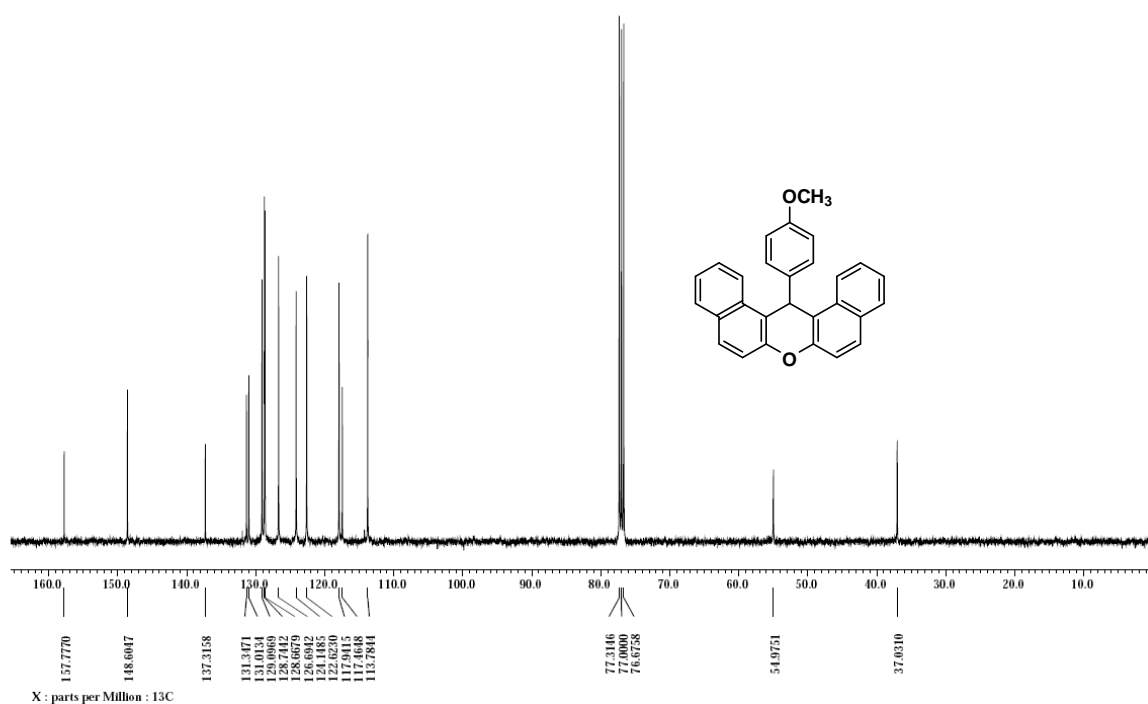


Fig 22.  $^{13}\text{C}$  NMR of 14-(4-methoxyphenyl)-14*H*-dibenzo[*a,j*]xanthene (3k).

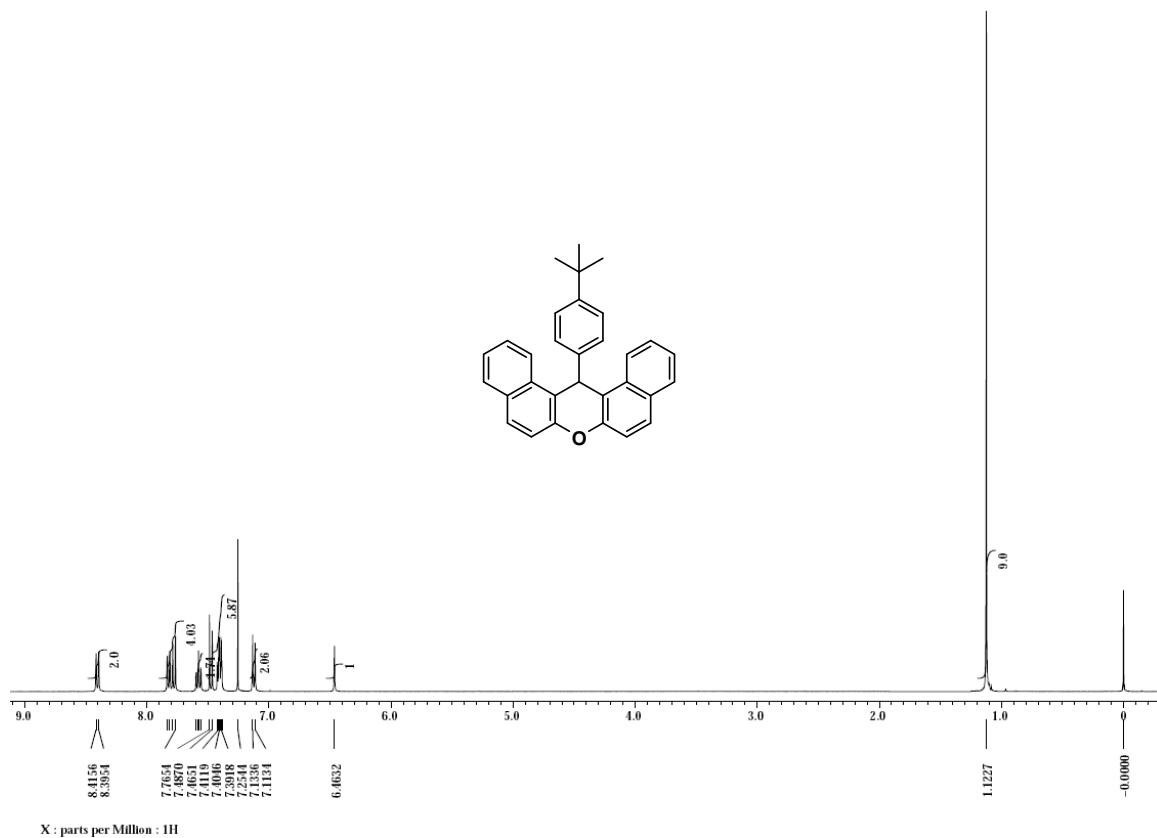


Fig 23.  $^1\text{H}$  NMR of 14-(4-*tert*-butylphenyl)-14*H*-dibenzo[*a,j*]xanthene (31).

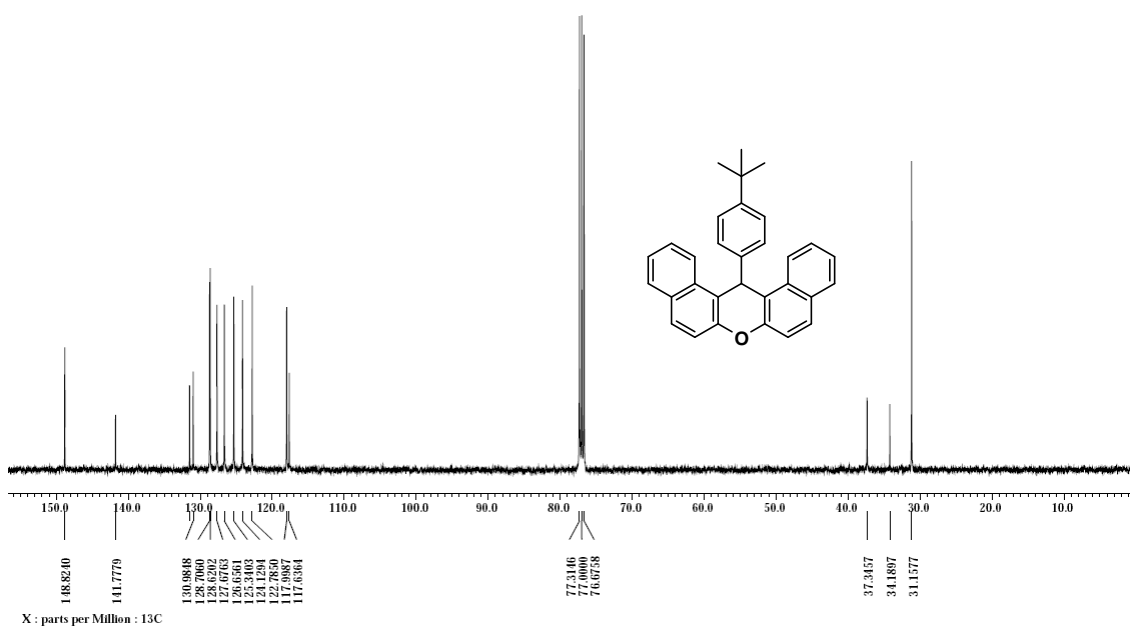


Fig 24.  $^{13}\text{C}$  NMR of 14-(4-*tert*-butylphenyl)-14*H*-dibenzo[*a,j*]xanthene (31).

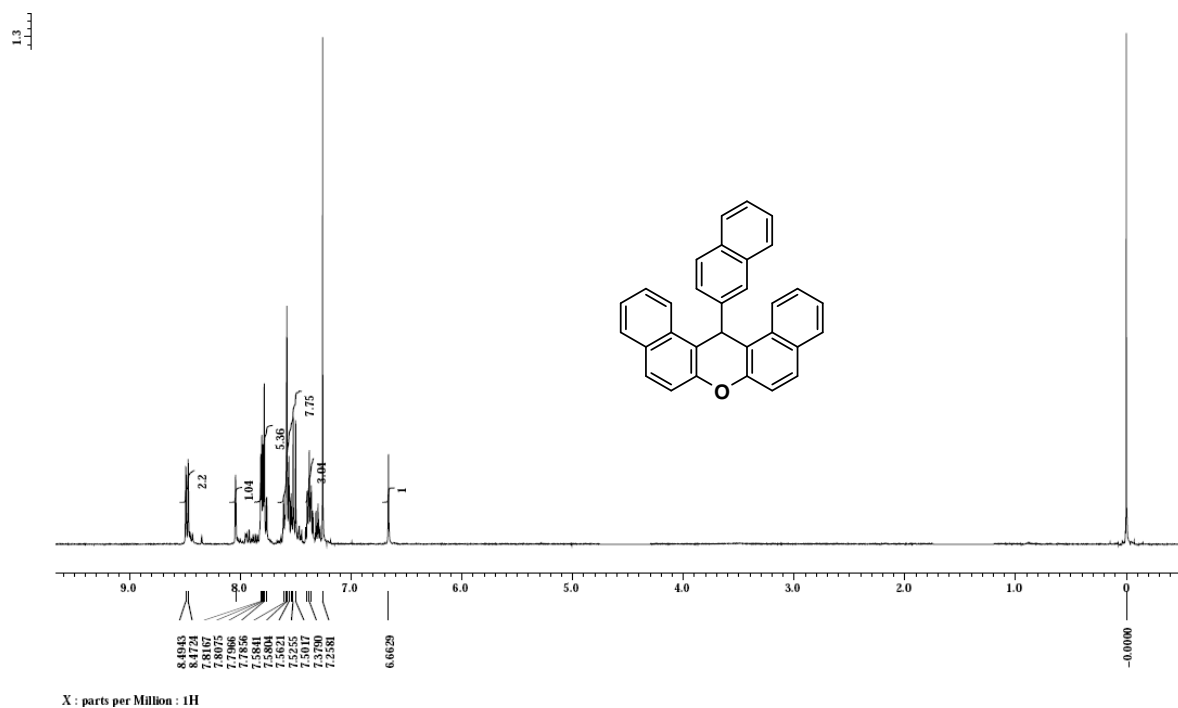


Fig 25.  $^1\text{H}$  NMR of 14-(naphthalen-2-yl)-14H-dibenzo[*a,j*]xanthene (3m).

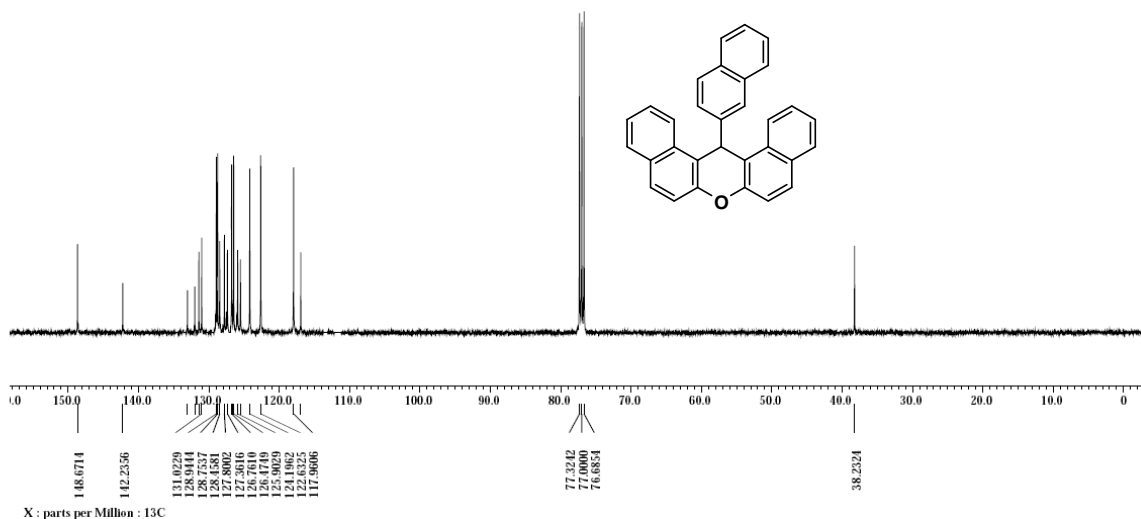
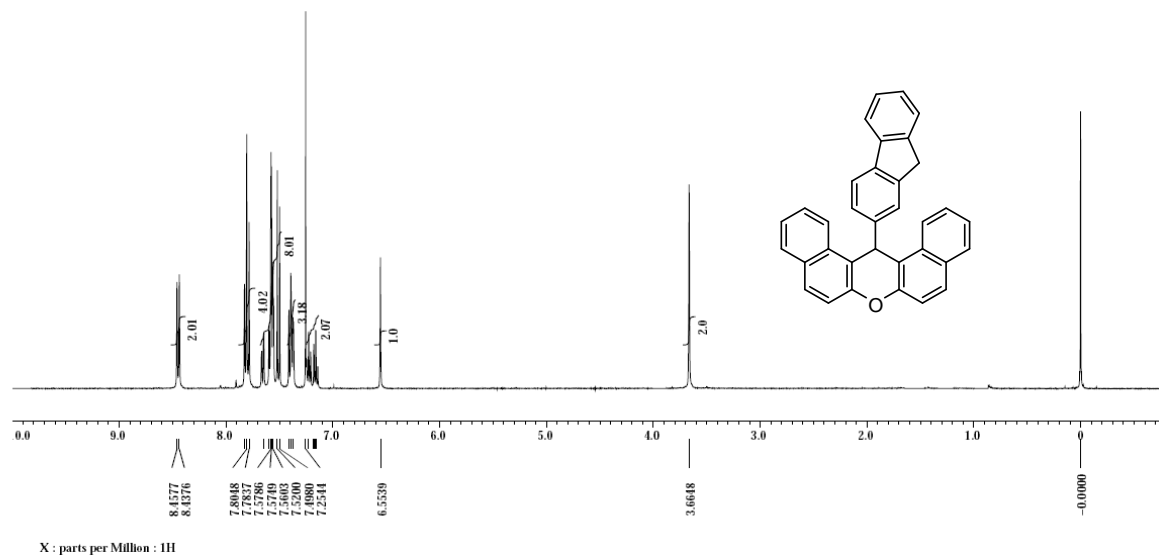
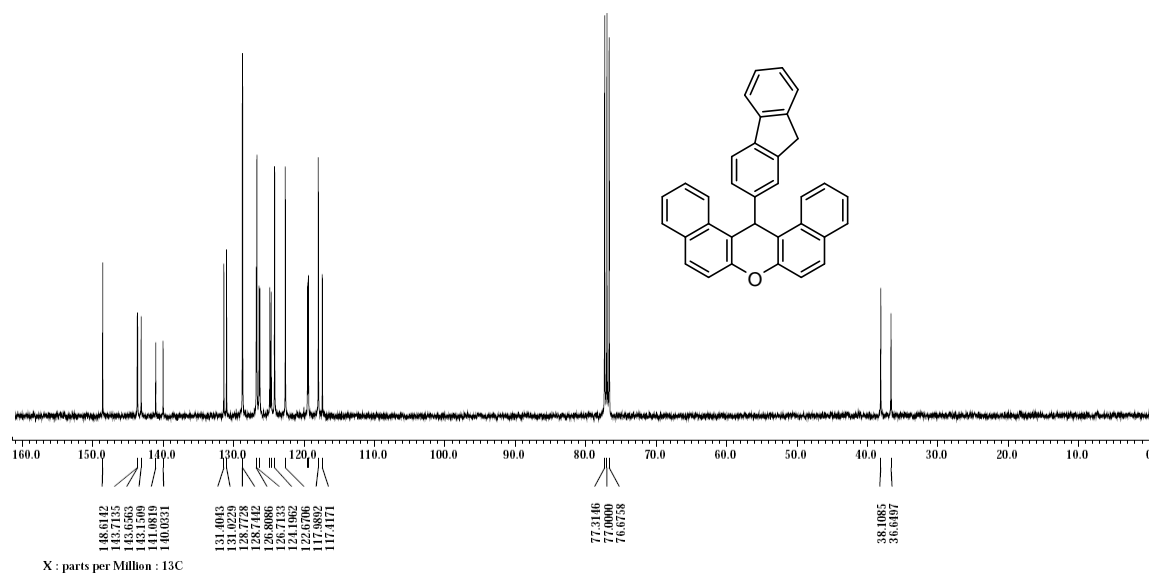


Fig 26.  $^{13}\text{C}$  NMR of 14-(naphthalen-2-yl)-14H-dibenzo[*a,j*]xanthene (3m).



**Fig 27.** <sup>1</sup>H NMR of 14-(9H-fluoren-2-yl)-14H-dibenzo[*a,j*]xanthene (3n).



**Fig 28.** <sup>13</sup>C NMR of 14-(9H-fluoren-2-yl)-14H-dibenzo[*a,j*]xanthene (3n).