

## Supplementary data

# Synthesis of six type cyanine dyes and their *in vitro* antiprotozoal activities

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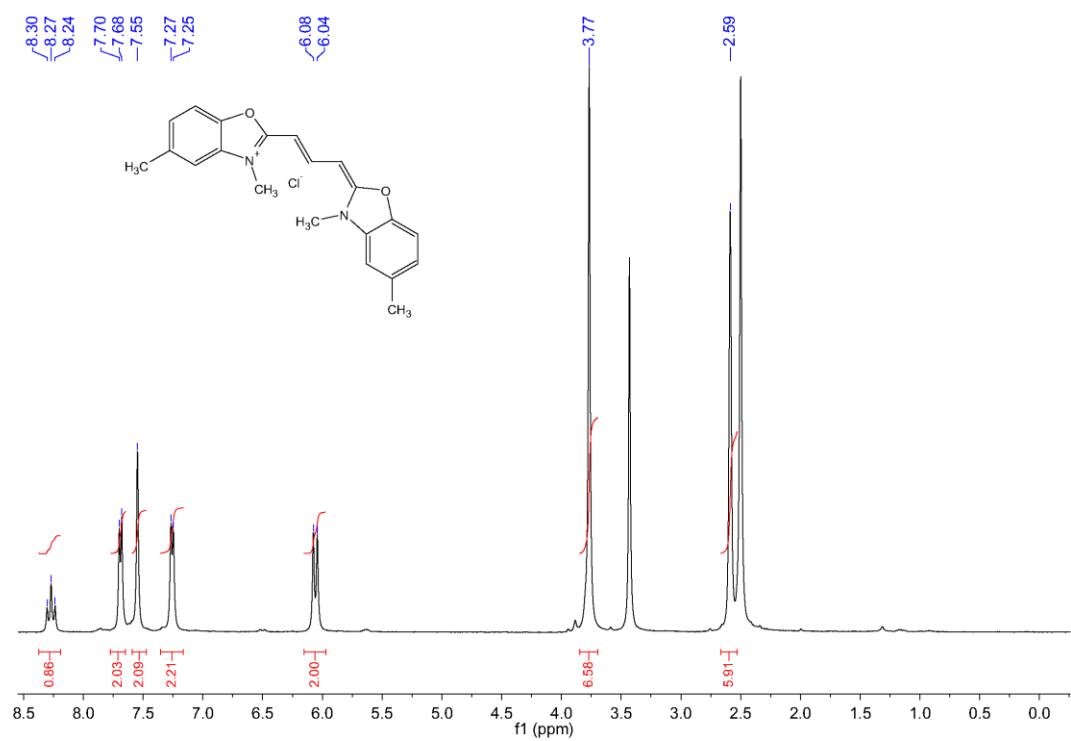
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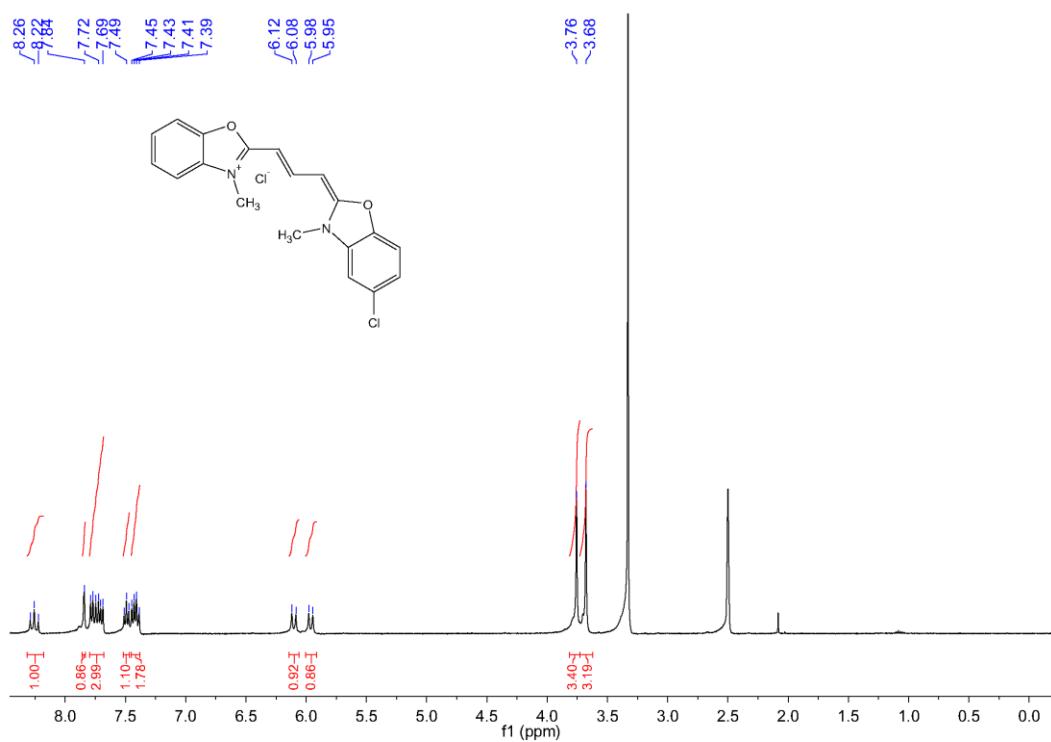
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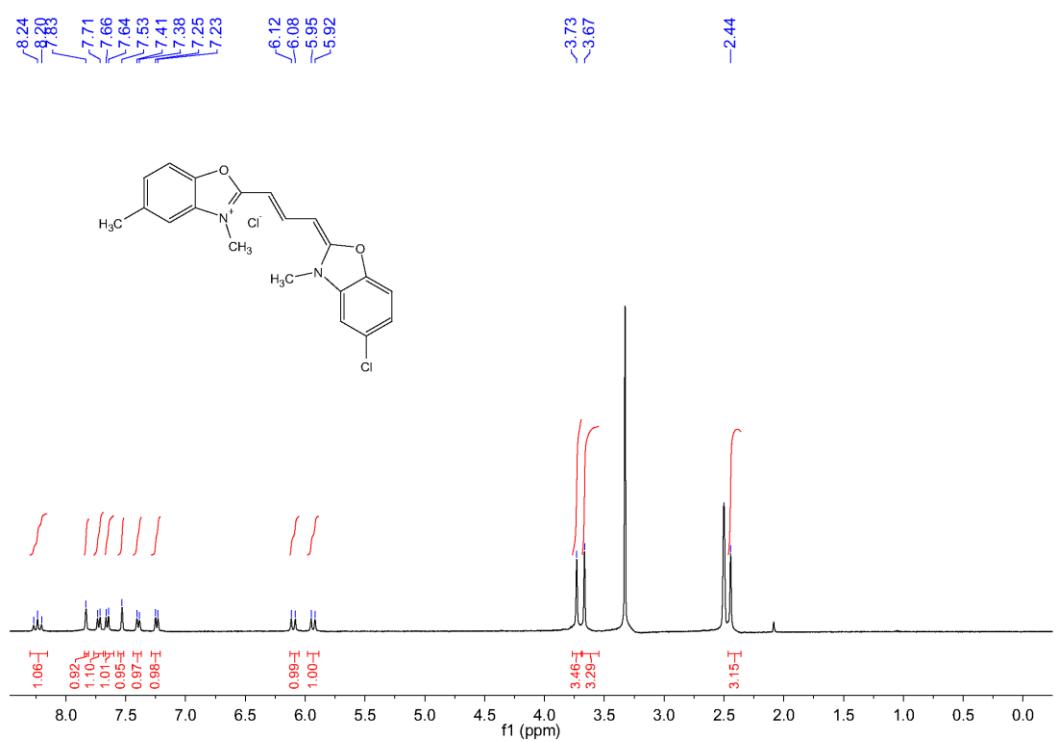
## 1. Graphics



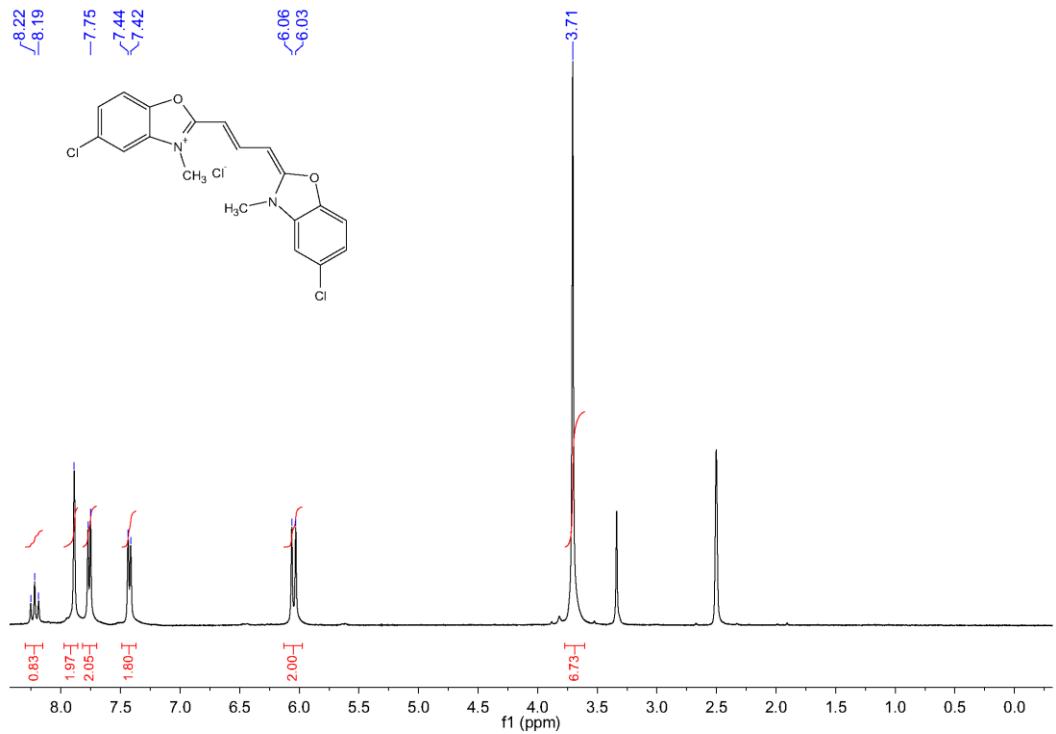
**Fig. S-1**  $^1\text{H}$  NMR spectra of **1c**.



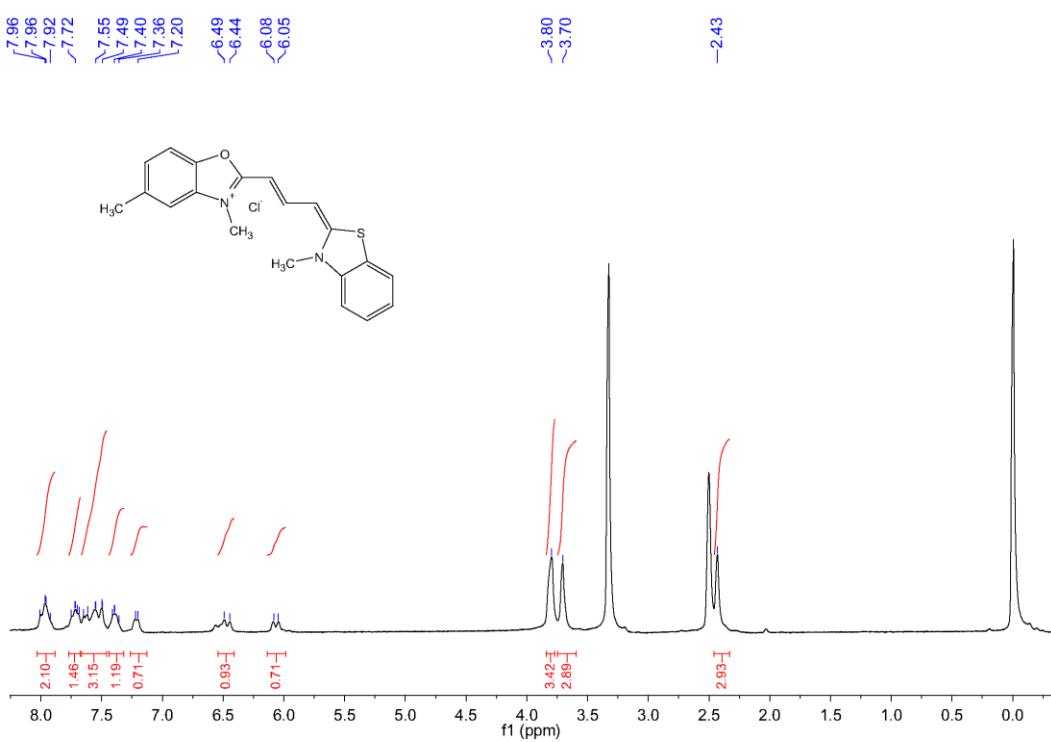
**Fig. S-2**  $^1\text{H}$  NMR spectra of **1d**.



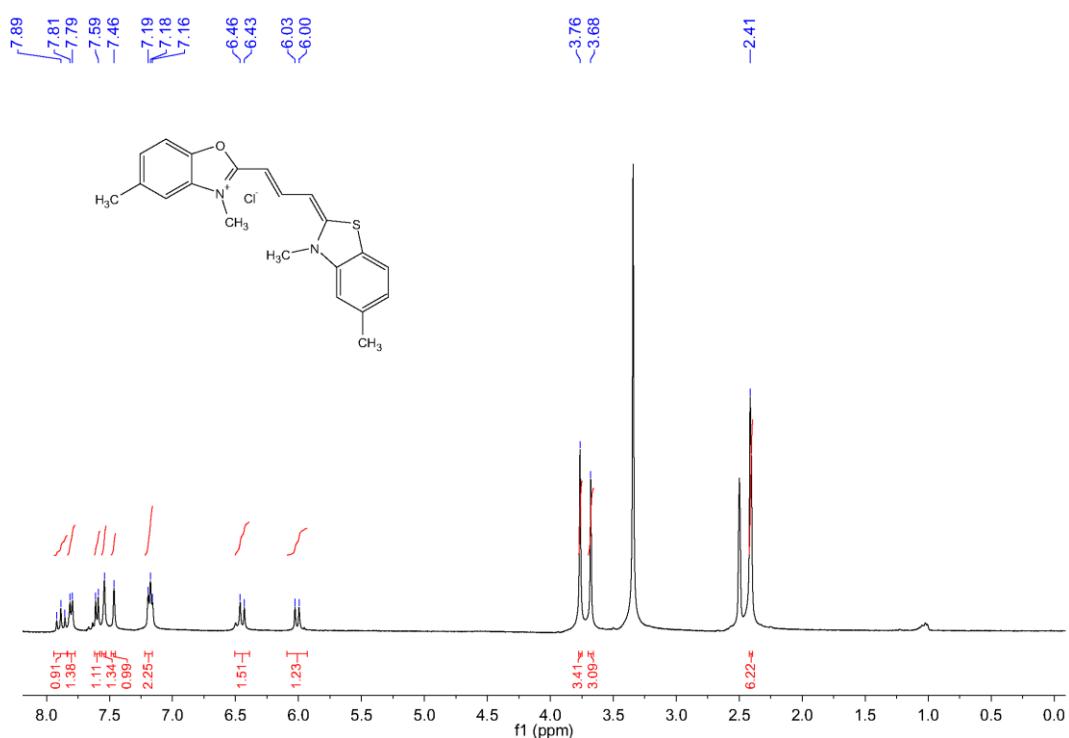
**Fig. S-3** <sup>1</sup>H NMR spectra of **1e**.



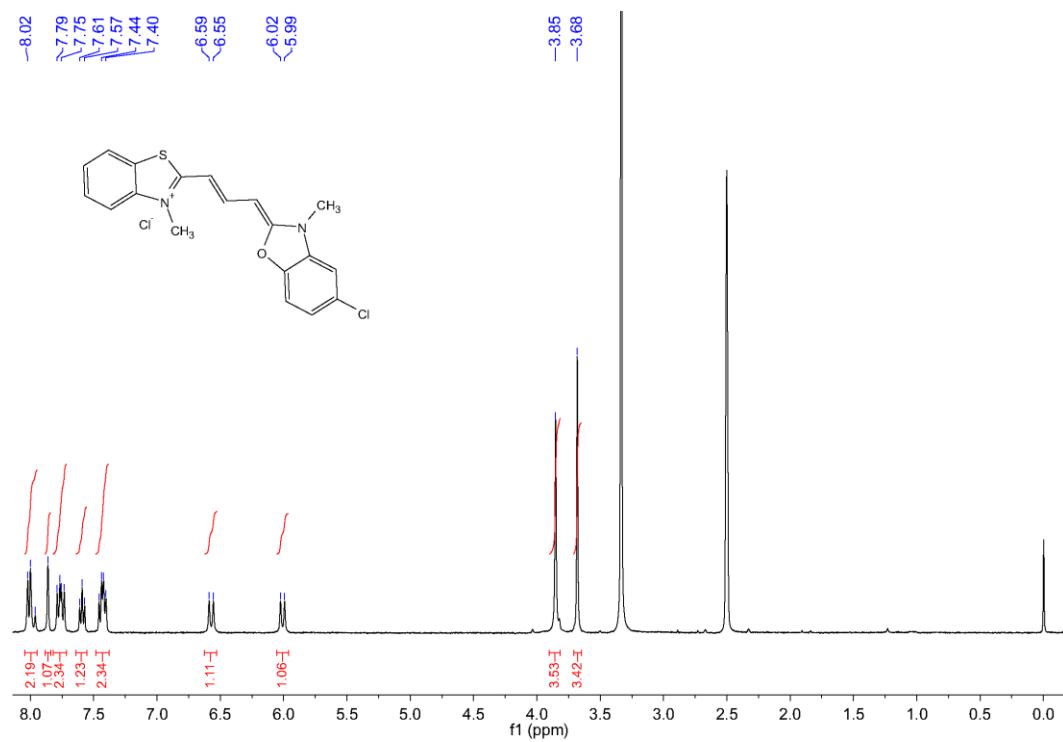
**Fig. S-4** <sup>1</sup>H NMR spectra of **1f**.



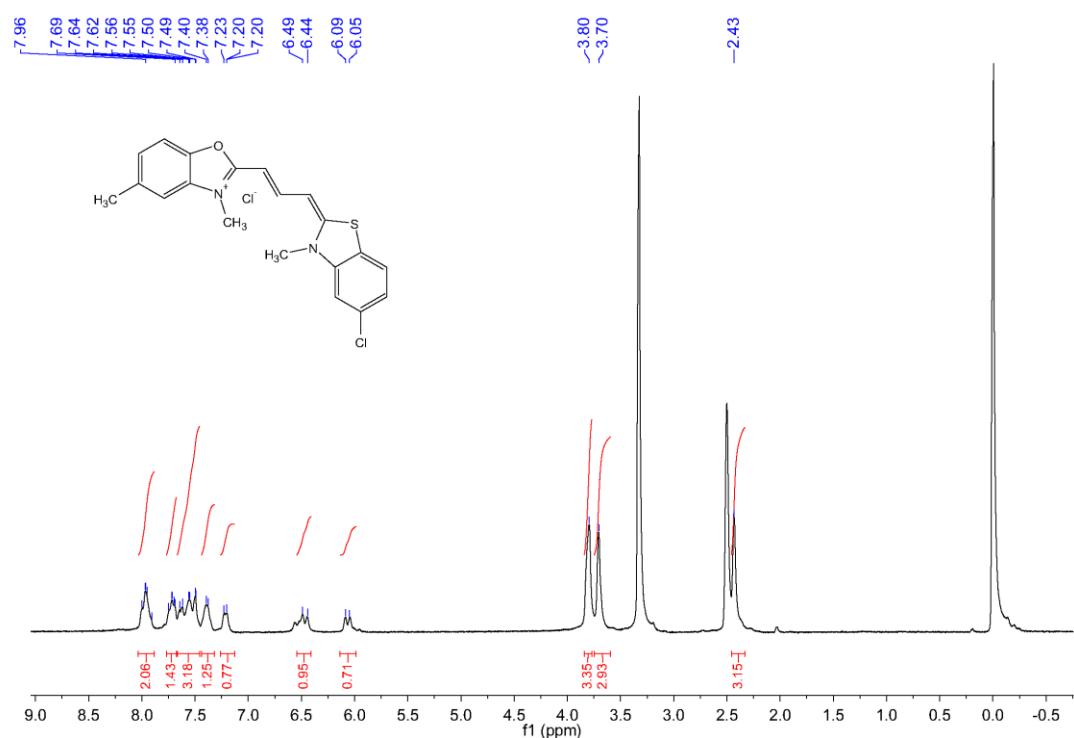
**Fig. S-5** <sup>1</sup>H NMR spectra of **2c**.



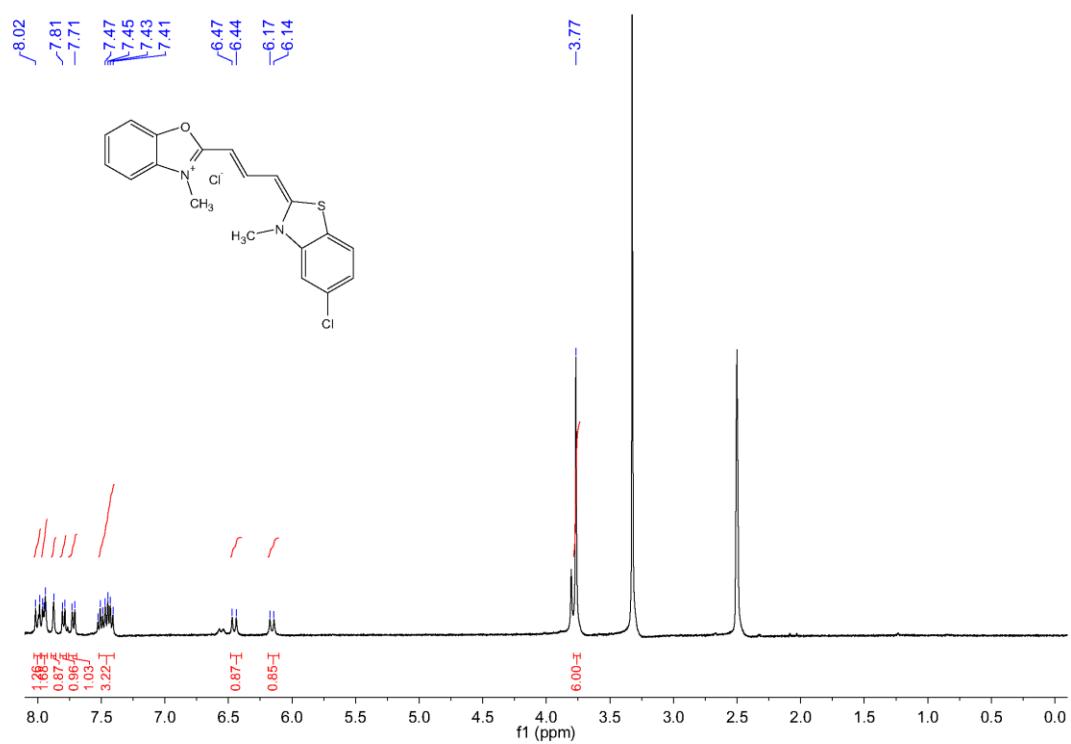
**Fig. S-6** <sup>1</sup>H NMR spectra of **2d**.



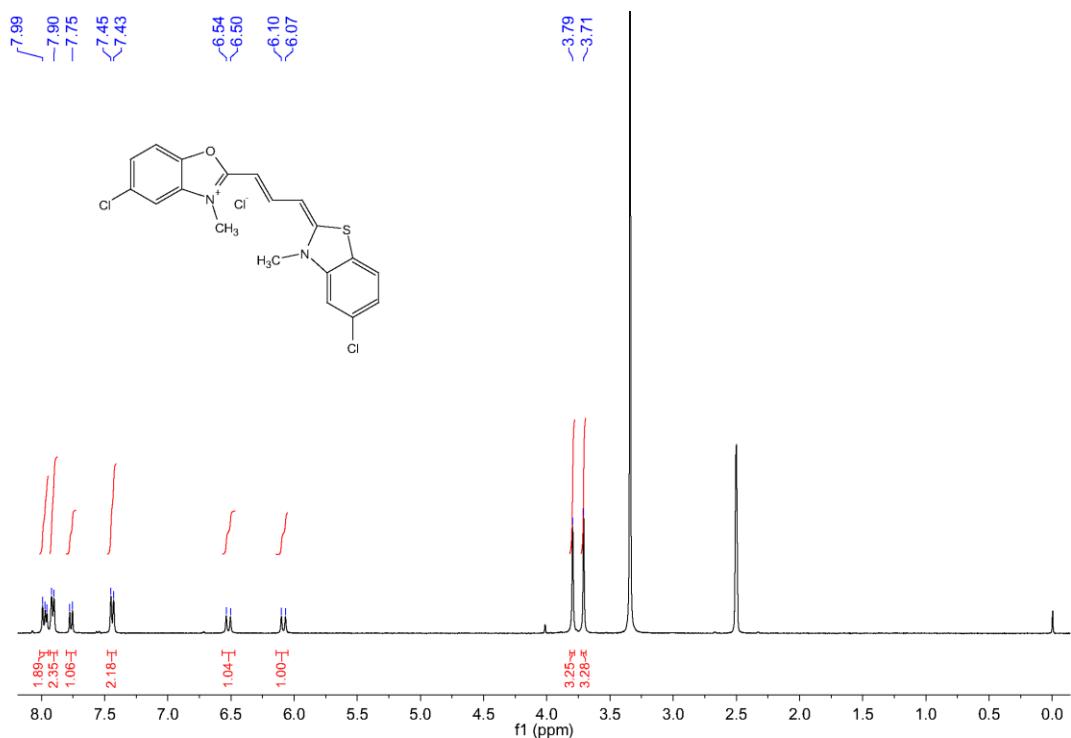
**Fig. S-7**  $^1\text{H}$  NMR spectra of **2e**.



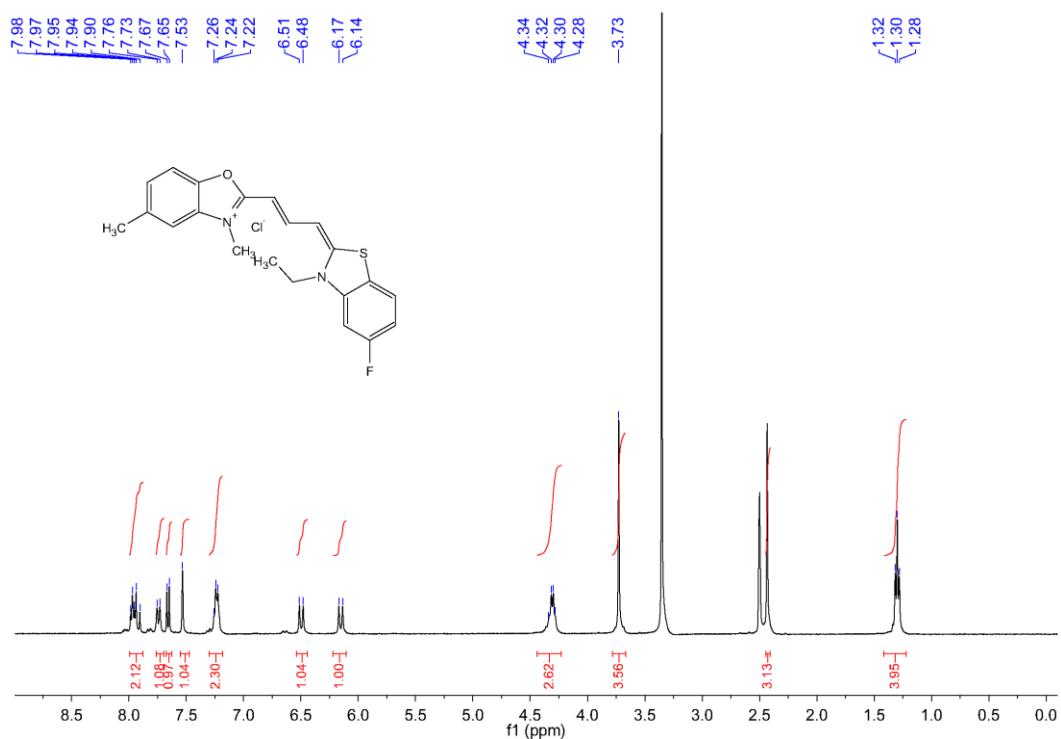
**Fig. S-8**  $^1\text{H}$  NMR spectra of **2f**.



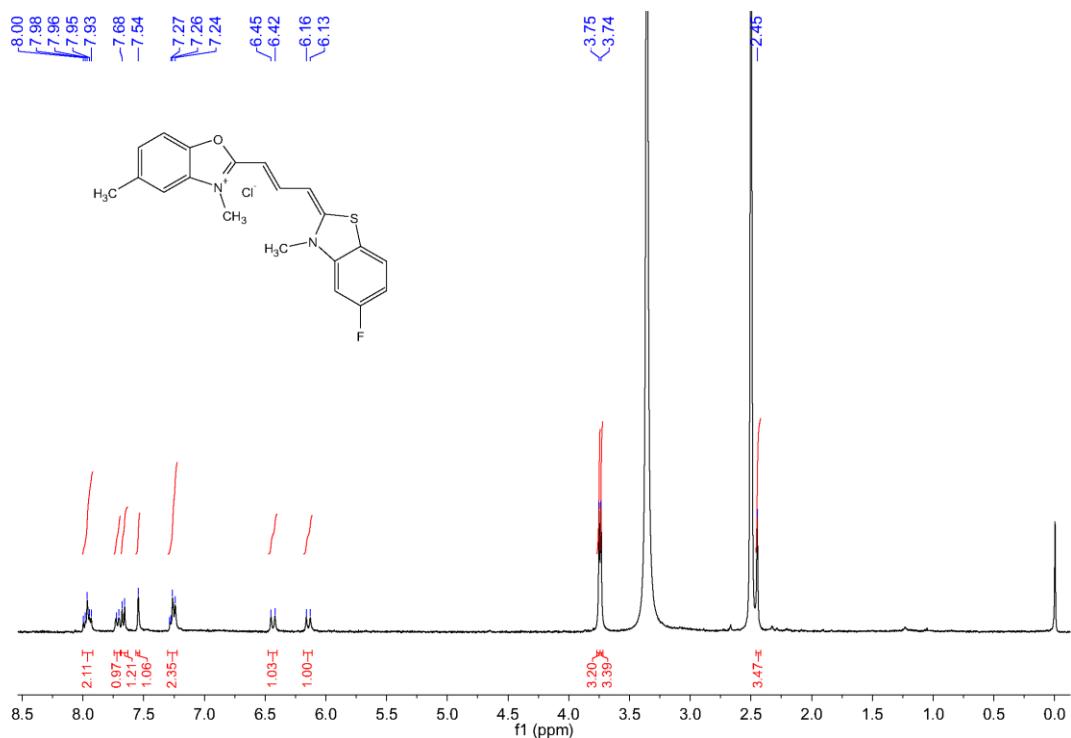
**Fig. S-9** <sup>1</sup>H NMR spectra of **2g**.



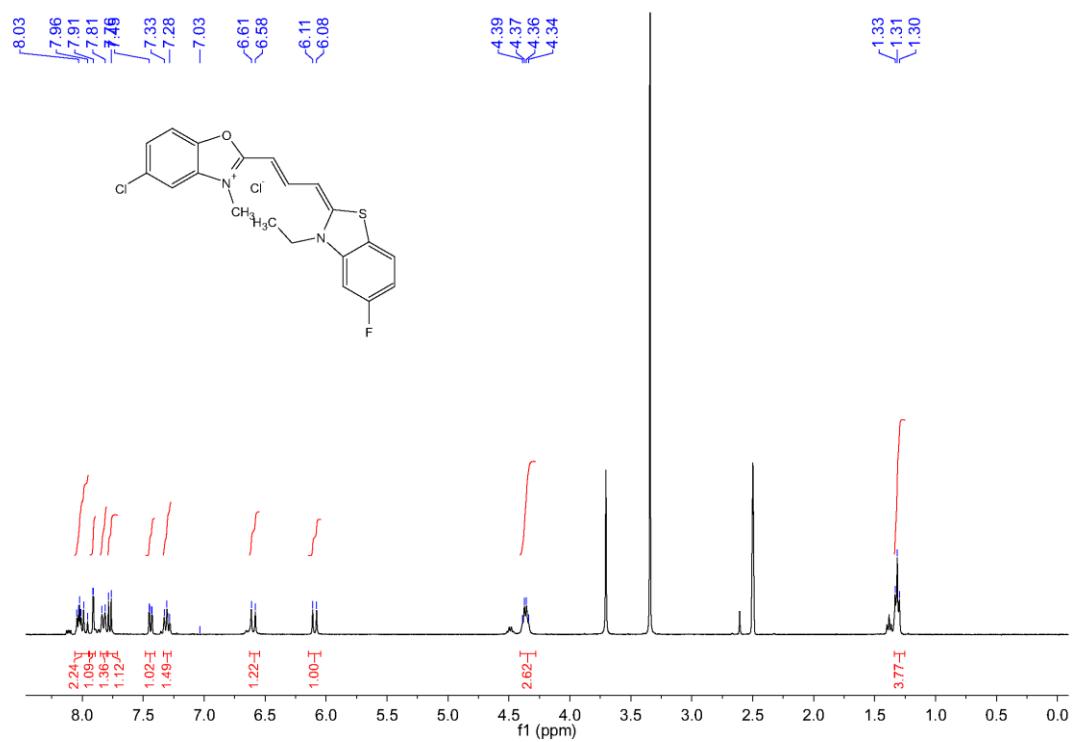
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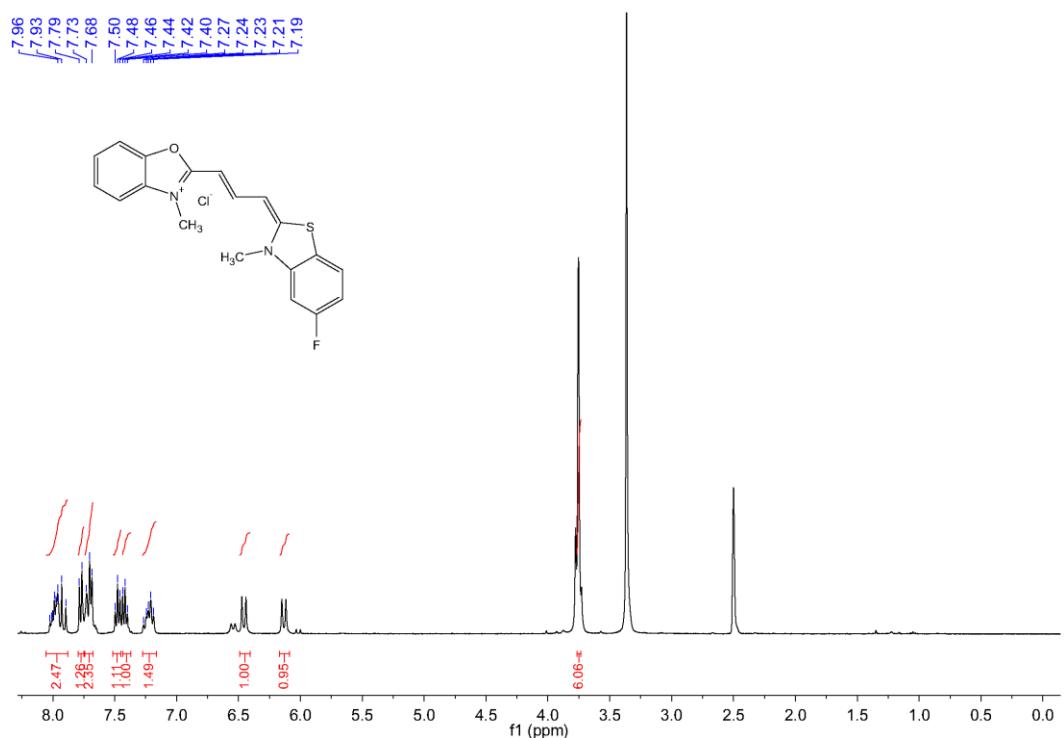
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**Fig. S-13** <sup>1</sup>H NMR spectra of **2k**.



**Fig. S-14** <sup>1</sup>H NMR spectra of **2l**.

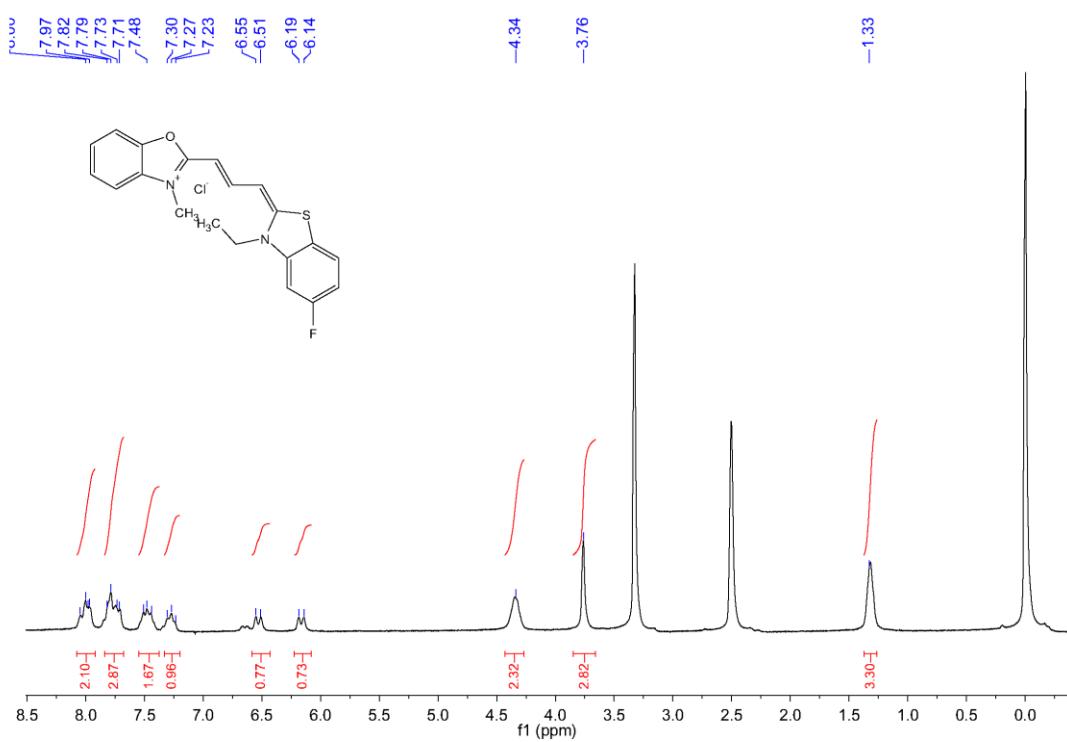


Fig. S-15 <sup>1</sup>H NMR spectra of 2m.

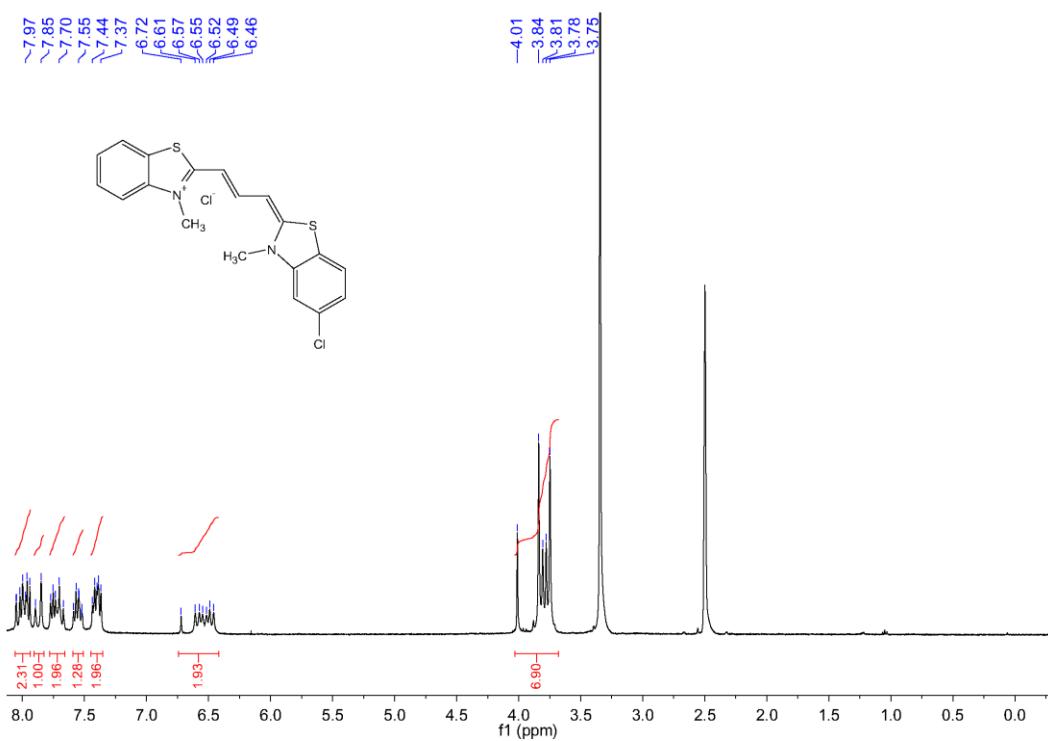
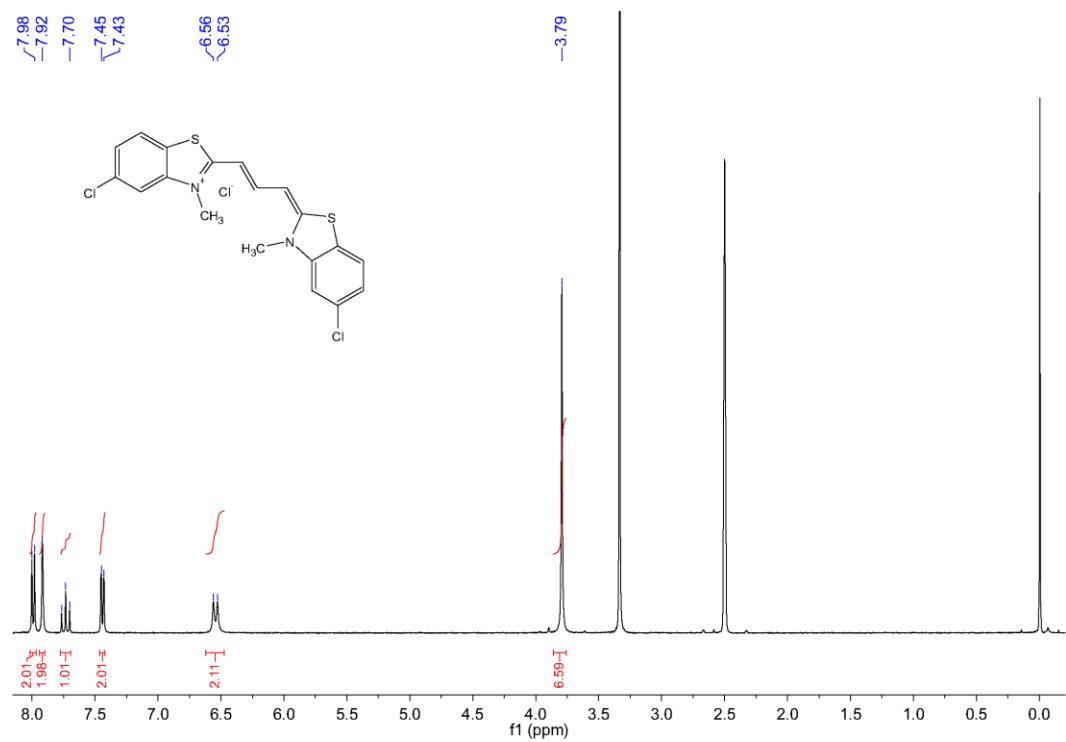
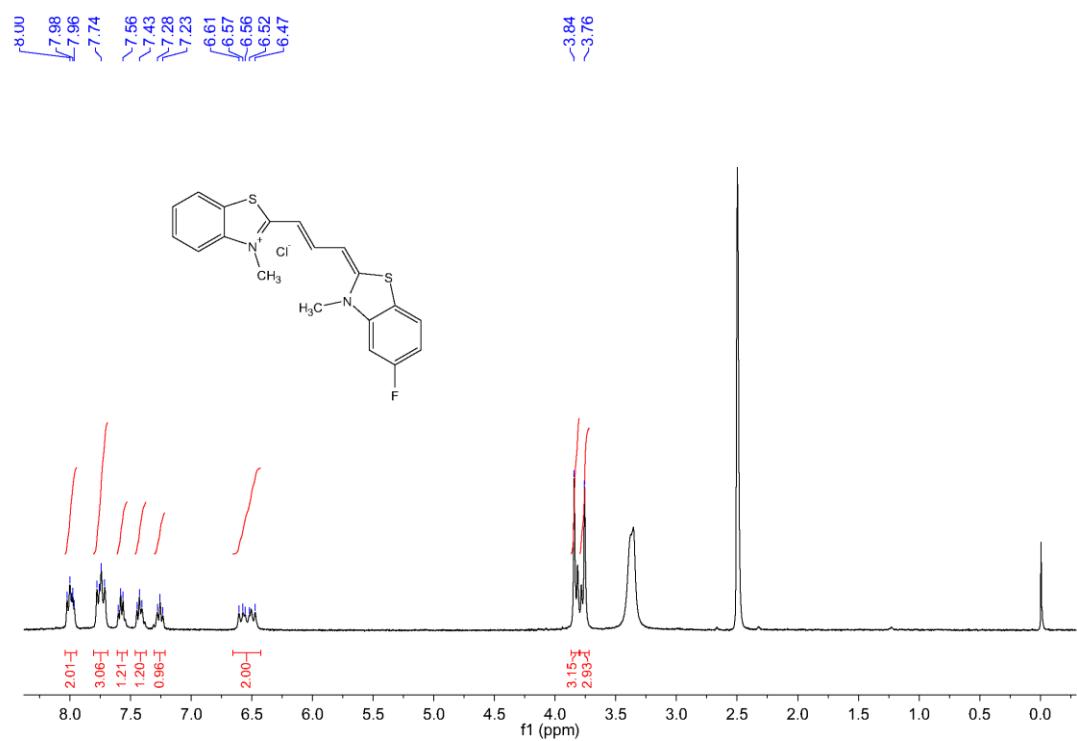


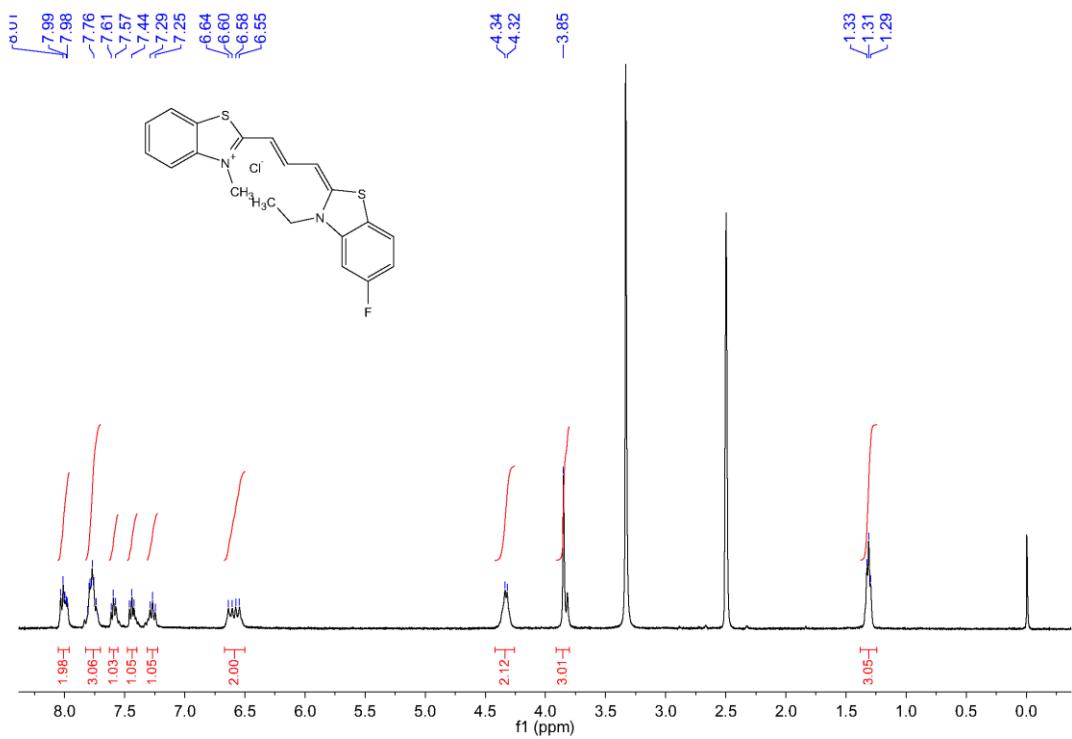
Fig. S-16 <sup>1</sup>H NMR spectra of 3b.



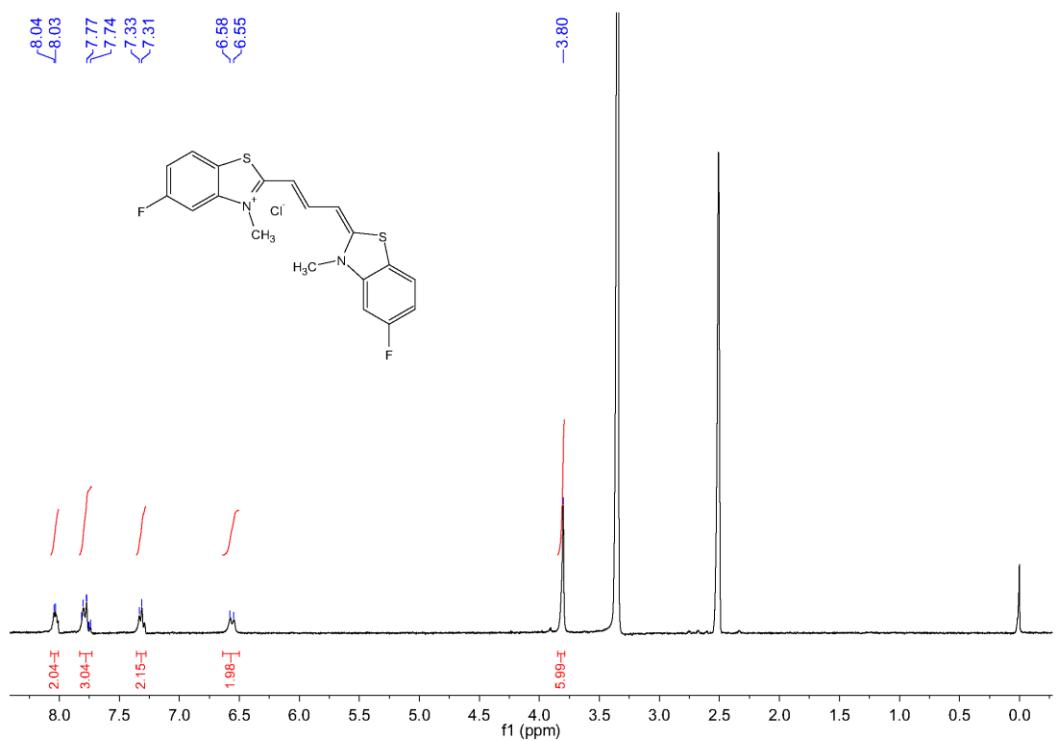
**Fig. S-17** <sup>1</sup>H NMR spectra of 3c.



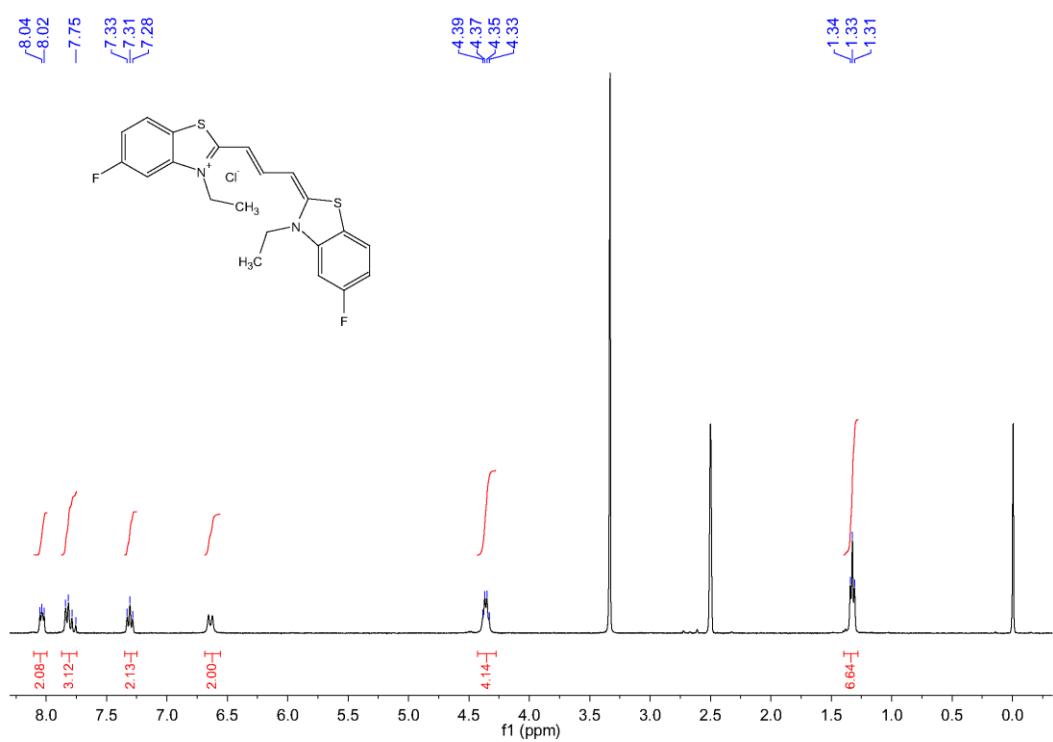
**Fig. S-18** <sup>1</sup>H NMR spectra of 3d.



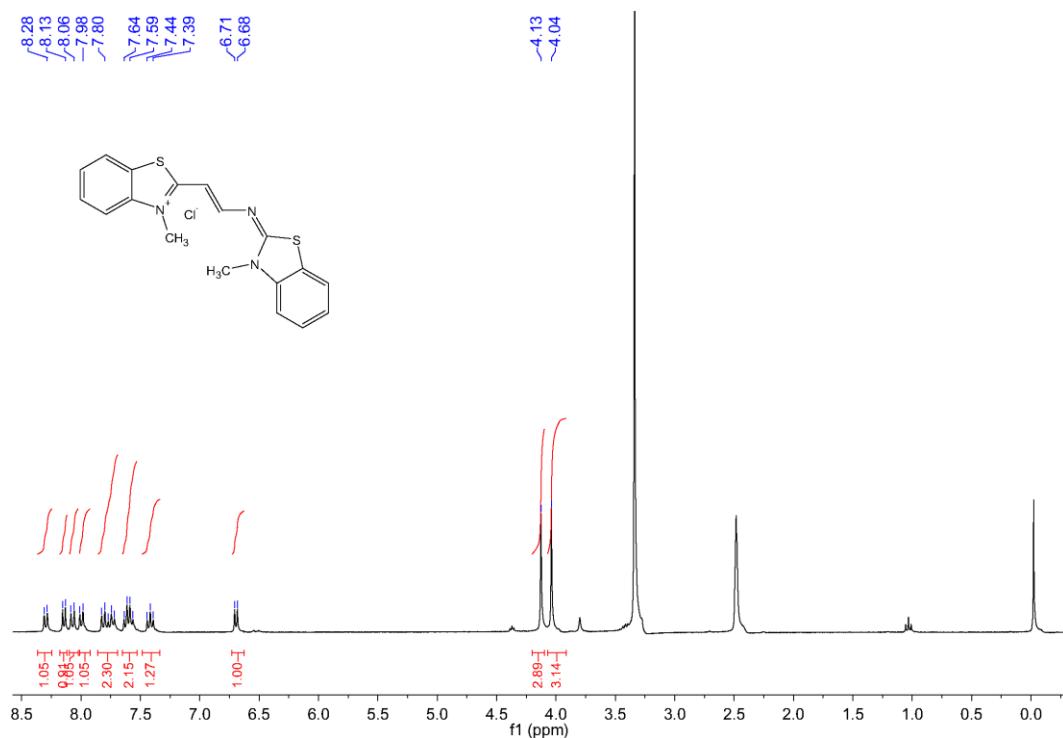
**Fig. S-19** <sup>1</sup>H NMR spectra of 3e.



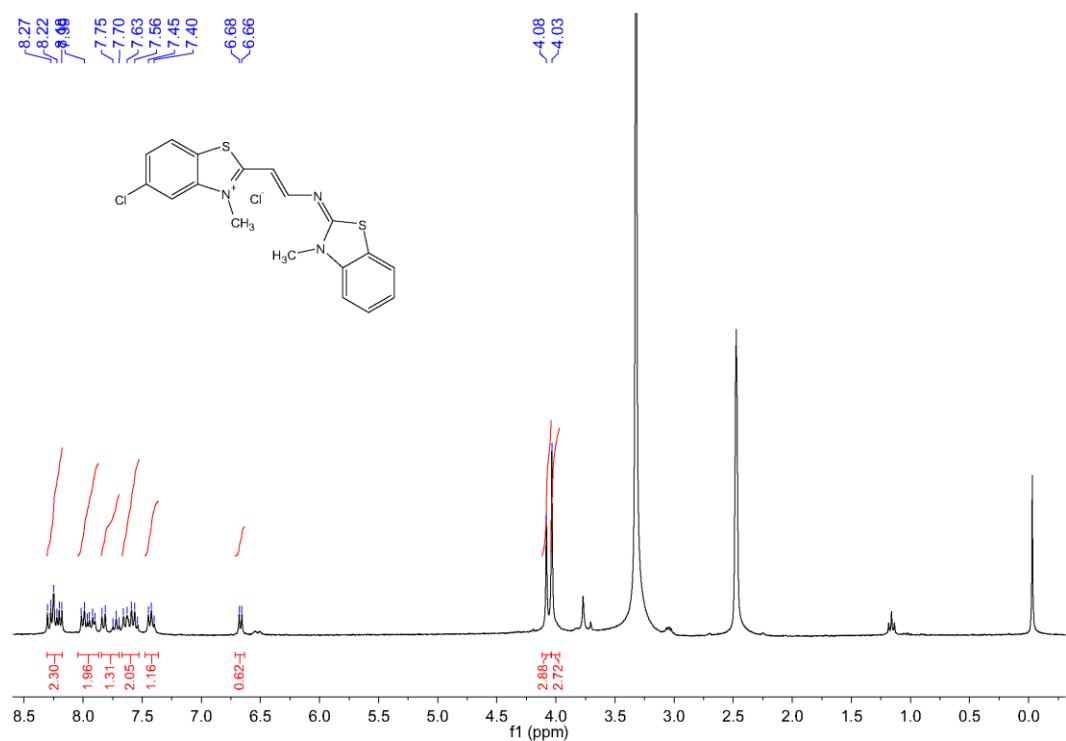
**Fig. S-20** <sup>1</sup>H NMR spectra of 3f.



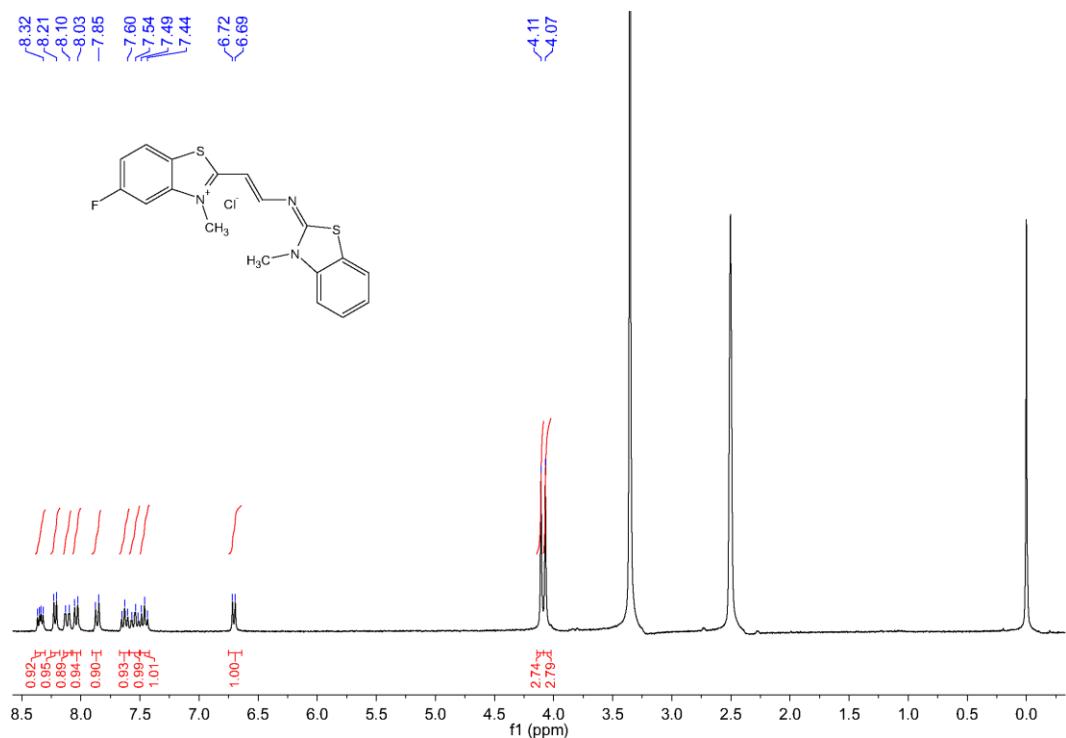
**Fig. S-21**  $^1\text{H}$  NMR spectra of **3g**.



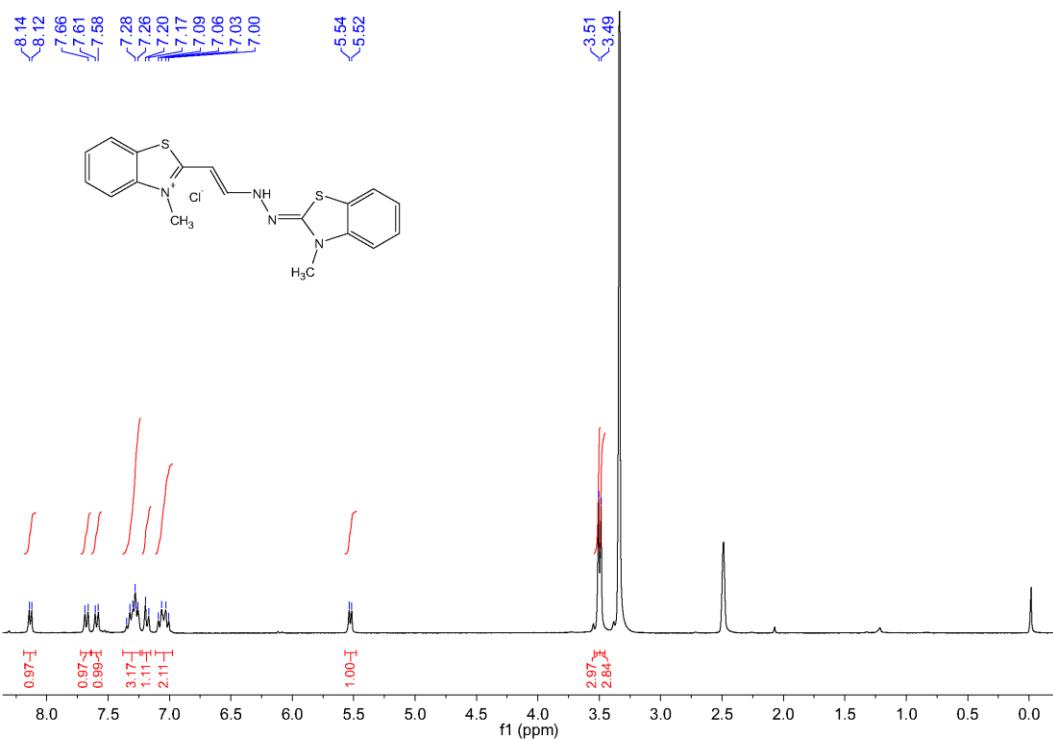
**Fig. S-22**  $^1\text{H}$  NMR spectra of **4a**.



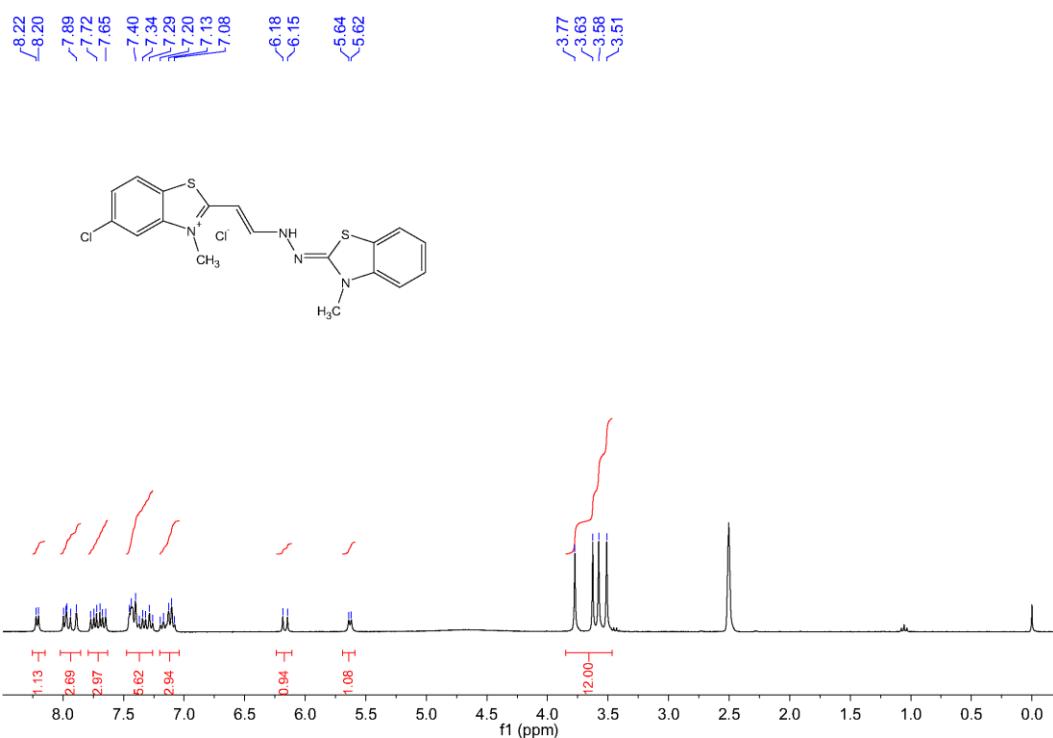
**Fig. S-23** <sup>1</sup>H NMR spectra of **4b**.



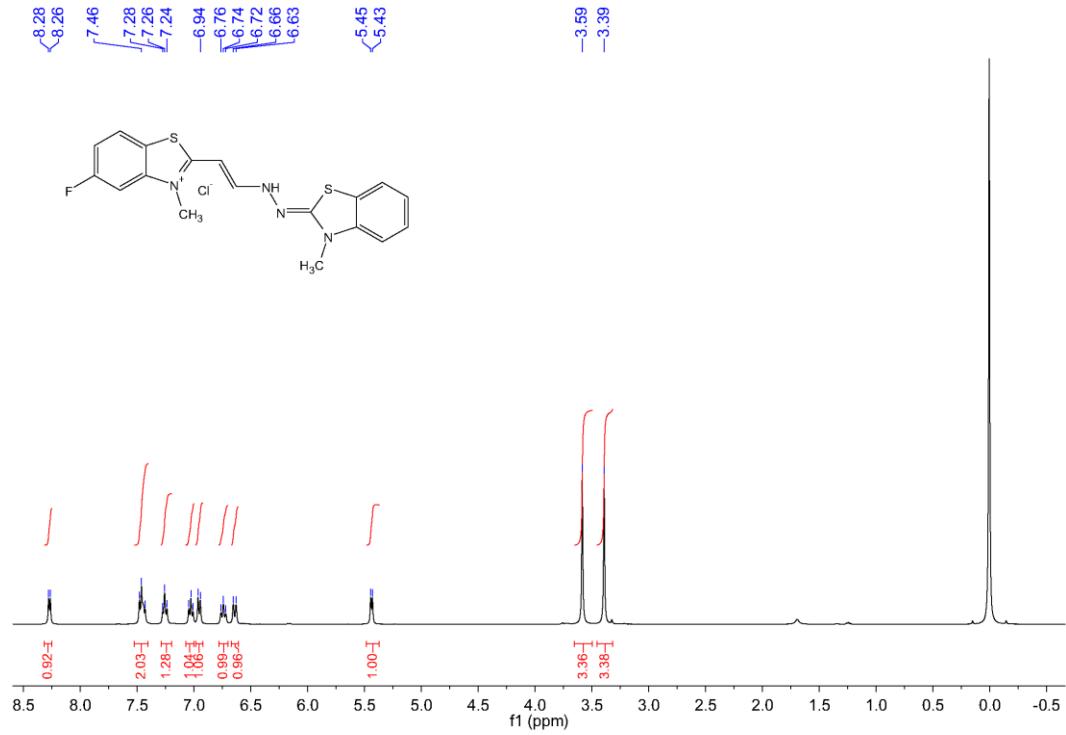
**Fig. S-24** <sup>1</sup>H NMR spectra of **4c**.



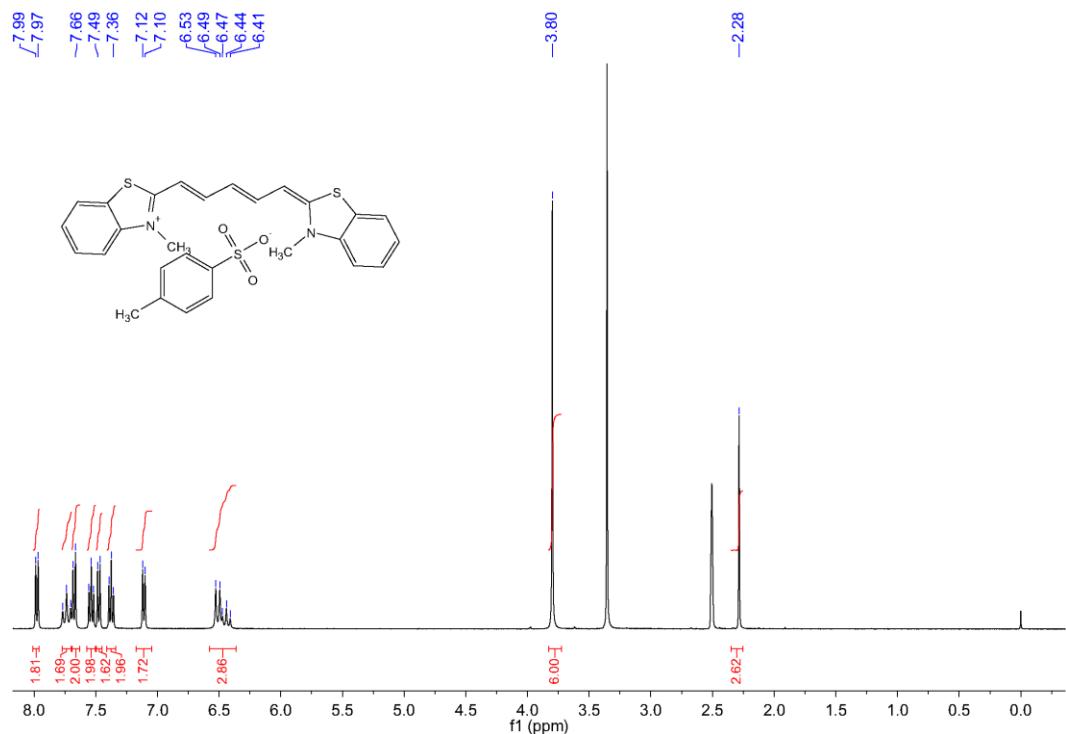
**Fig. S-25** <sup>1</sup>H NMR spectra of **5a**.



**Fig. S-26** <sup>1</sup>H NMR spectra of **5b**.



**Fig. S-27** <sup>1</sup>H NMR spectra of **5c**.



**Fig. S-28** <sup>1</sup>H NMR spectra of **6a**.

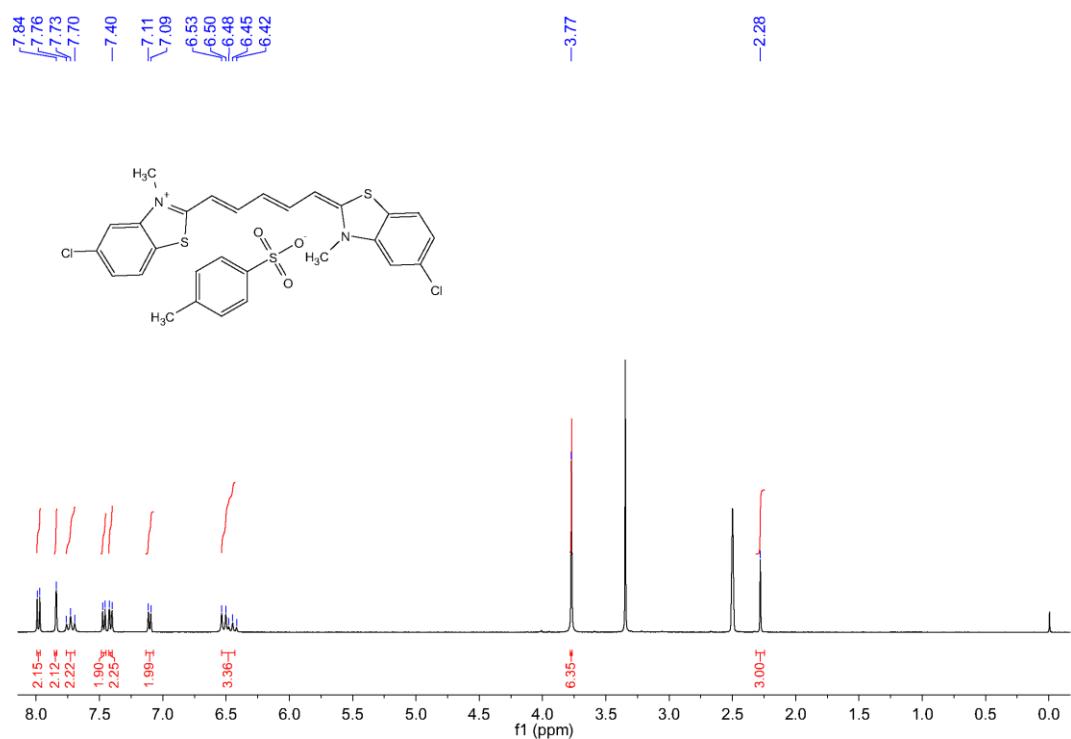


Fig. S-29 <sup>1</sup>H NMR spectra of 6b.

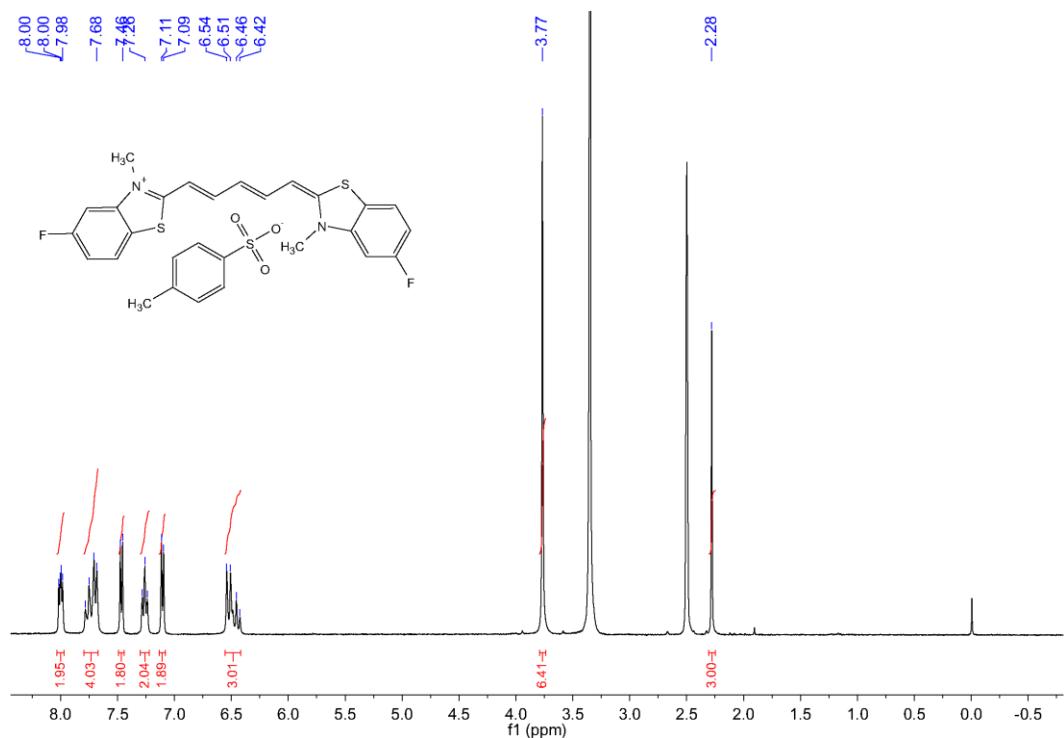
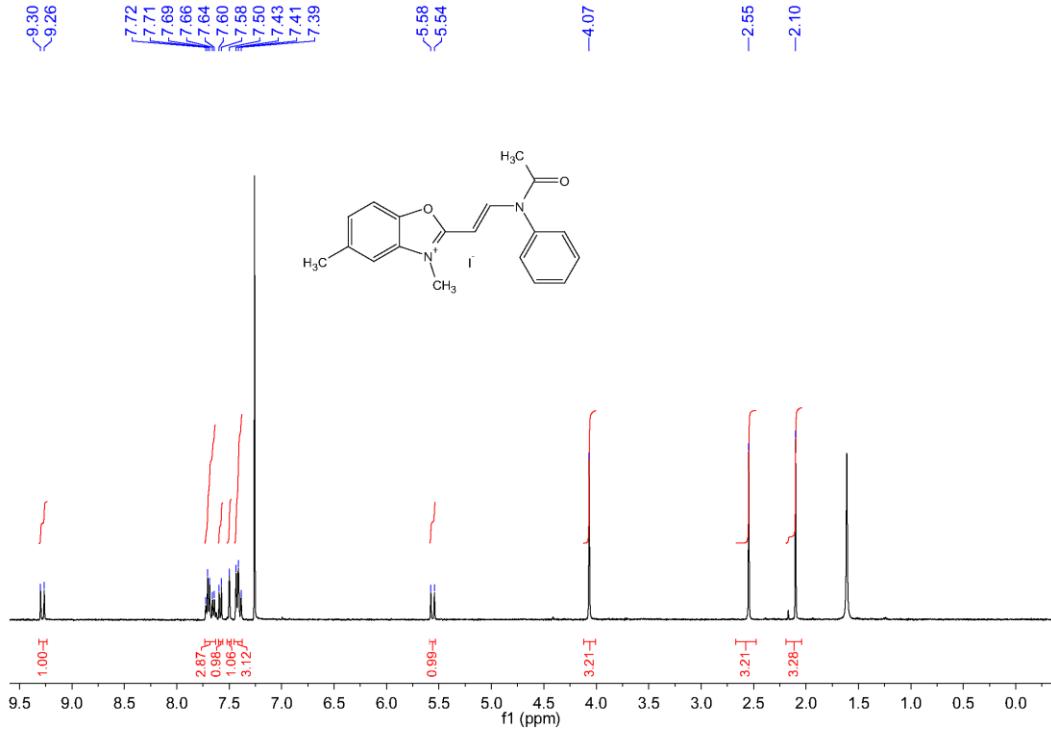
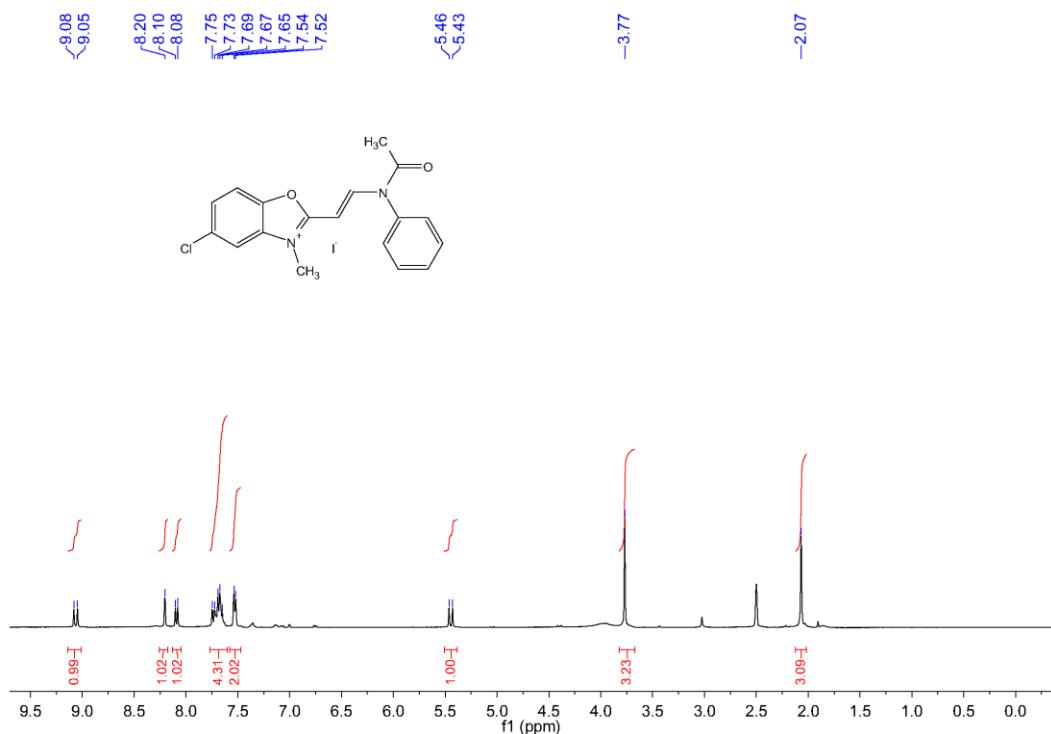


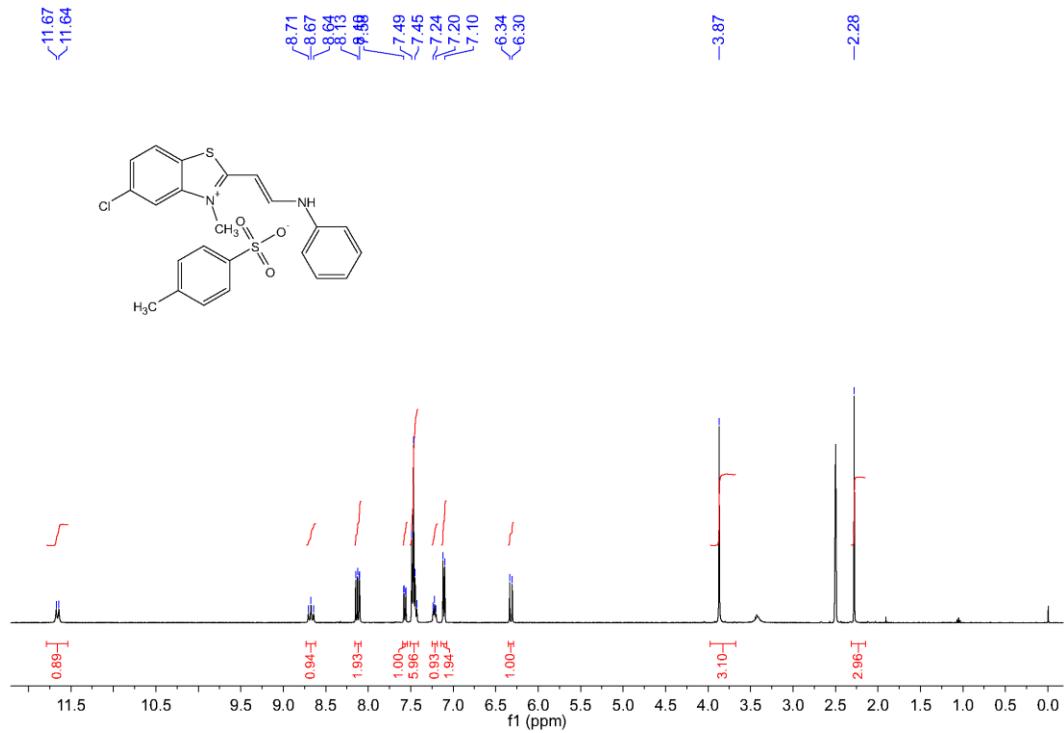
Fig. S-30 <sup>1</sup>H NMR spectra of 6c.



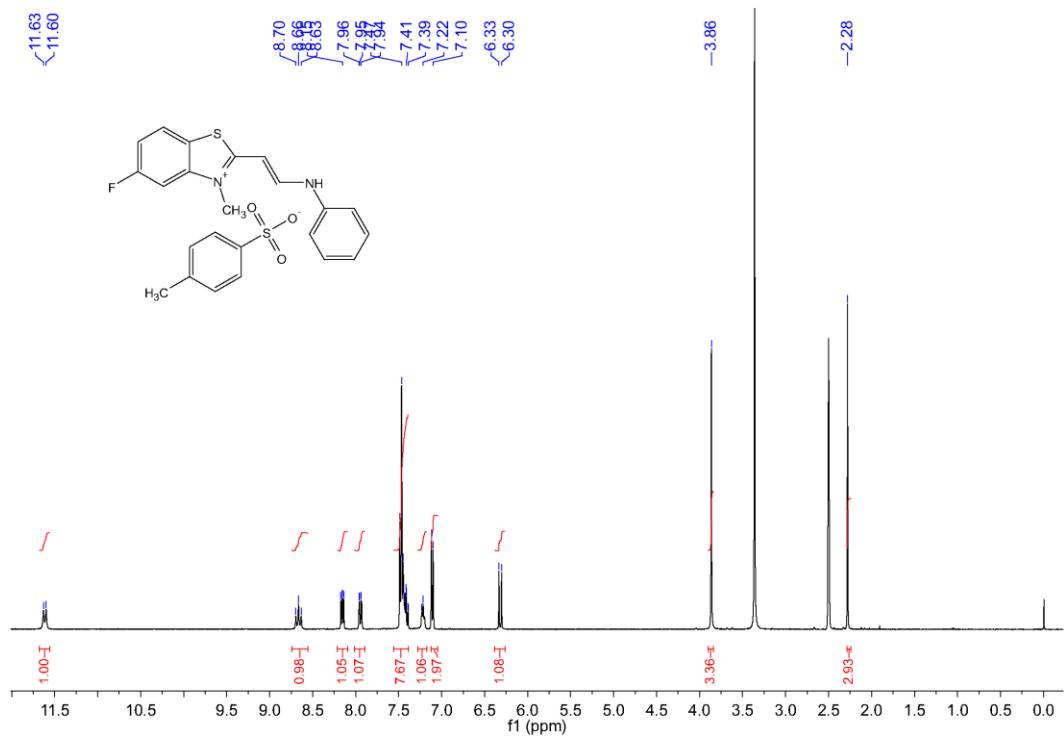
**Fig. S-31** <sup>1</sup>H NMR spectra of **9b**.



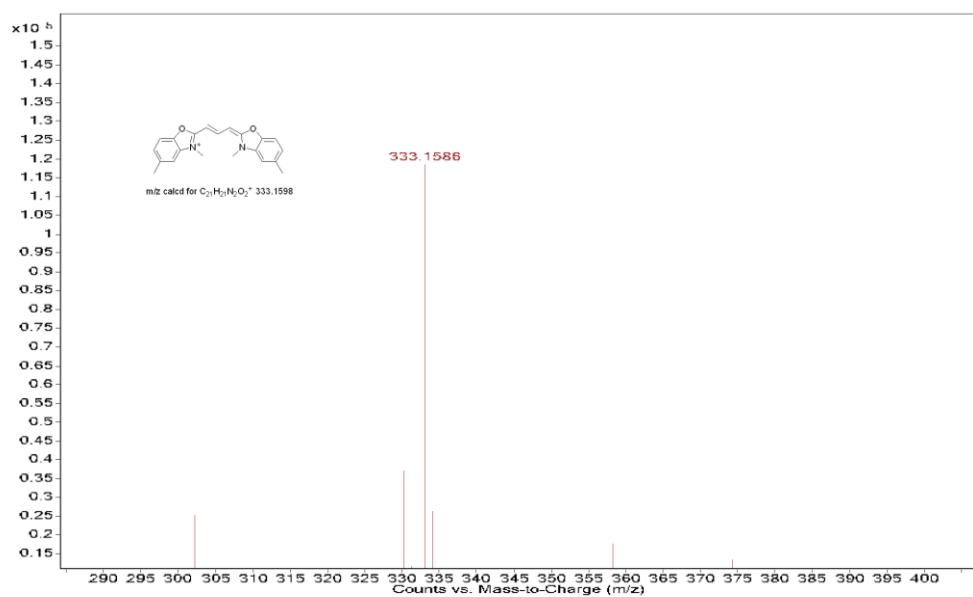
**Fig. S-32** <sup>1</sup>H NMR spectra of **9c**.



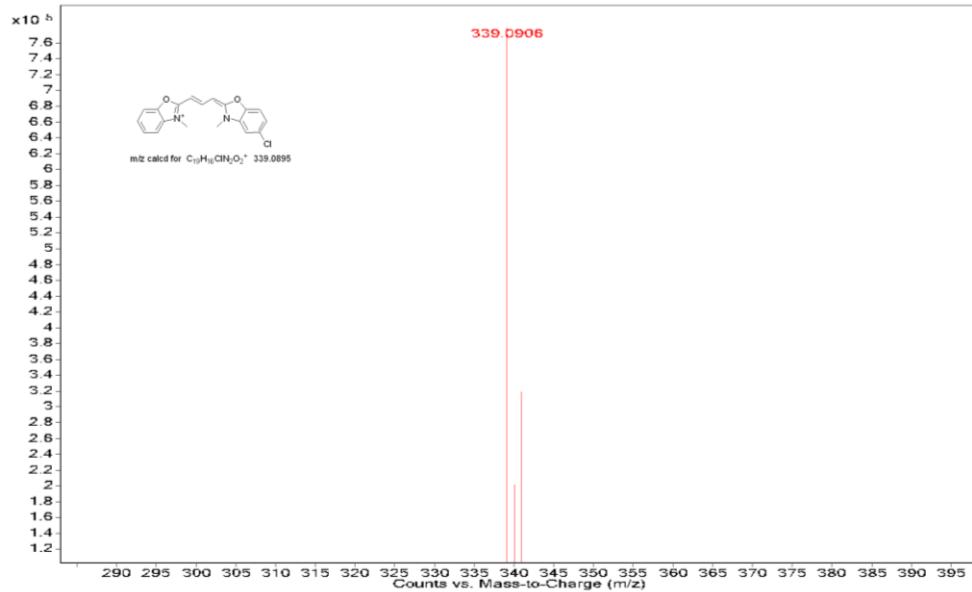
**Fig. S-33** <sup>1</sup>H NMR spectra of **10b**.



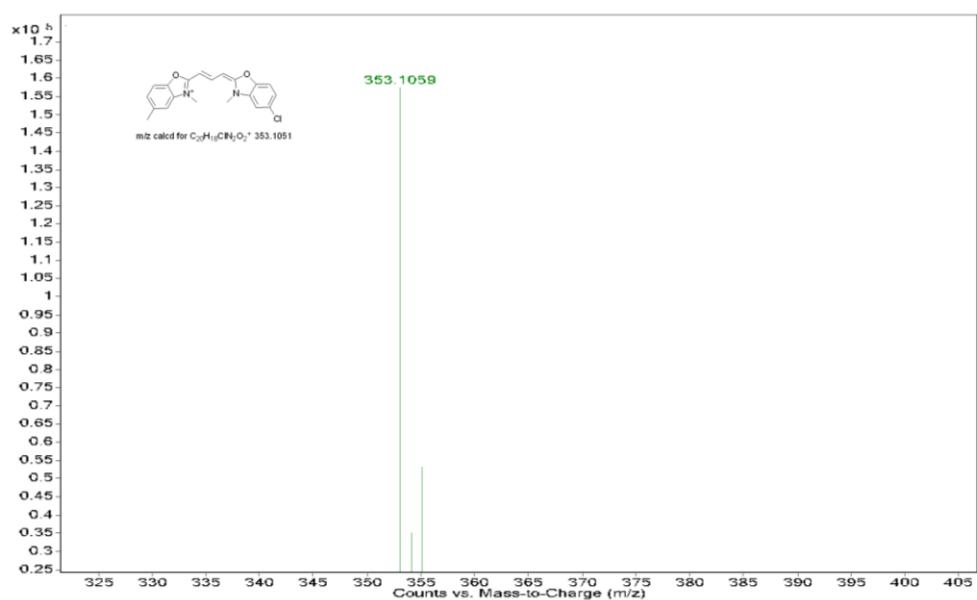
**Fig. S-34** <sup>1</sup>H NMR spectra of **10c**.



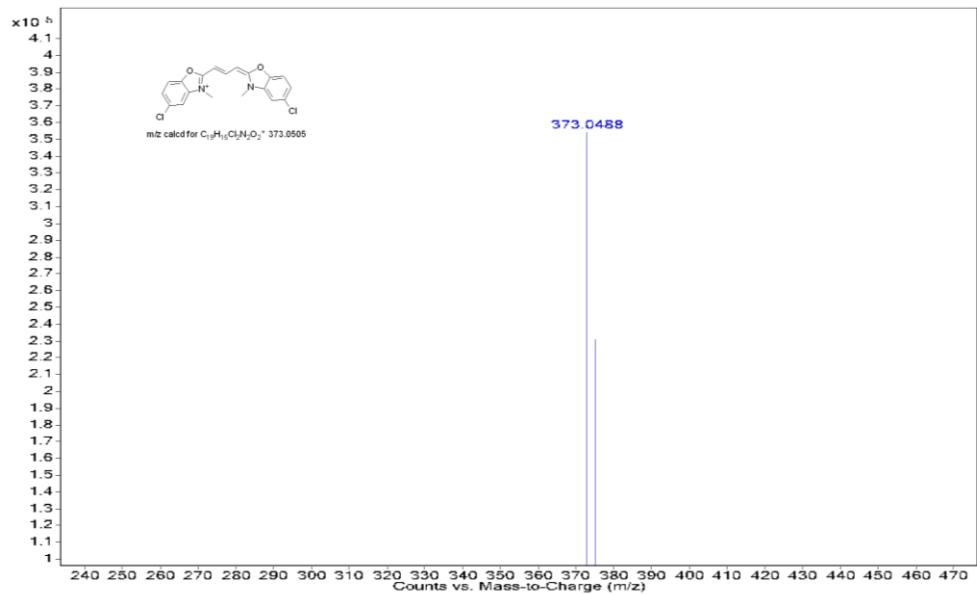
**Fig. S-35** HRMS spectra of **1c**



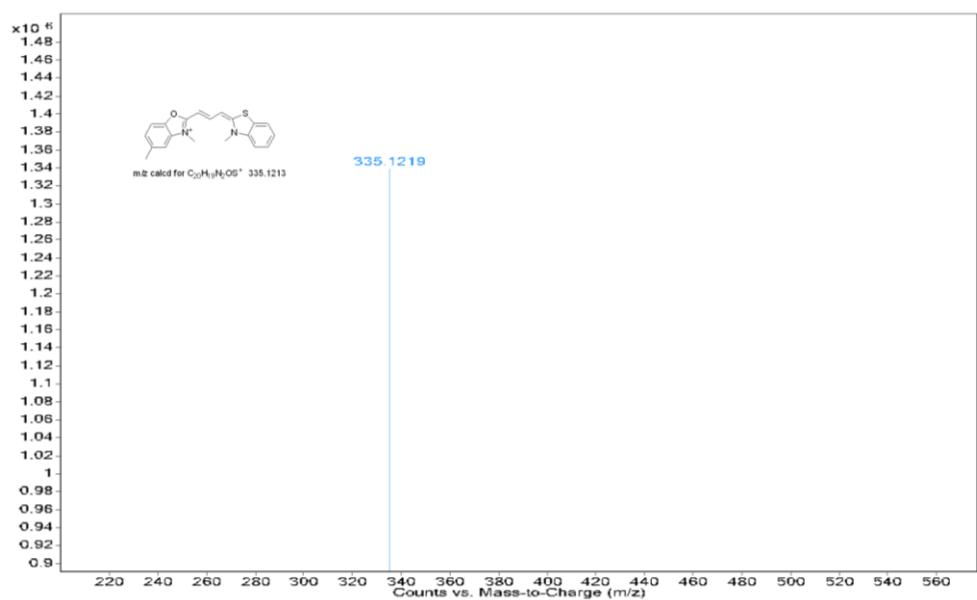
**Fig. S-36** HRMS spectra of **1d**



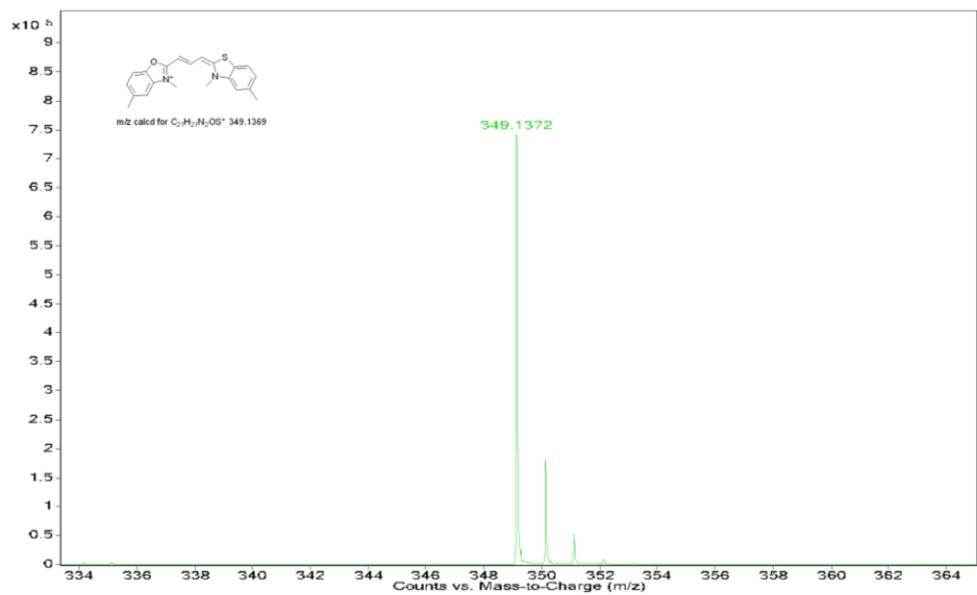
**Fig. S-37** HRMS spectra of **1e**



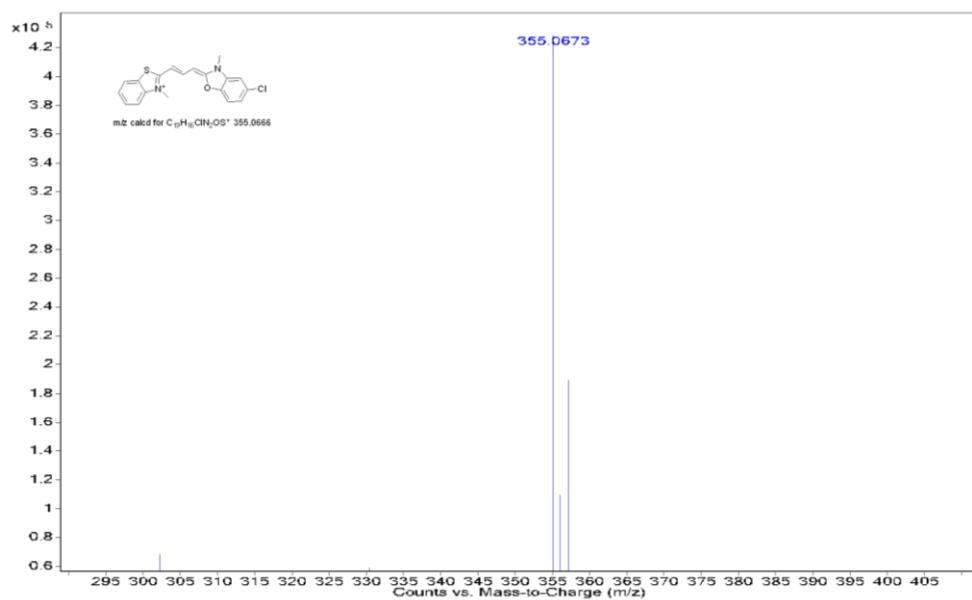
**Fig. S-38** HRMS spectra of **1f**



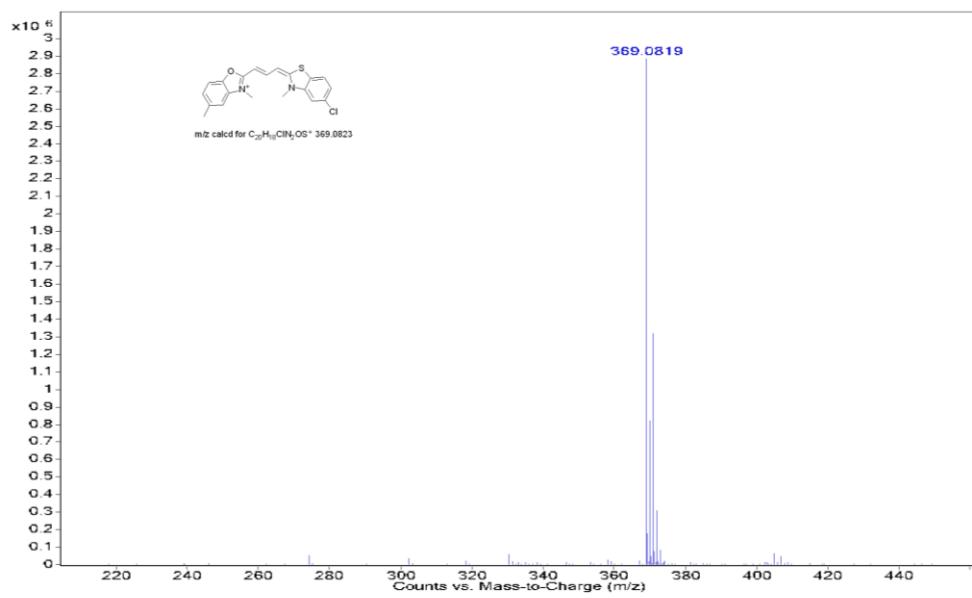
**Fig. S-39** HRMS spectra of **2c**



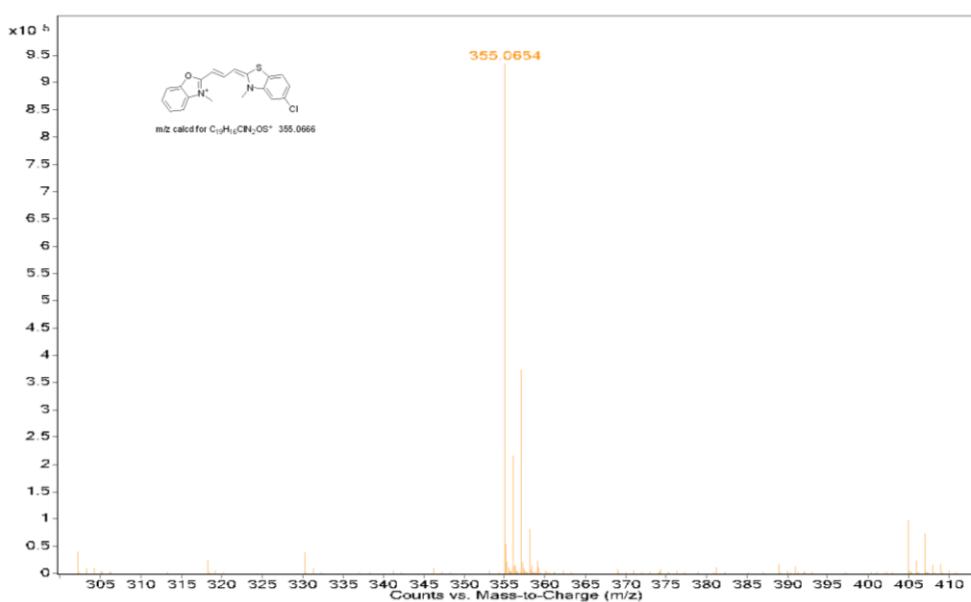
**Fig. S-40** HRMS spectra of **2d**



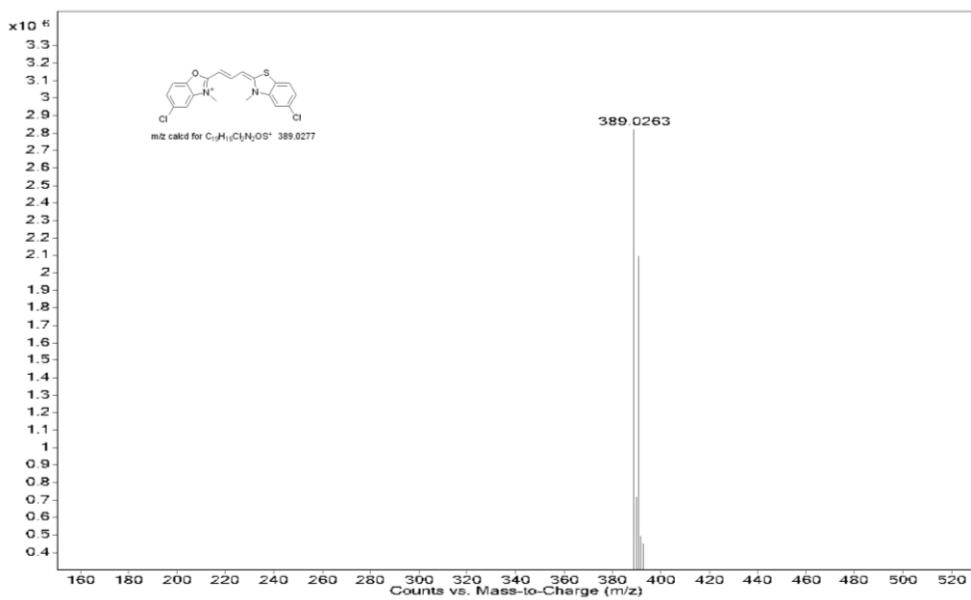
**Fig. S-41** HRMS spectra of **2e**



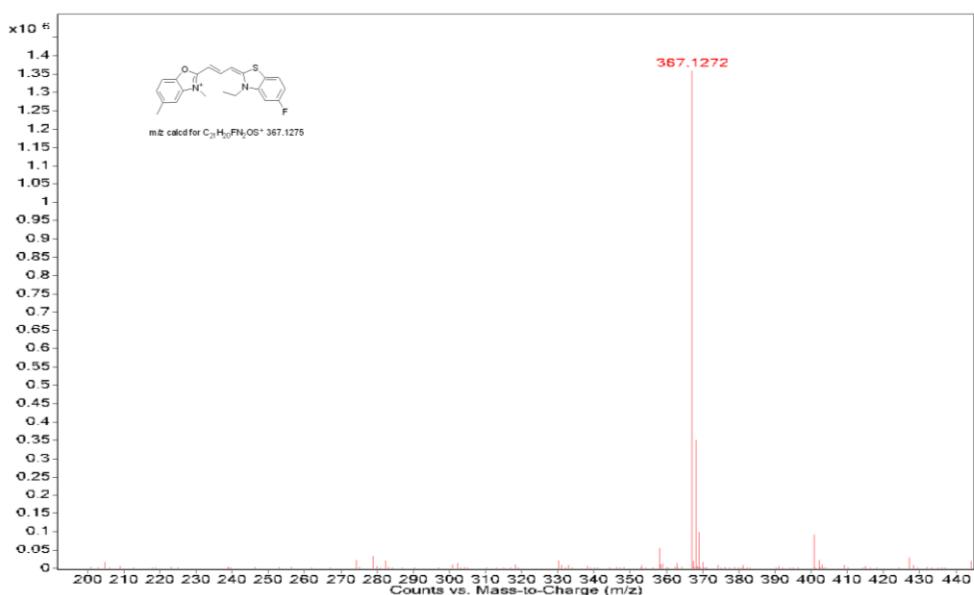
**Fig. S-42** HRMS spectra of **2f**



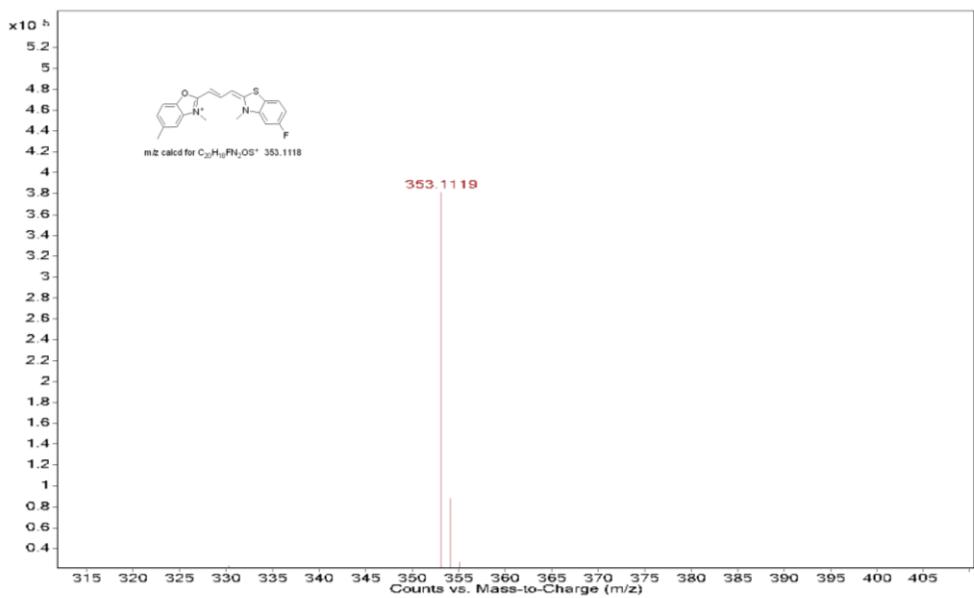
**Fig. S-43** HRMS spectra of **2g**



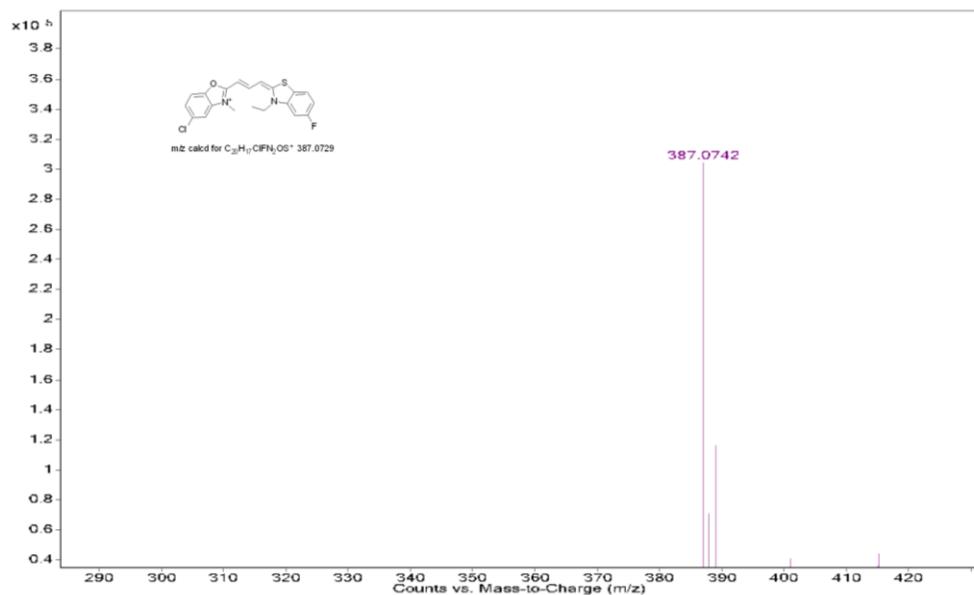
**Fig. S-44** HRMS spectra of **2h**



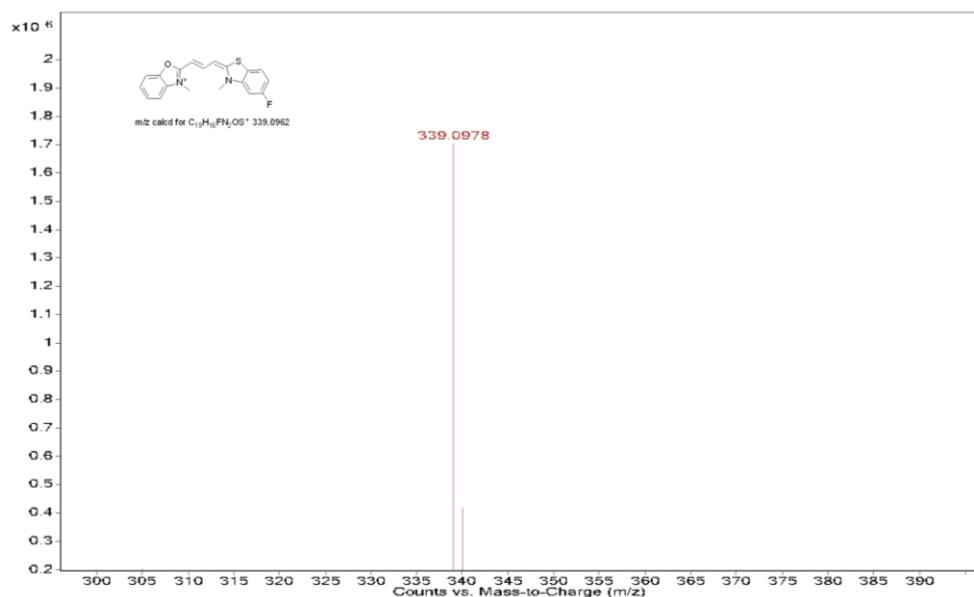
**Fig. S-45** HRMS spectra of **2i**



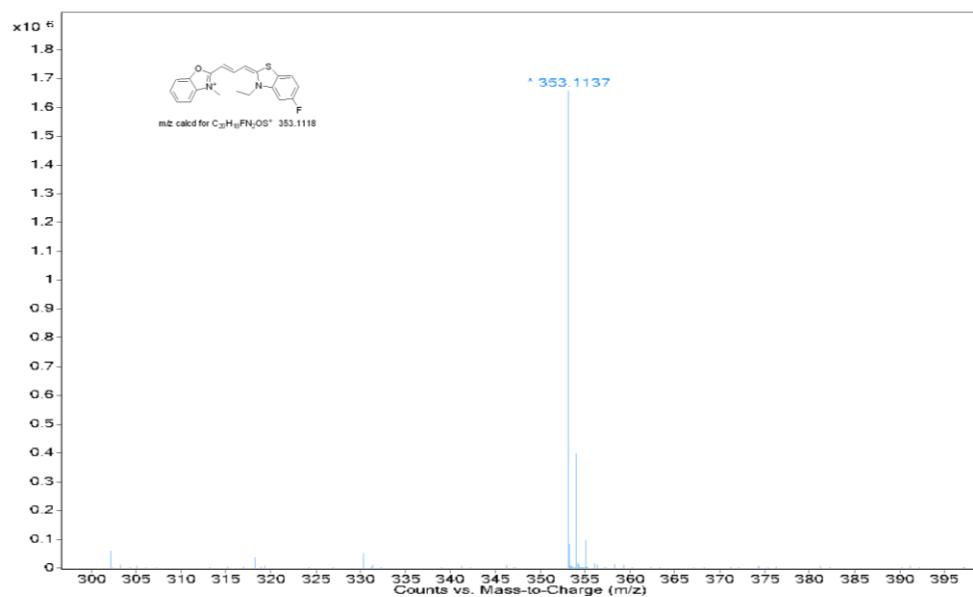
**Fig. S-46** HRMS spectra of **2j**



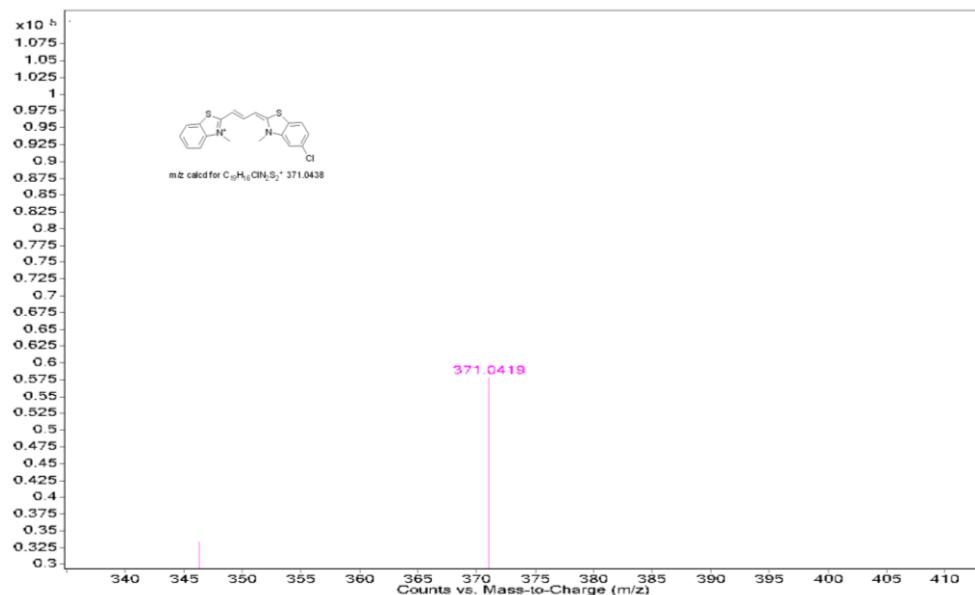
**Fig. S-47** HRMS spectra of **2k**



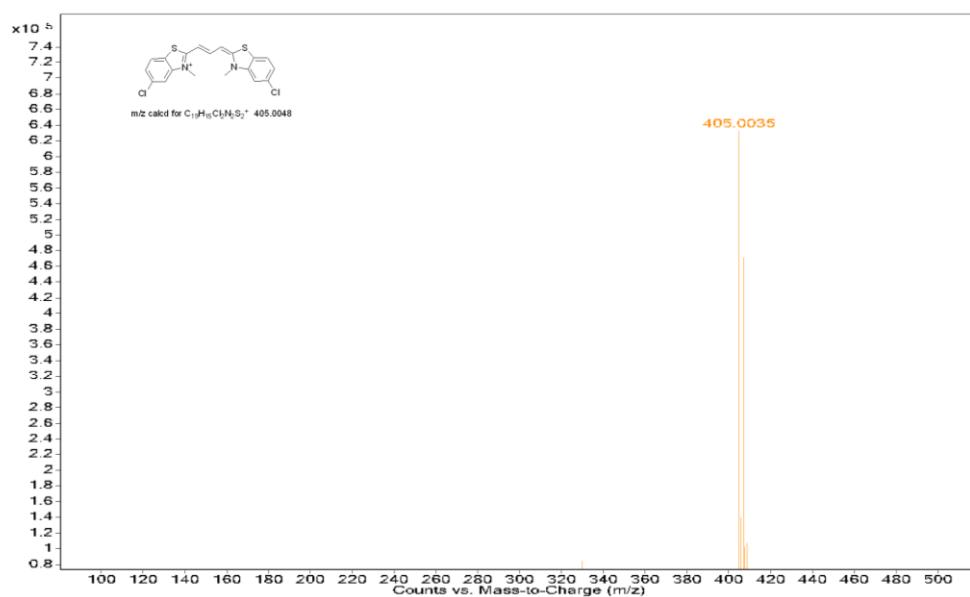
**Fig. S-48** HRMS spectra of **2l**



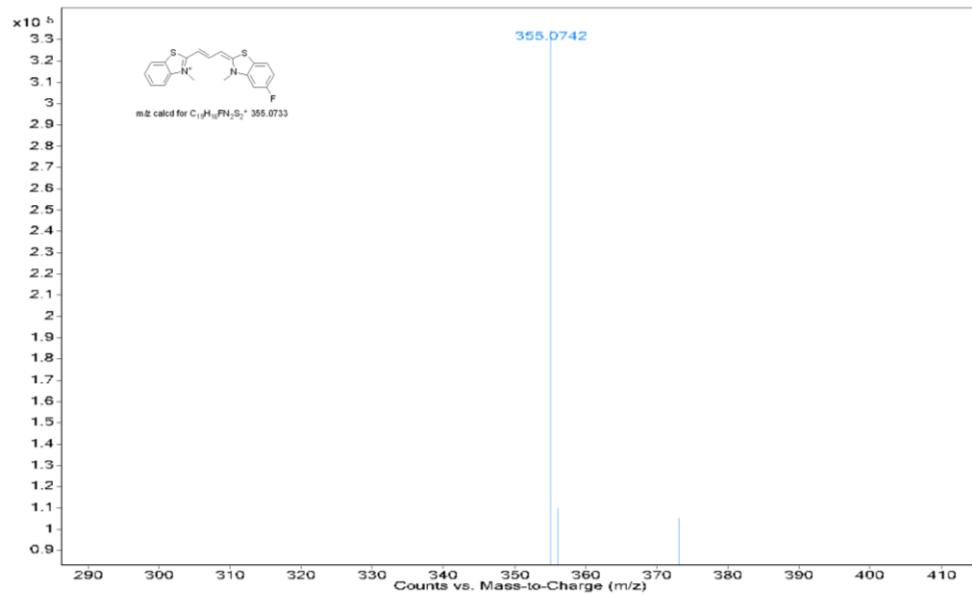
**Fig. S-49** HRMS spectra of **2m**



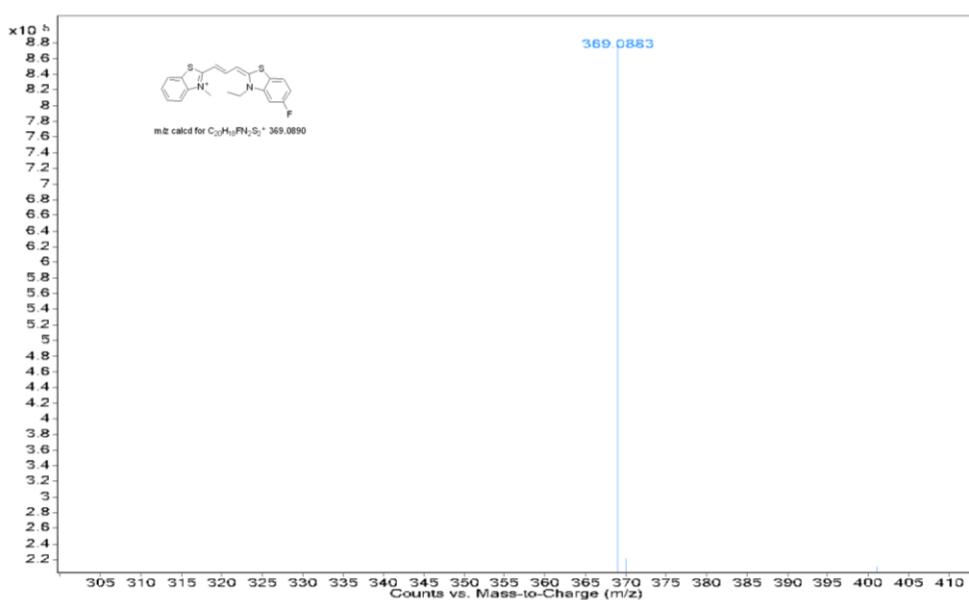
**Fig. S-50** HRMS spectra of **3b**



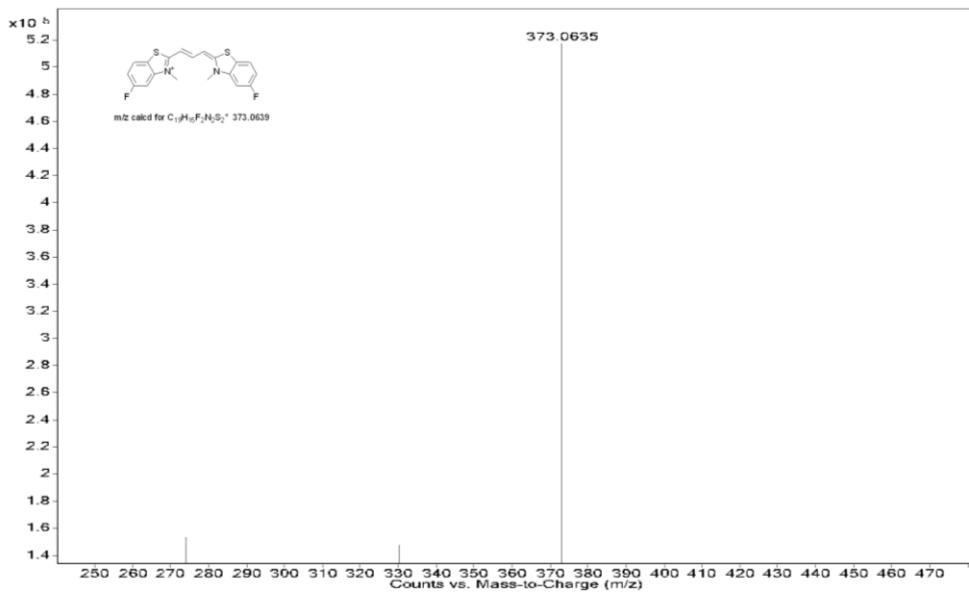
**Fig. S-51** HRMS spectra of **3c**



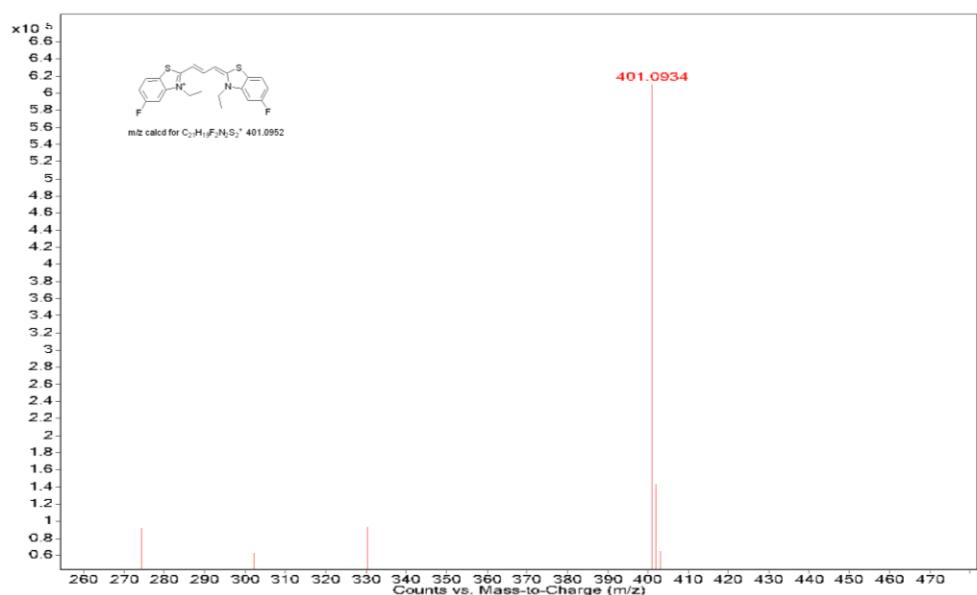
**Fig. S-52** HRMS spectra of **3d**



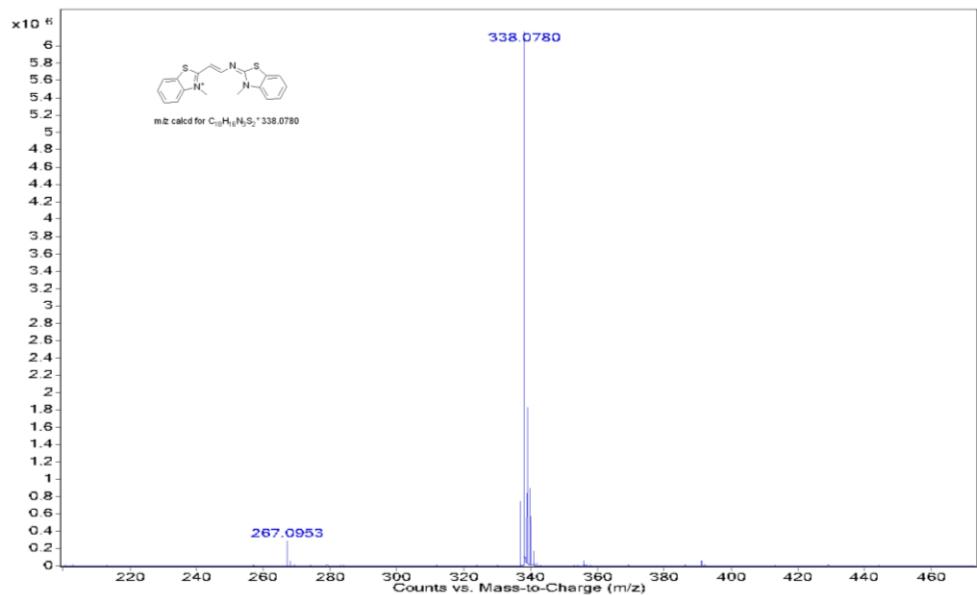
**Fig. S-53** HRMS spectra of **3e**



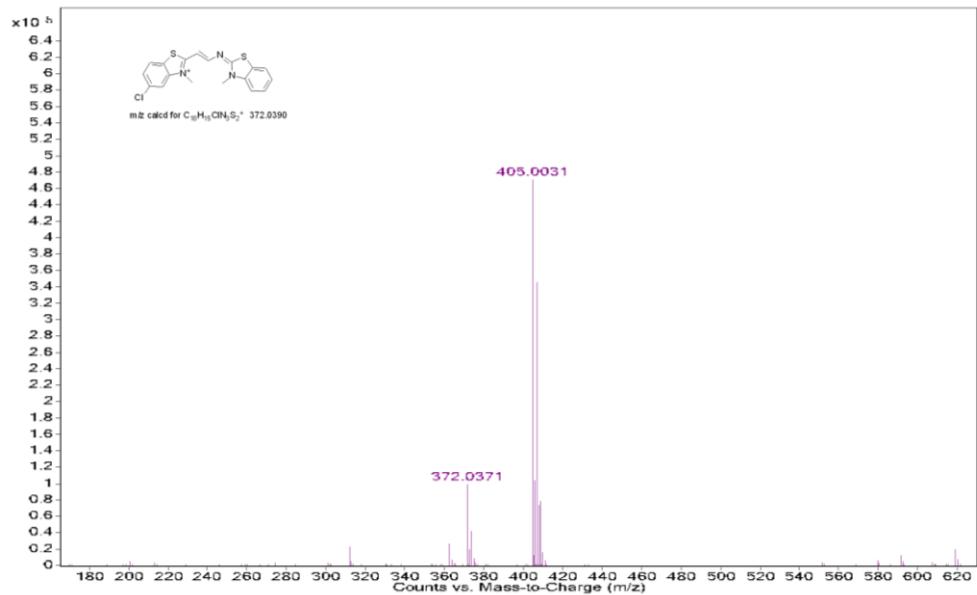
**Fig. S-54** HRMS spectra of **3f**



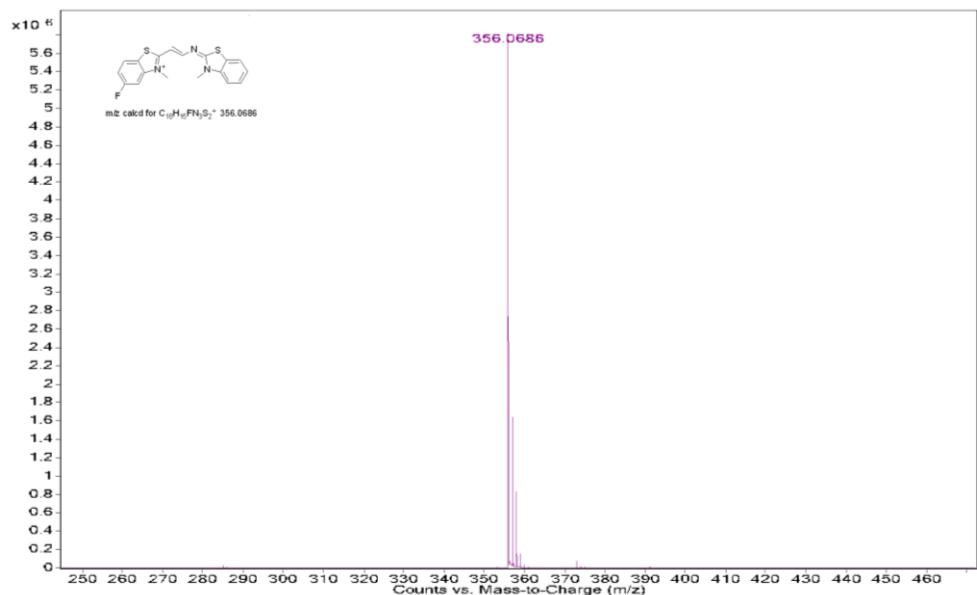
**Fig. S-55** HRMS spectra of **3g**



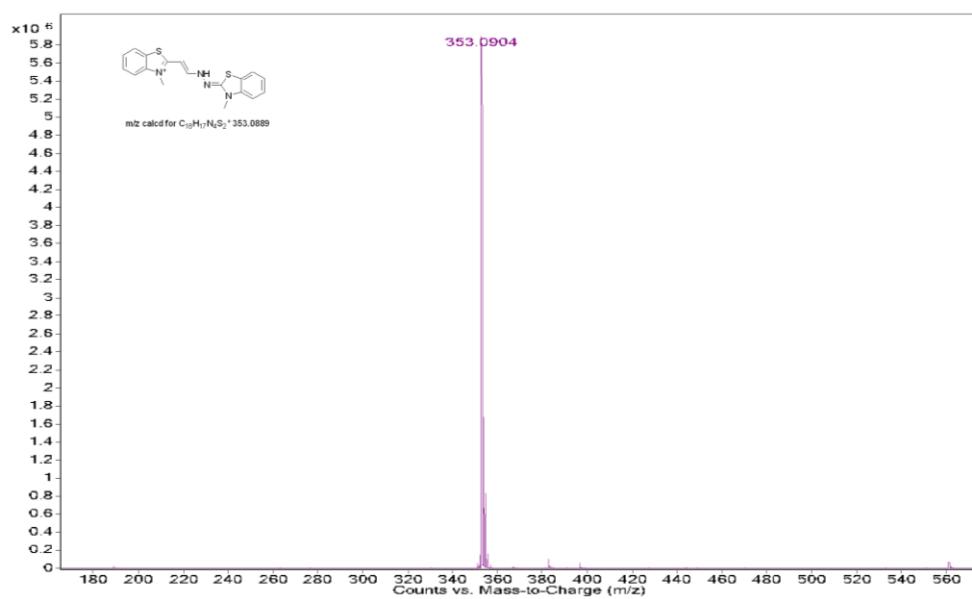
**Fig. S-56** HRMS spectra of **4a**



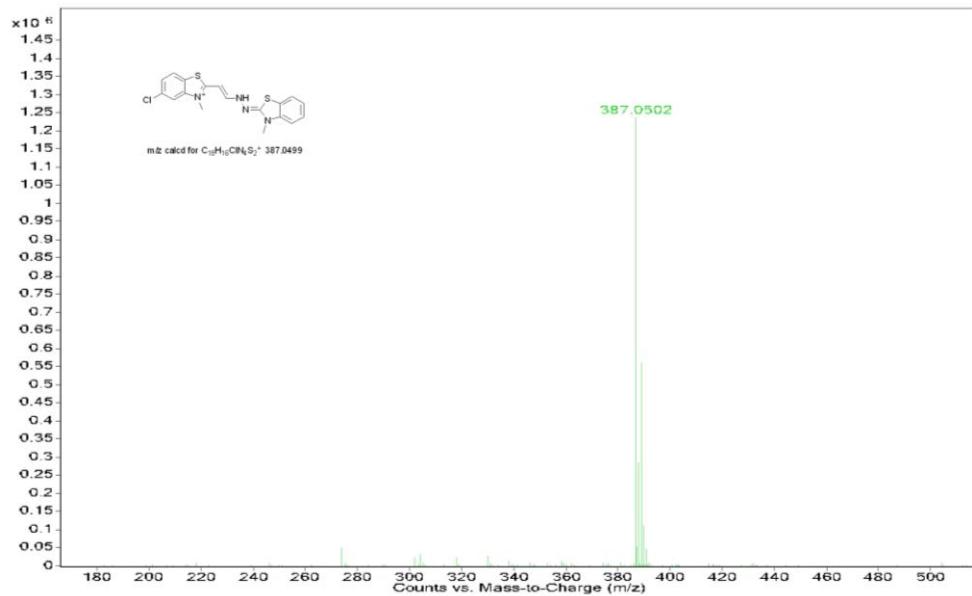
**Fig. S-57** HRMS spectra of 4b



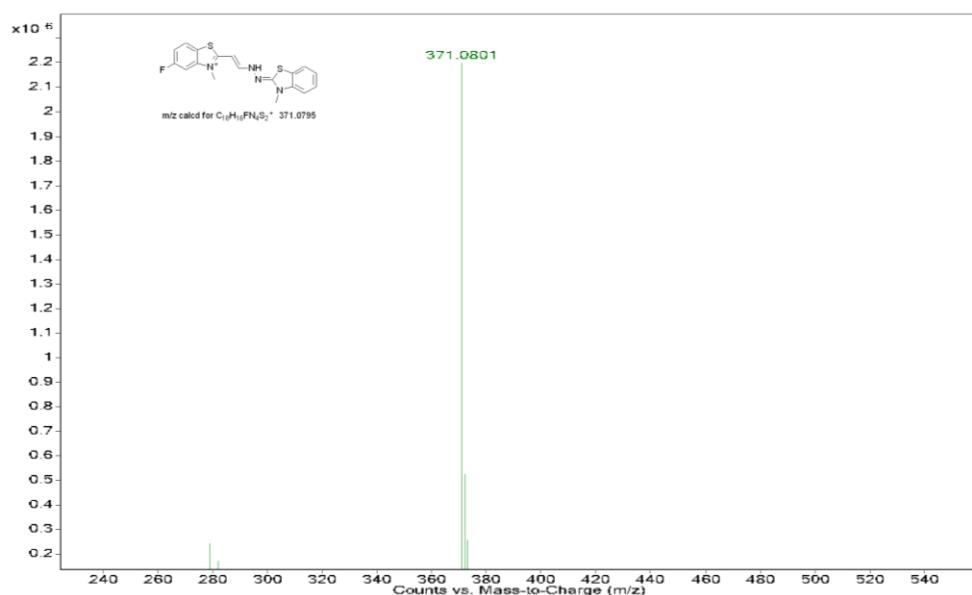
**Fig. S-58** HRMS spectra of 4c



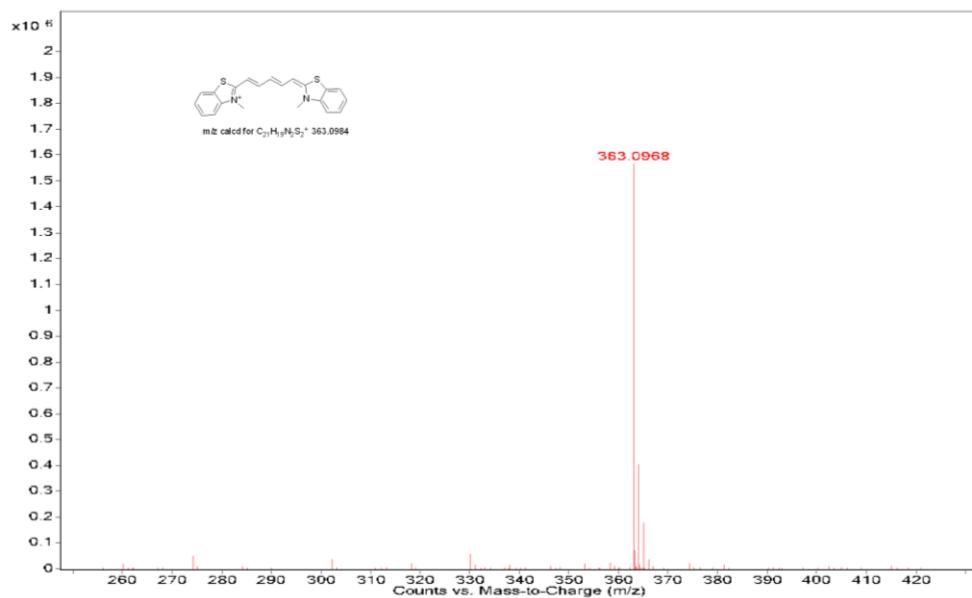
**Fig. S-59** HRMS spectra of **5a**



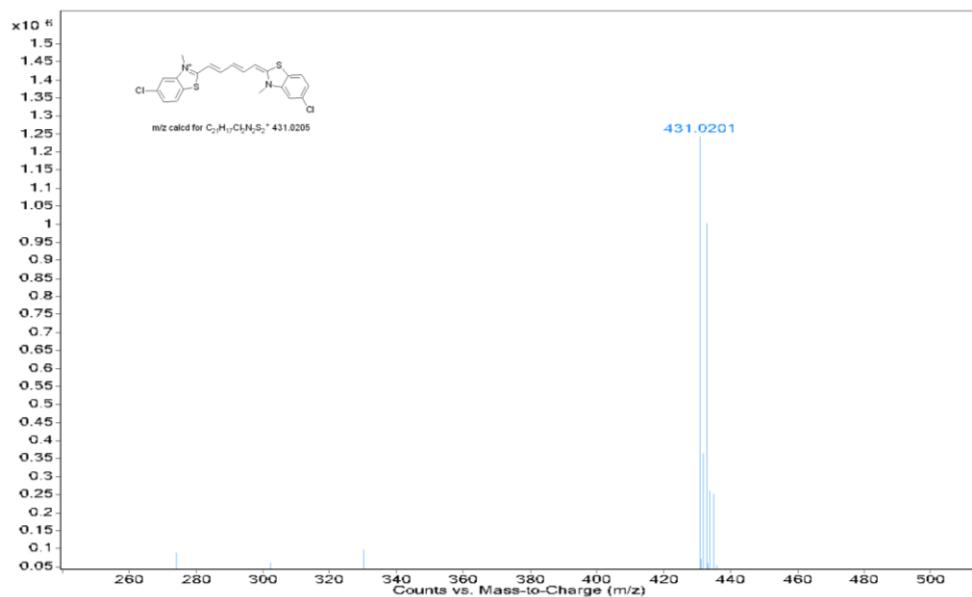
**Fig. S-60** HRMS spectra of **5b**



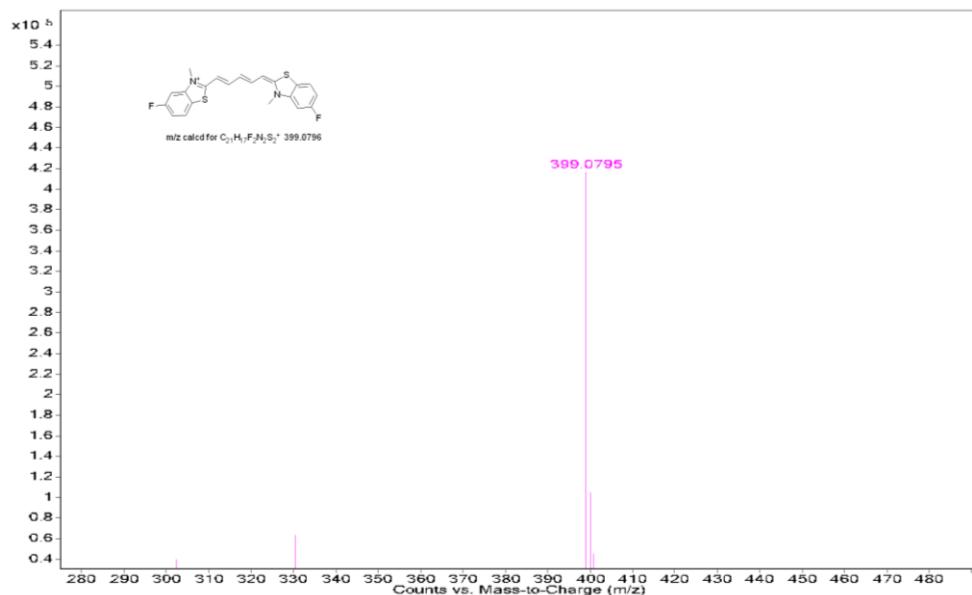
**Fig. S-61** HRMS spectra of **5c**



**Fig. S-62** HRMS spectra of **6a**



**Fig. S-63** HRMS spectra of **6b**



**Fig. S-64** HRMS spectra of **6c**