

**AN EFFICIENT SYNTHESIS OF (ARYL)(4-(2-(ARYLETHYNYL)-
PHENYL)-1*H*-PYRROL-3-YL)METHANONE FROM THE REACTION OF
(*E*)-1-ARYL-3-(2-(ARYLETHYNYL)PHENYL)PROP-2-EN-1-ONE AND
p-TOLUENESULFONYLMETHYL ISOCYANIDE**

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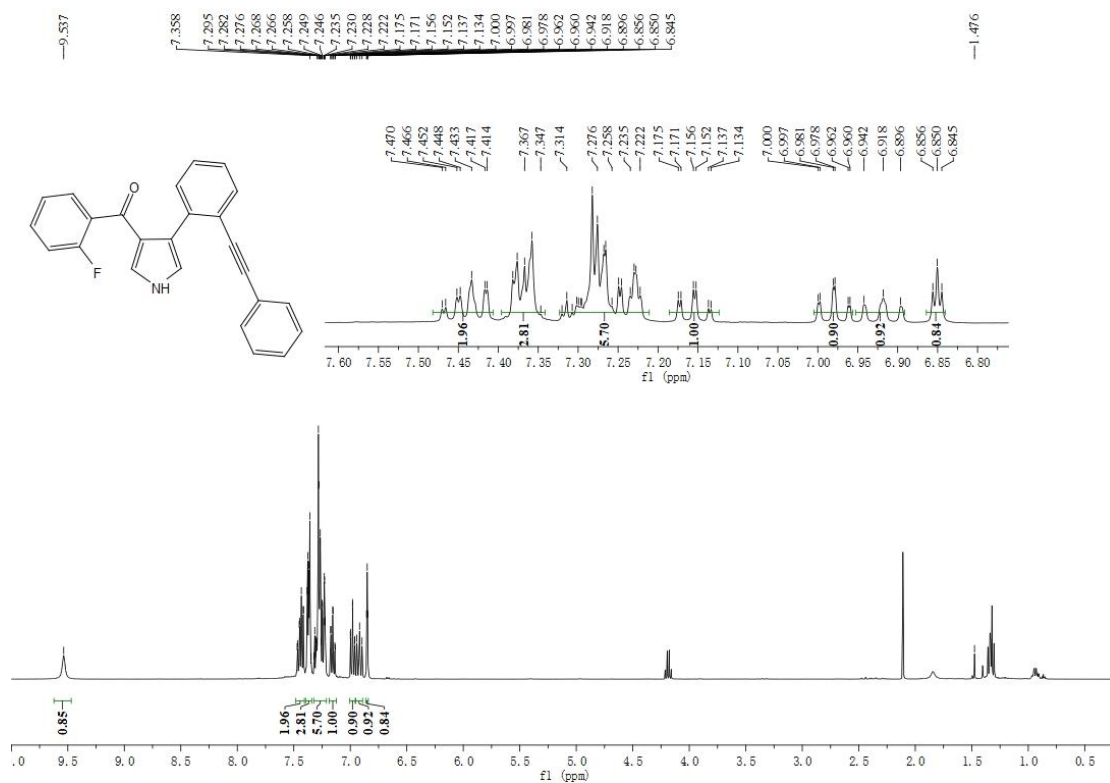


Fig 1 $^1\text{H NMR}$ of 3a

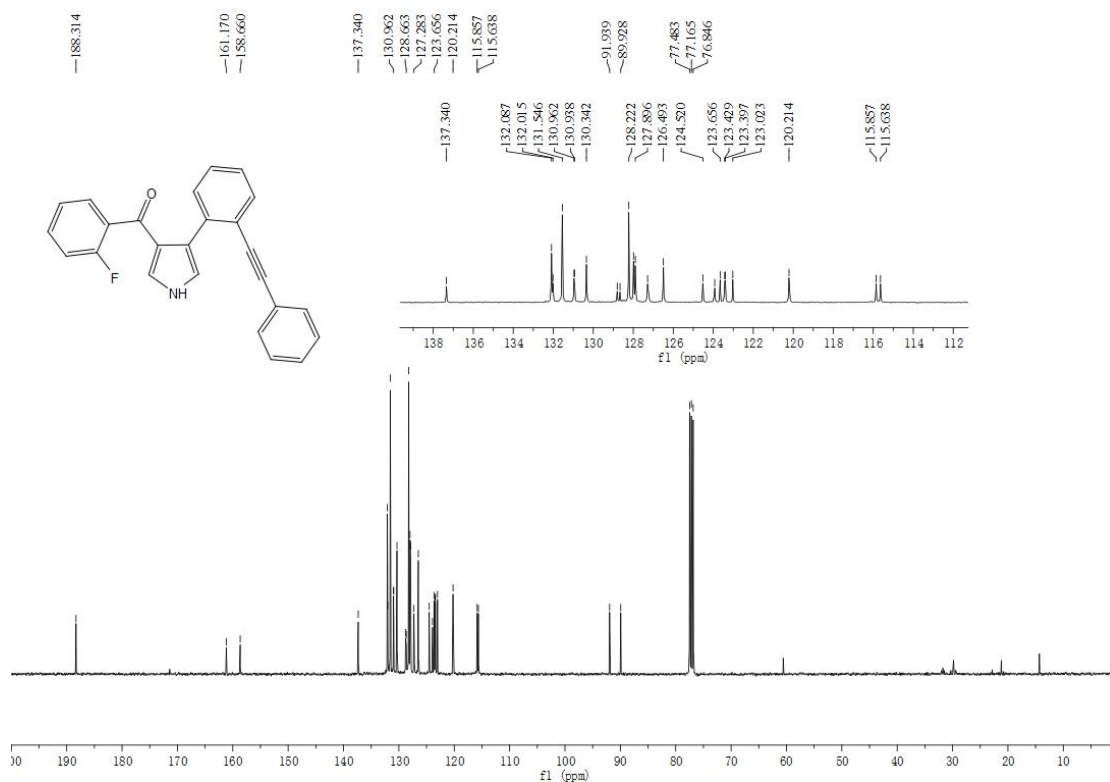


Fig 2 $^{13}\text{C NMR}$ of 3a

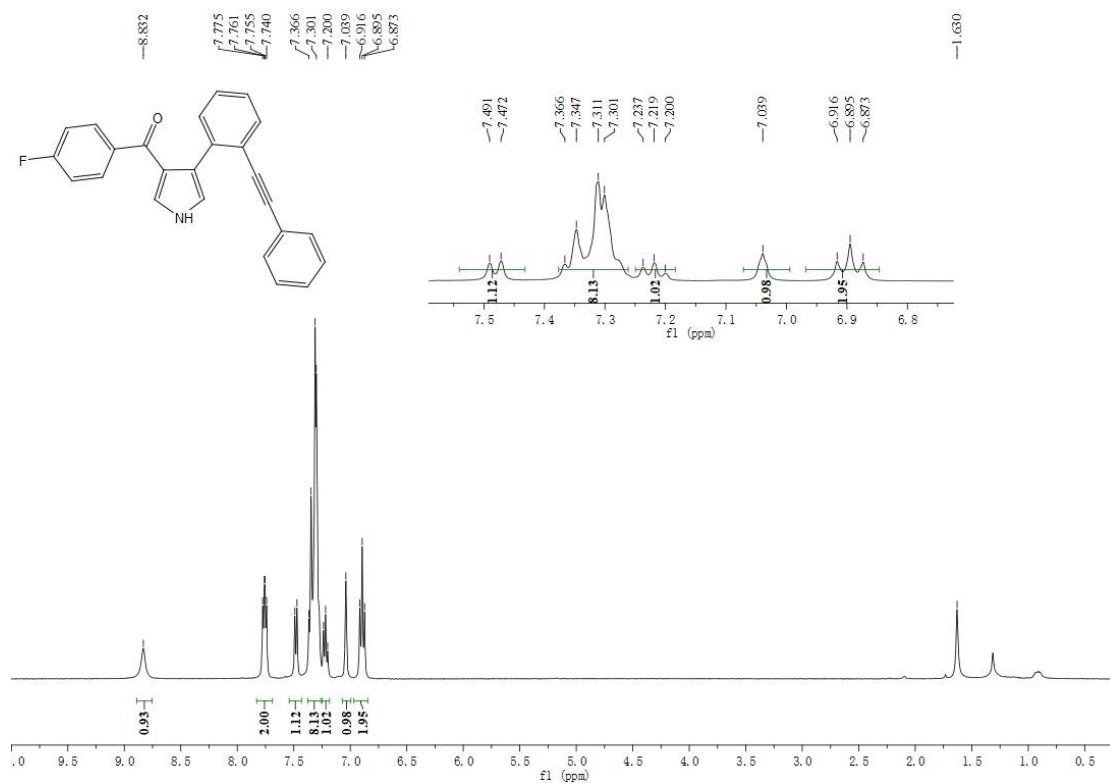


Fig 3 ¹H NMR of 3b

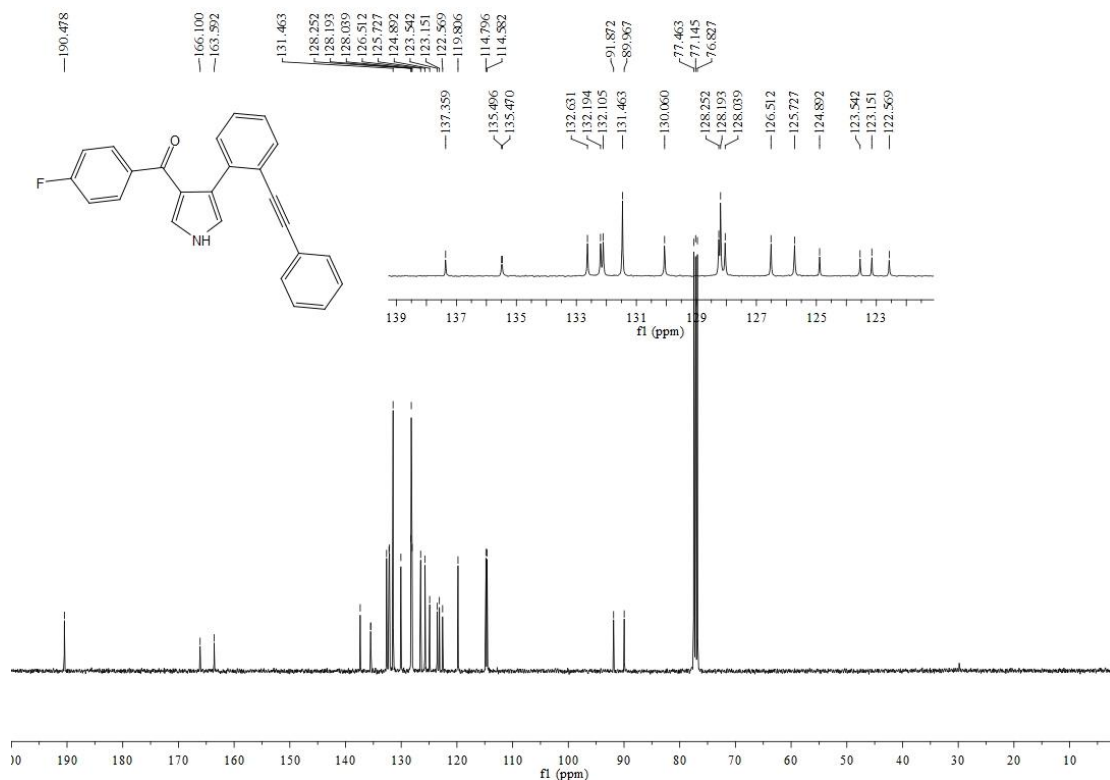


Fig 4 ¹³C NMR of 3b

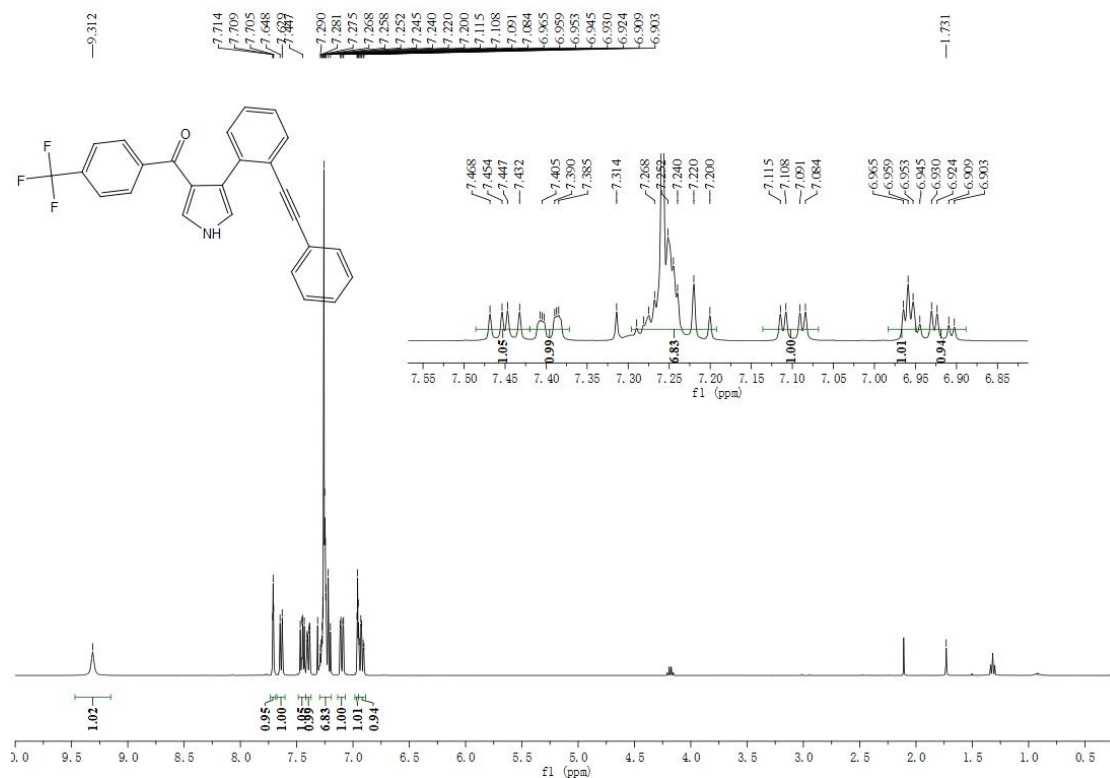


Fig 5 ¹H NMR of 3c

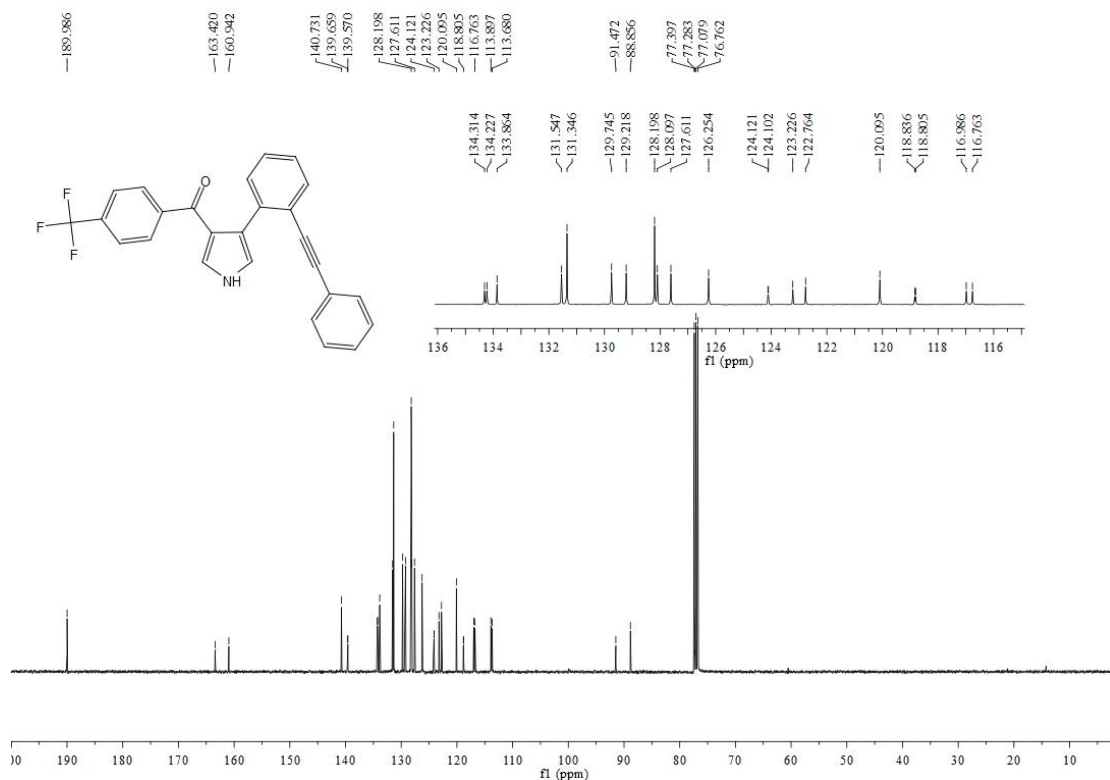


Fig 6 ¹³C NMR of 3c

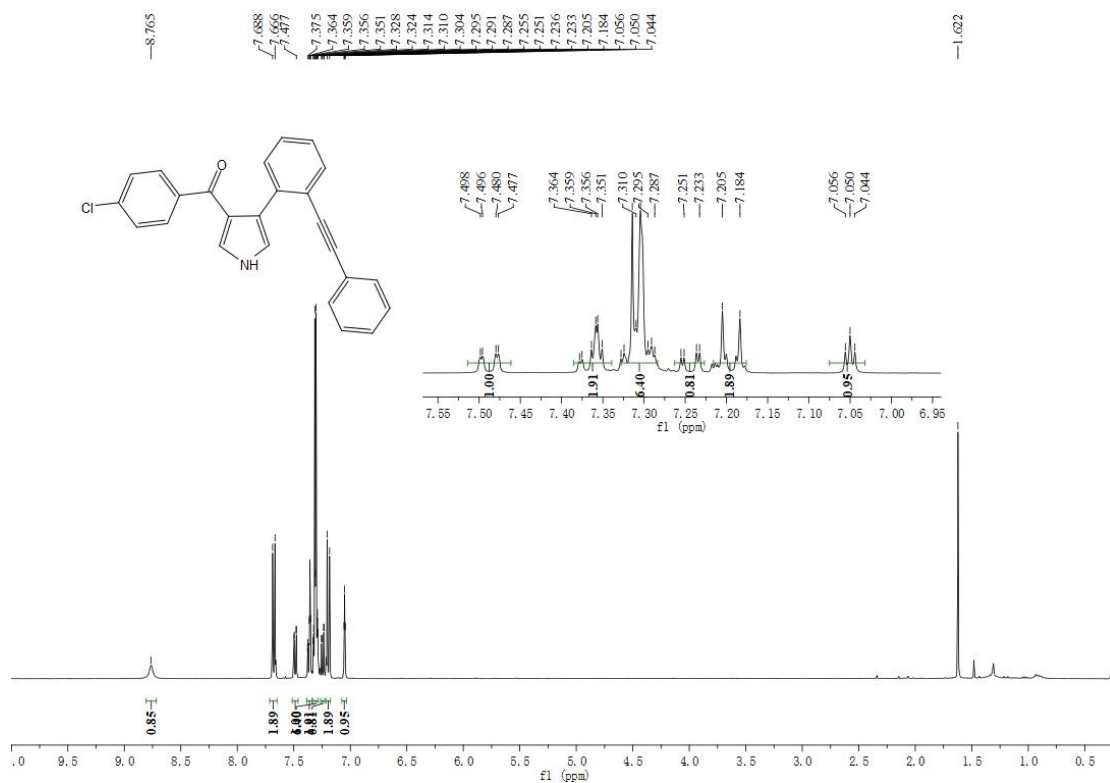


Fig 7 ^1H NMR of 3d

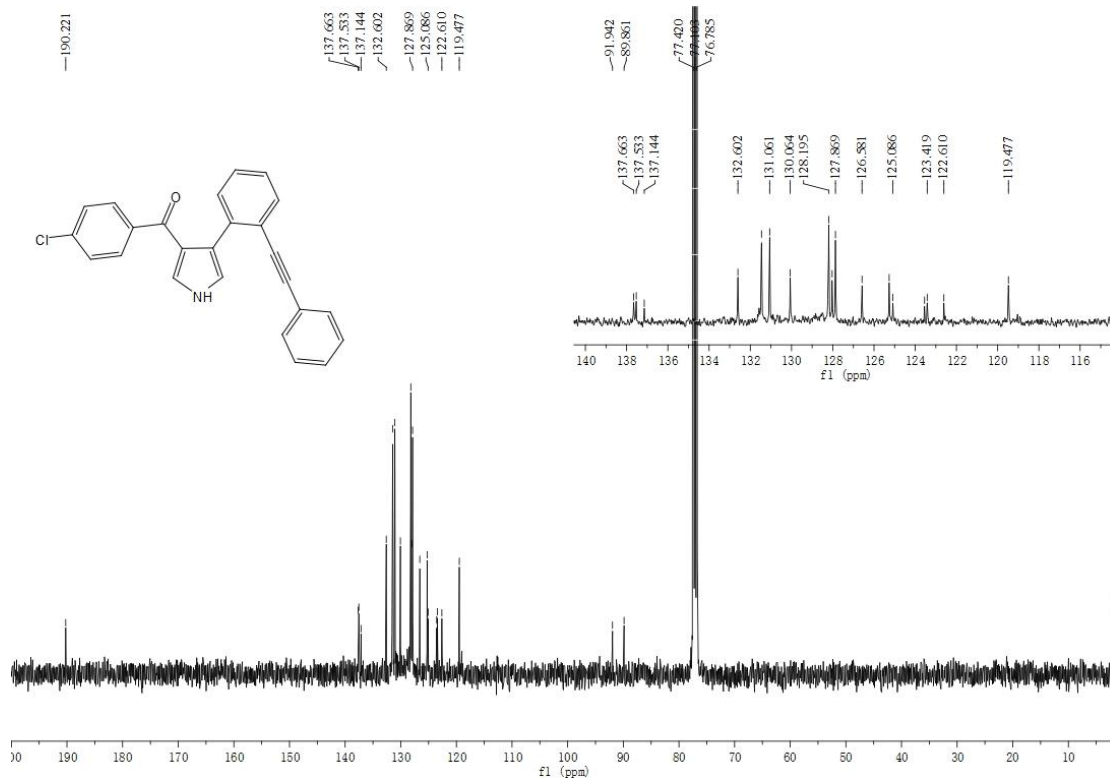


Fig 8 ^{13}C NMR of 3d

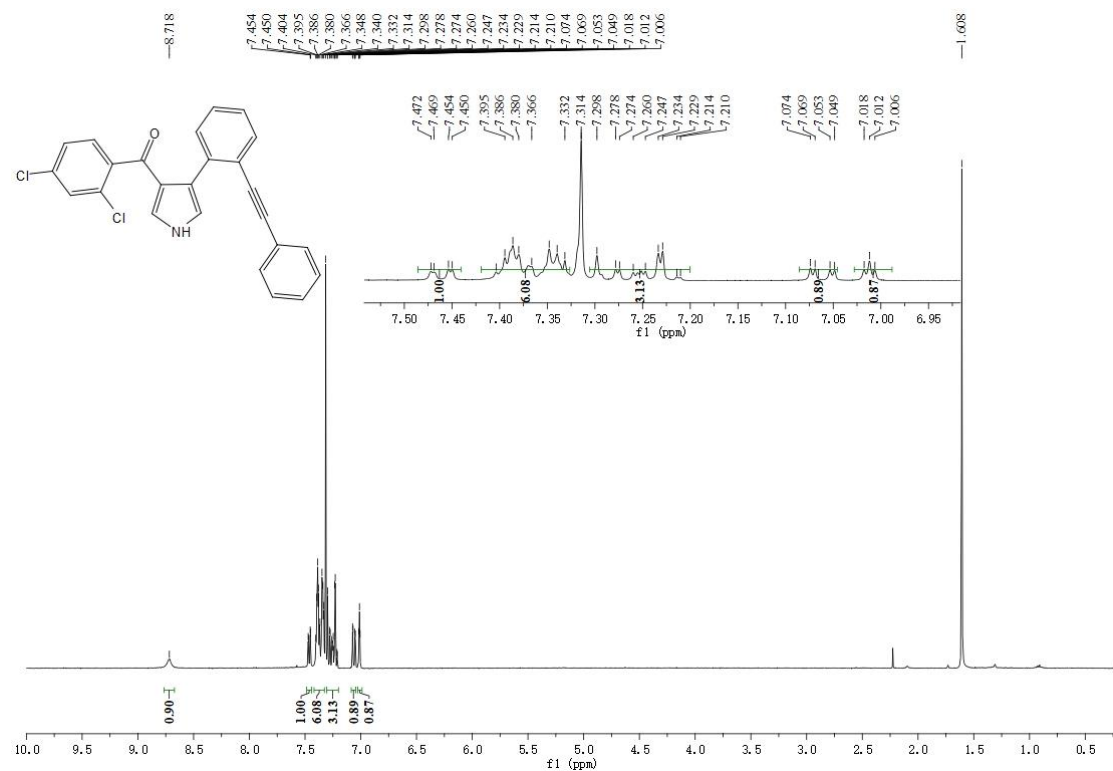


Fig 9 ¹H NMR of 3e

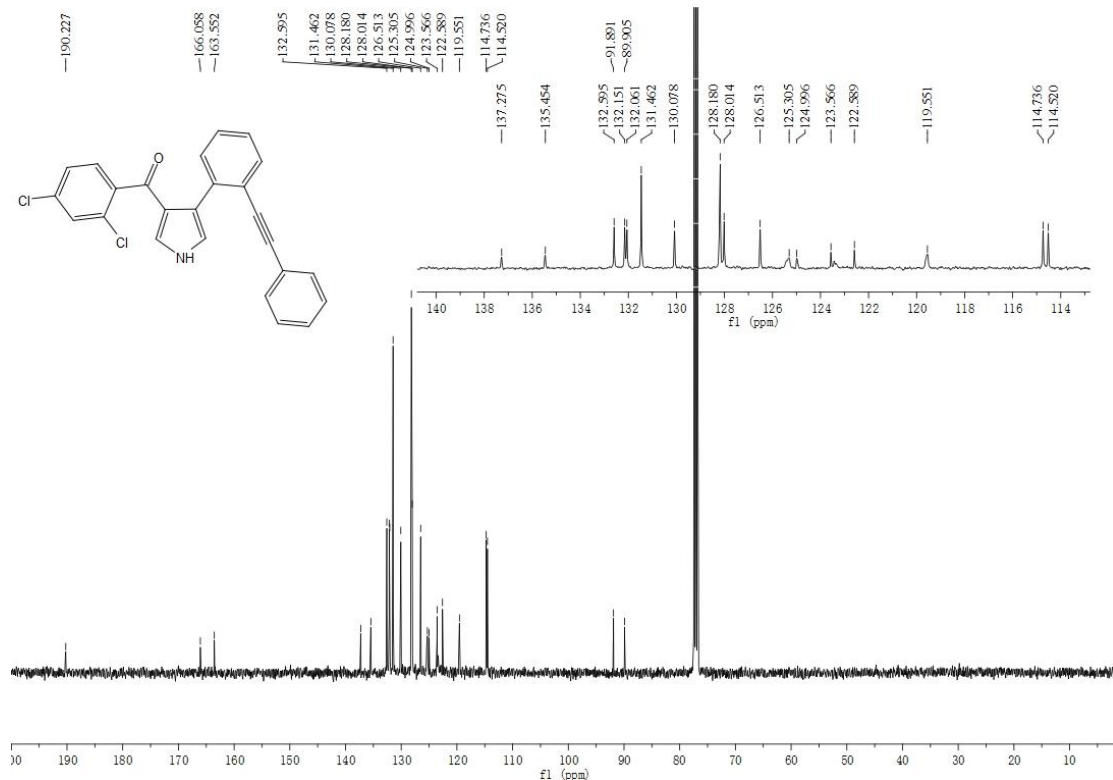


Fig 10 ¹³C NMR of 3e

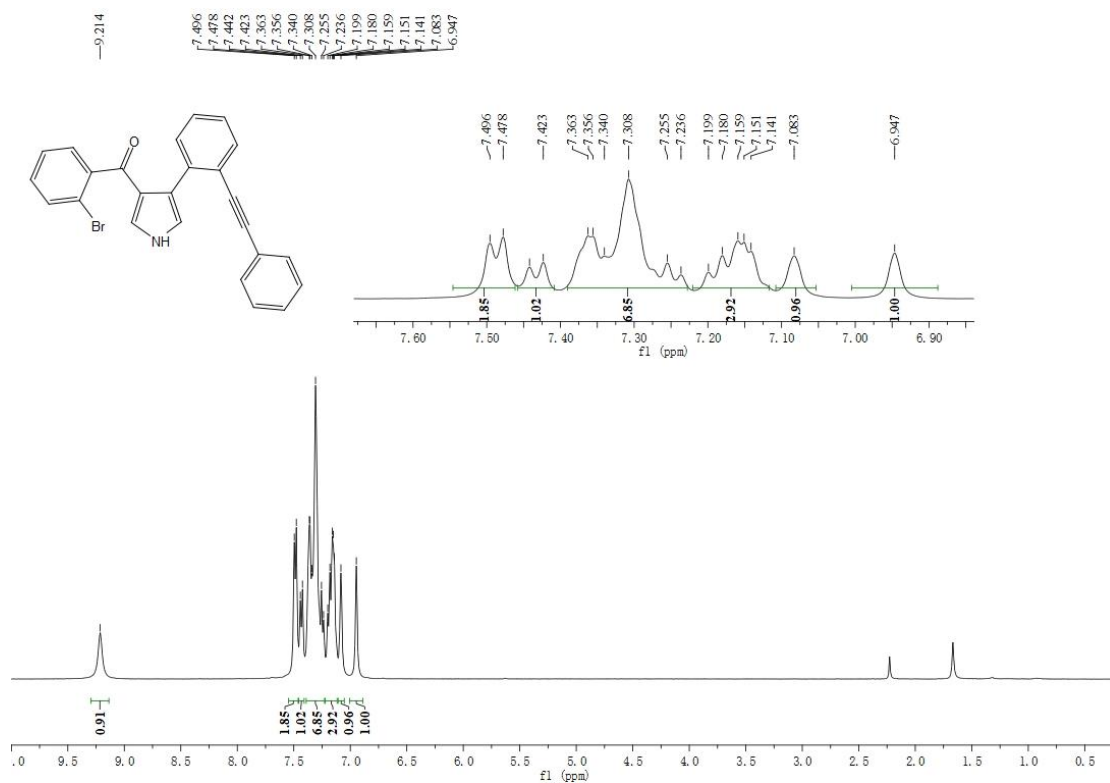


Fig 11 ¹H NMR of 3f

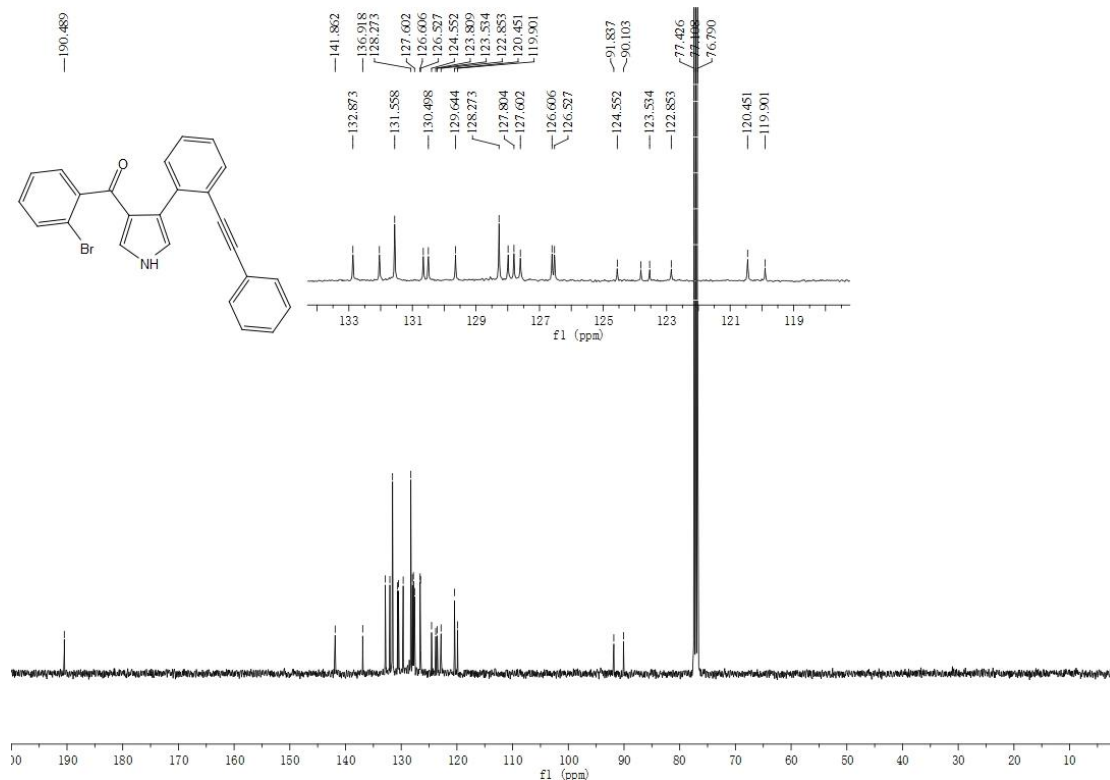


Fig 12 ¹³C NMR of 3f

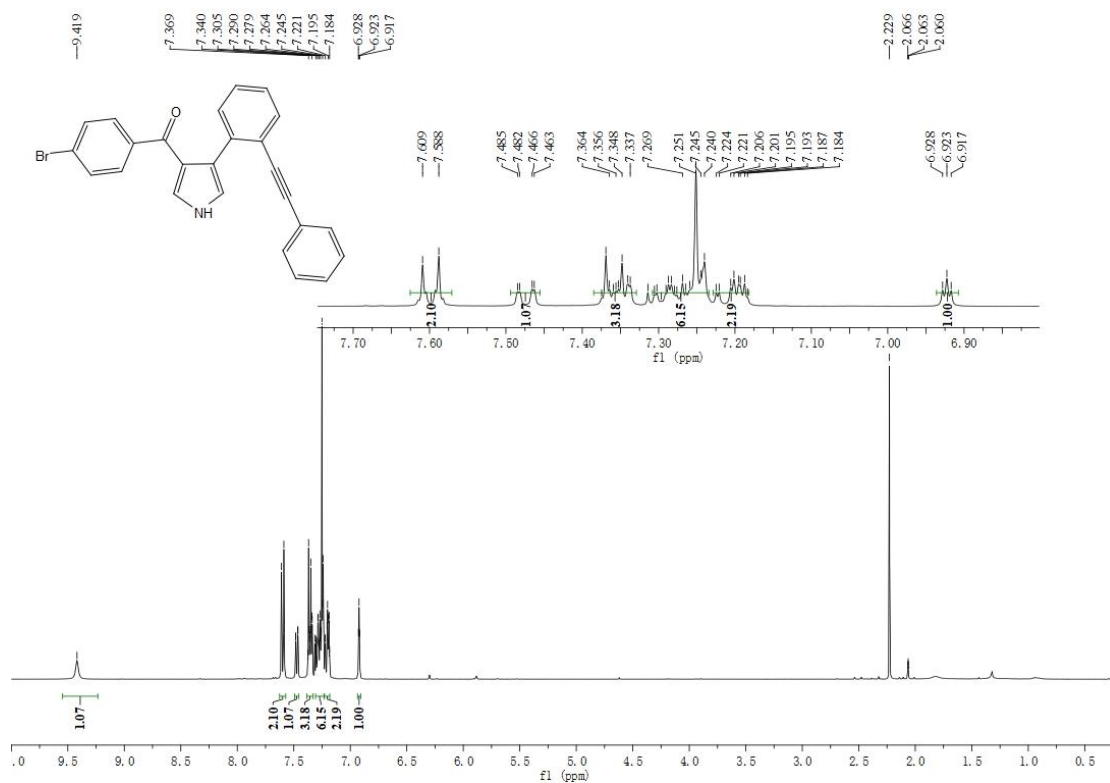


Fig 13 ¹H NMR of 3g

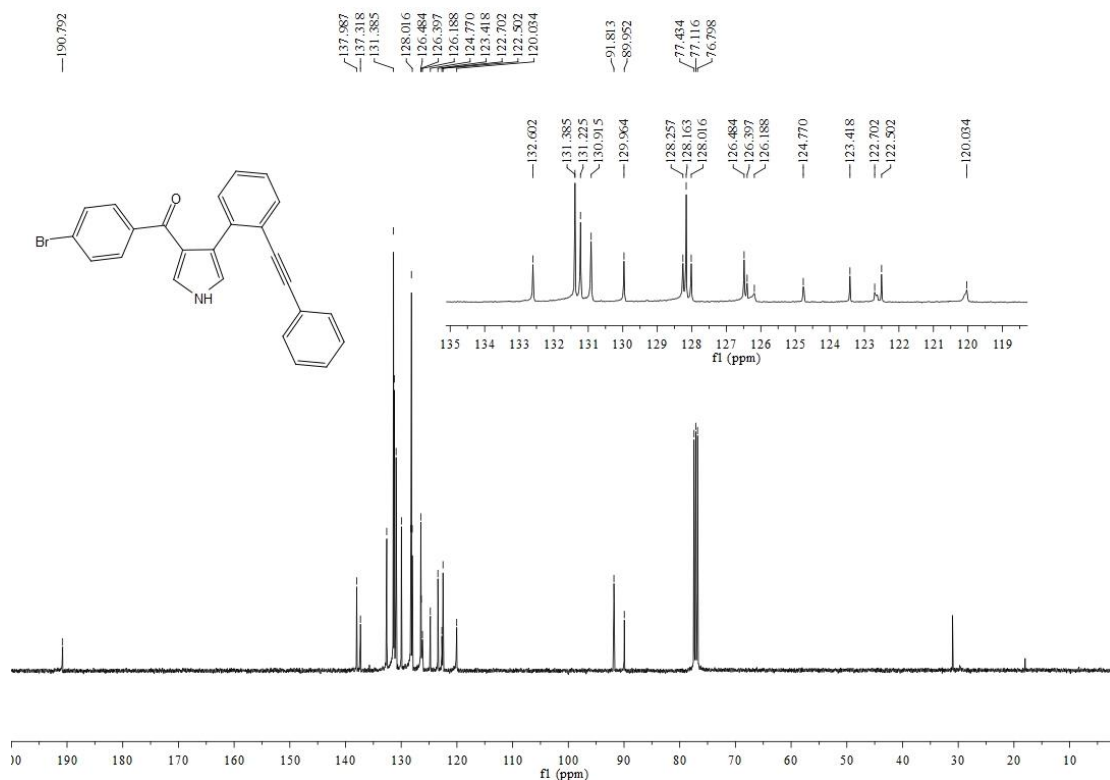


Fig 14 ¹³C NMR of 3g

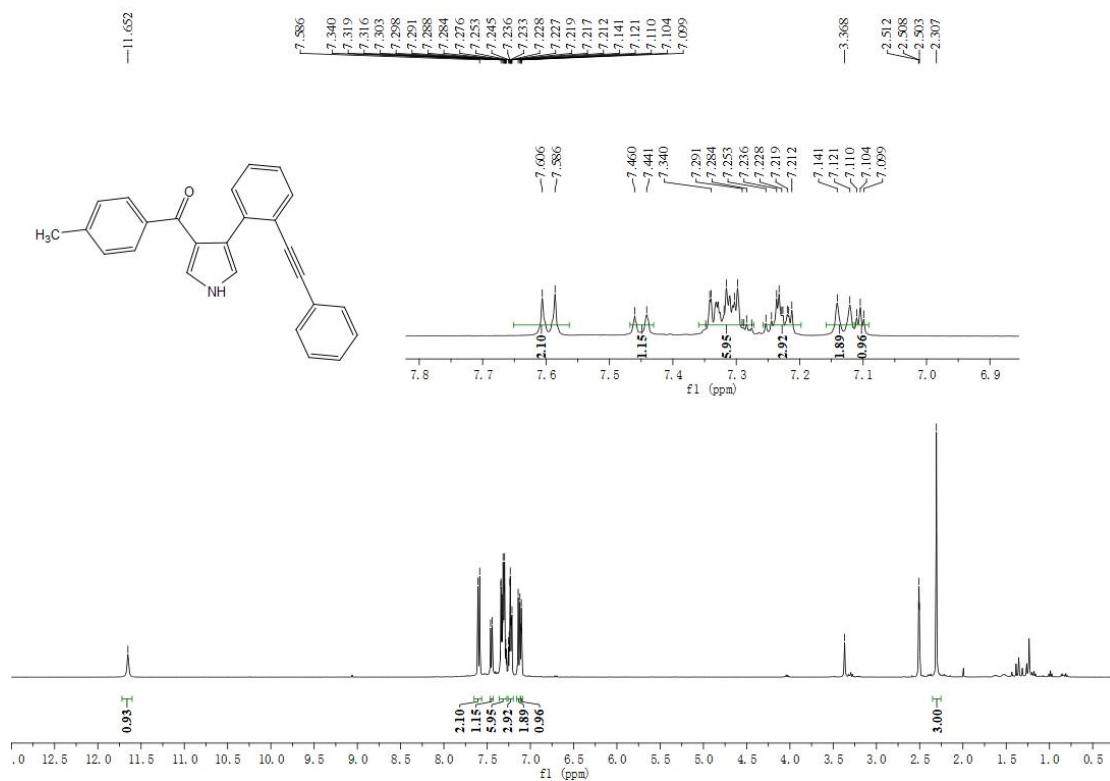


Fig 15 $^1\text{H NMR}$ of 3h

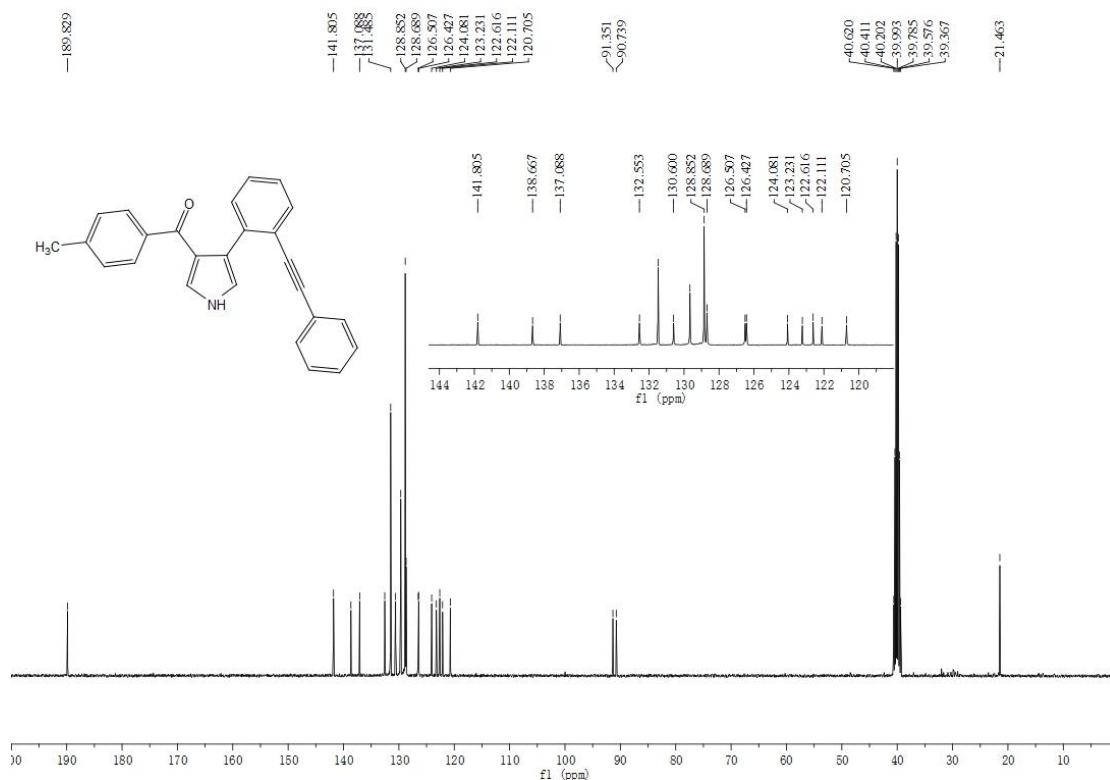


Fig 16 $^{13}\text{C NMR}$ of 3h

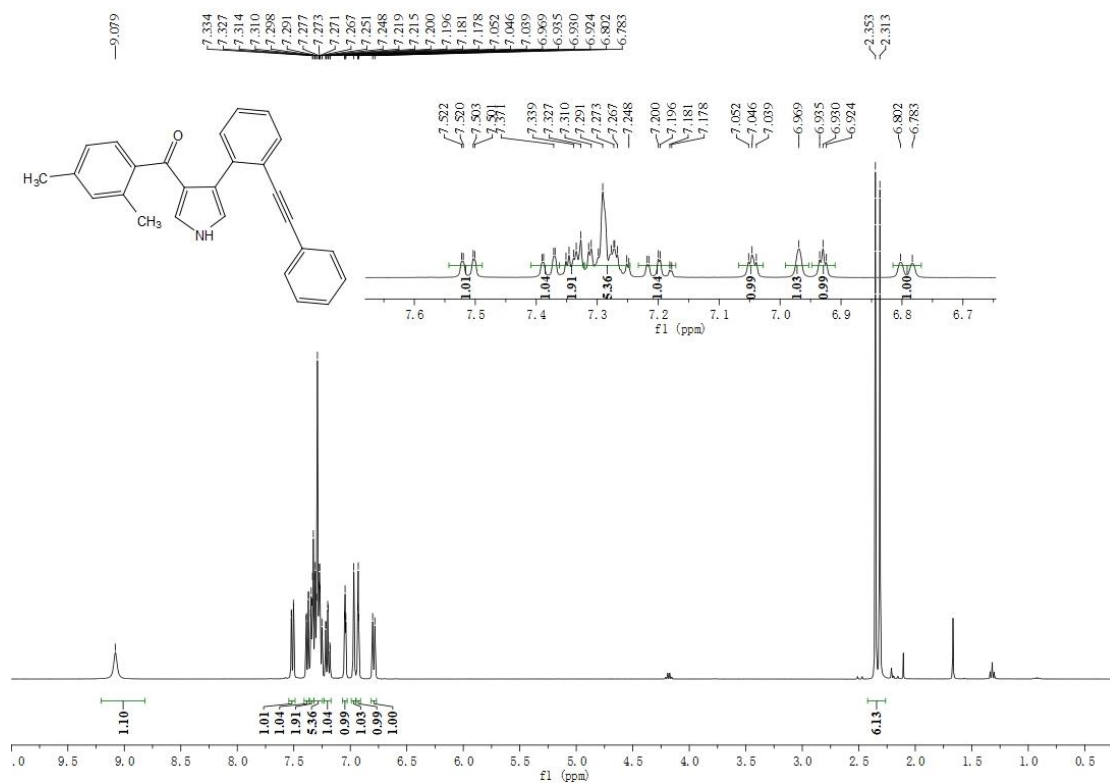


Fig 17 ¹H NMR of 3i

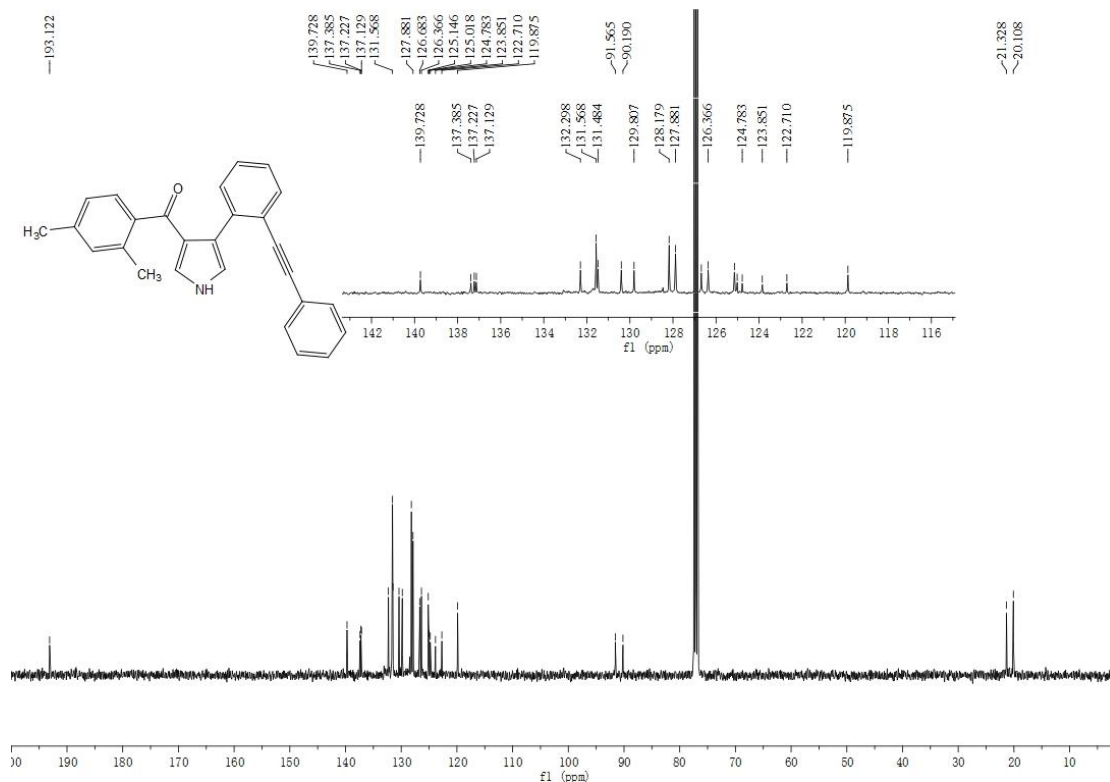


Fig 18 ¹³C NMR of 3i

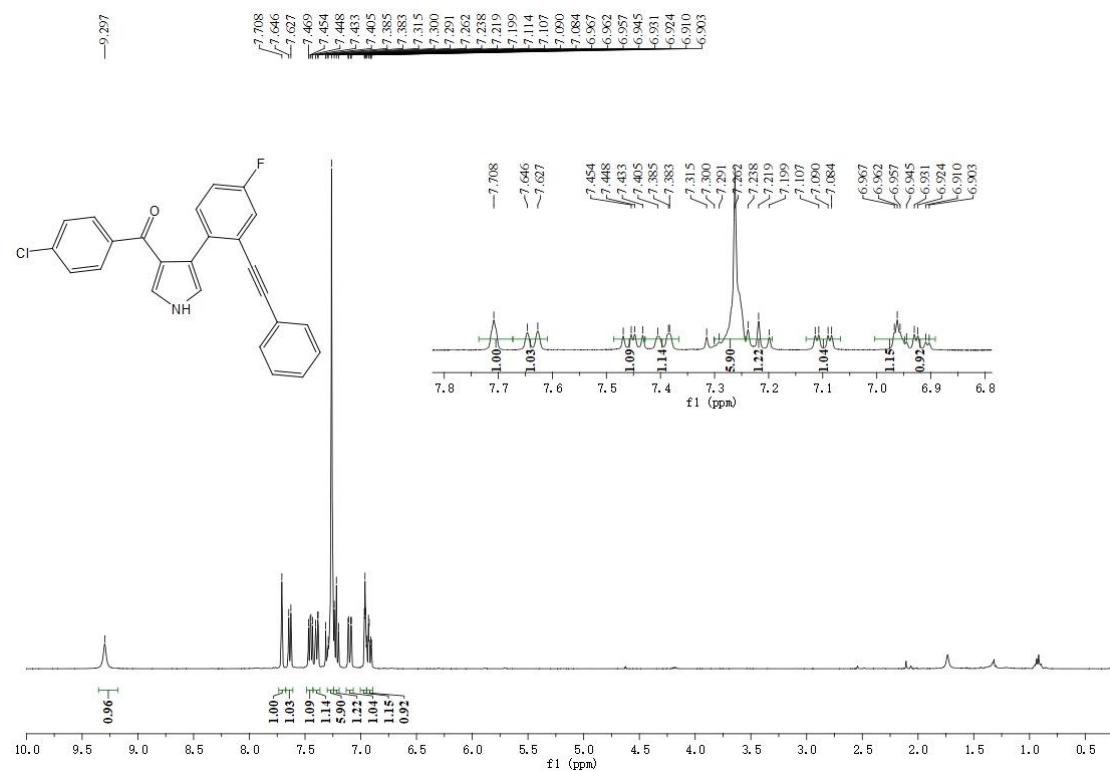


Fig 19 ¹H NMR of 3j

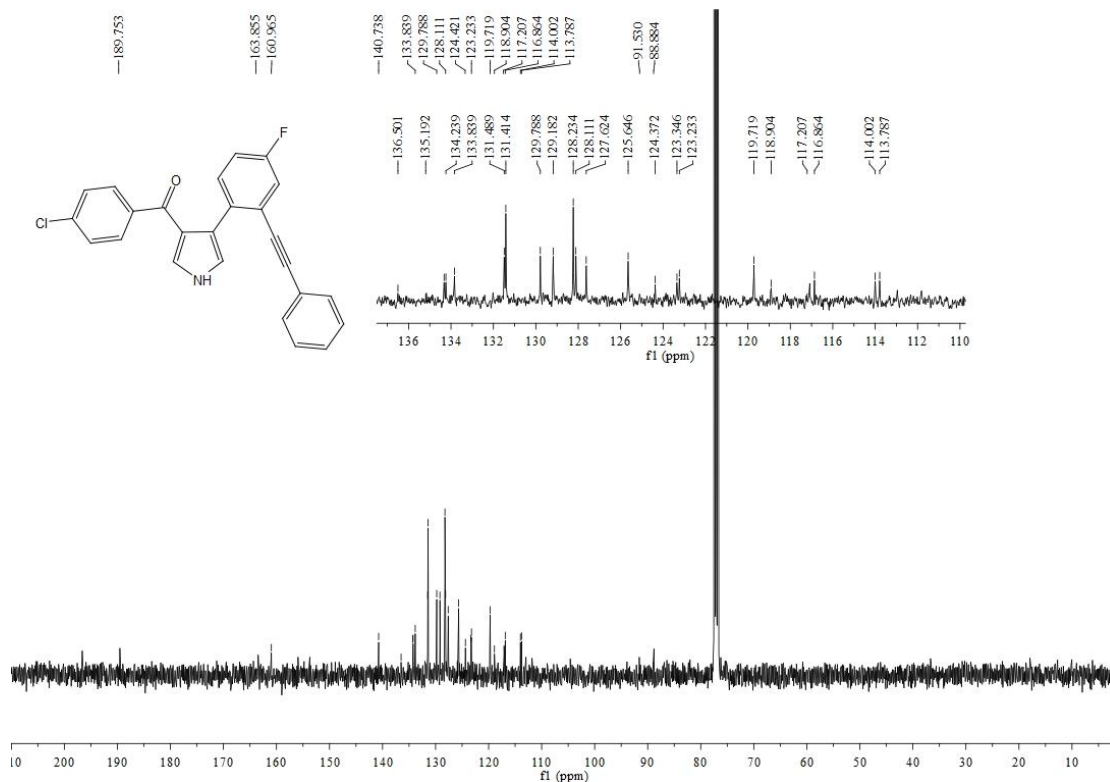


Fig 20 ¹³C NMR of 3j

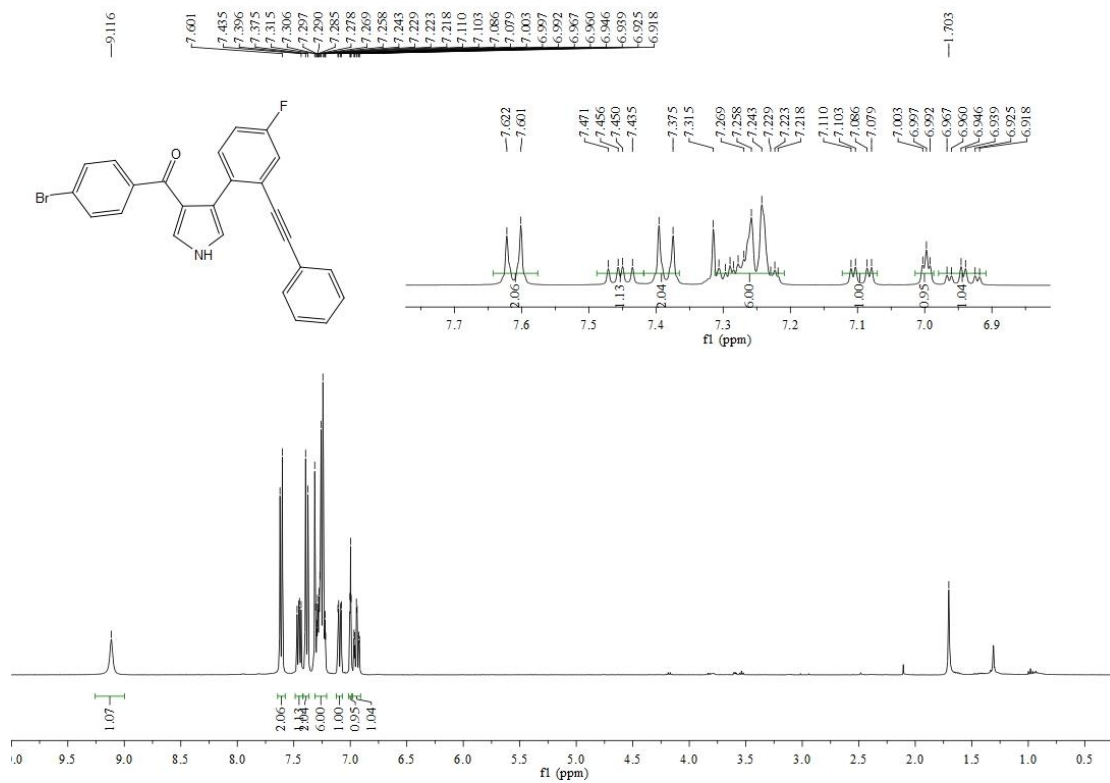


Fig 21 ¹H NMR of 3k

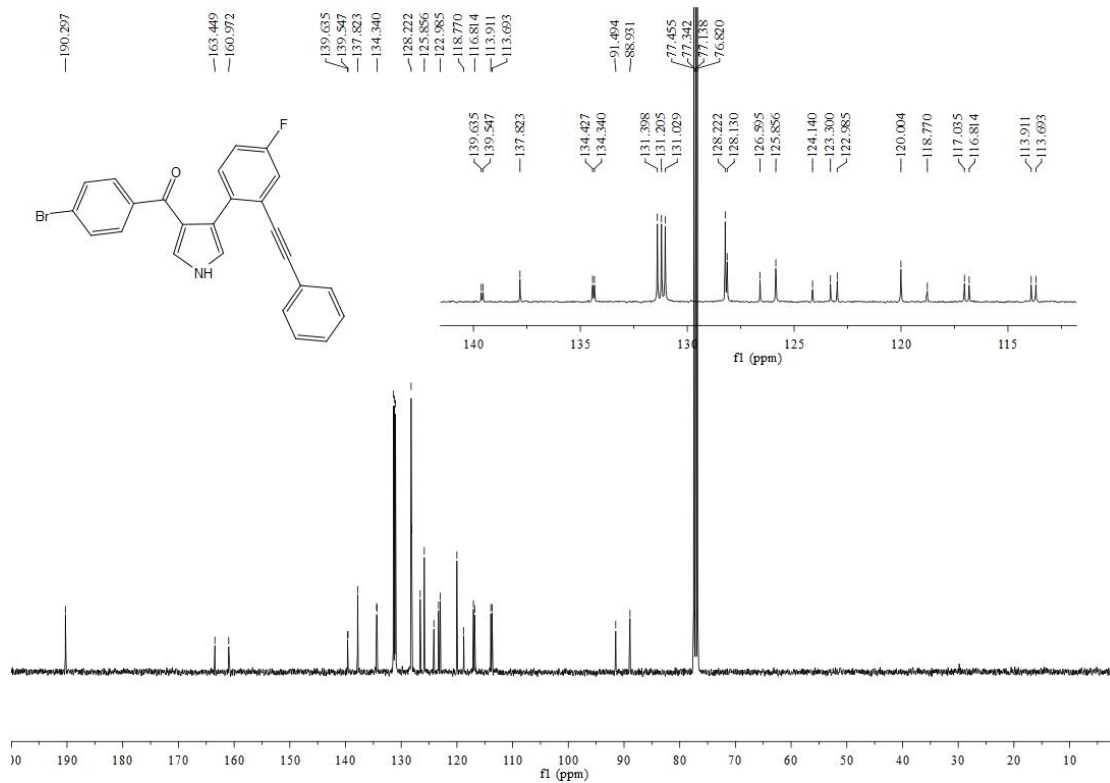


Fig 22 ¹³C NMR of 3k

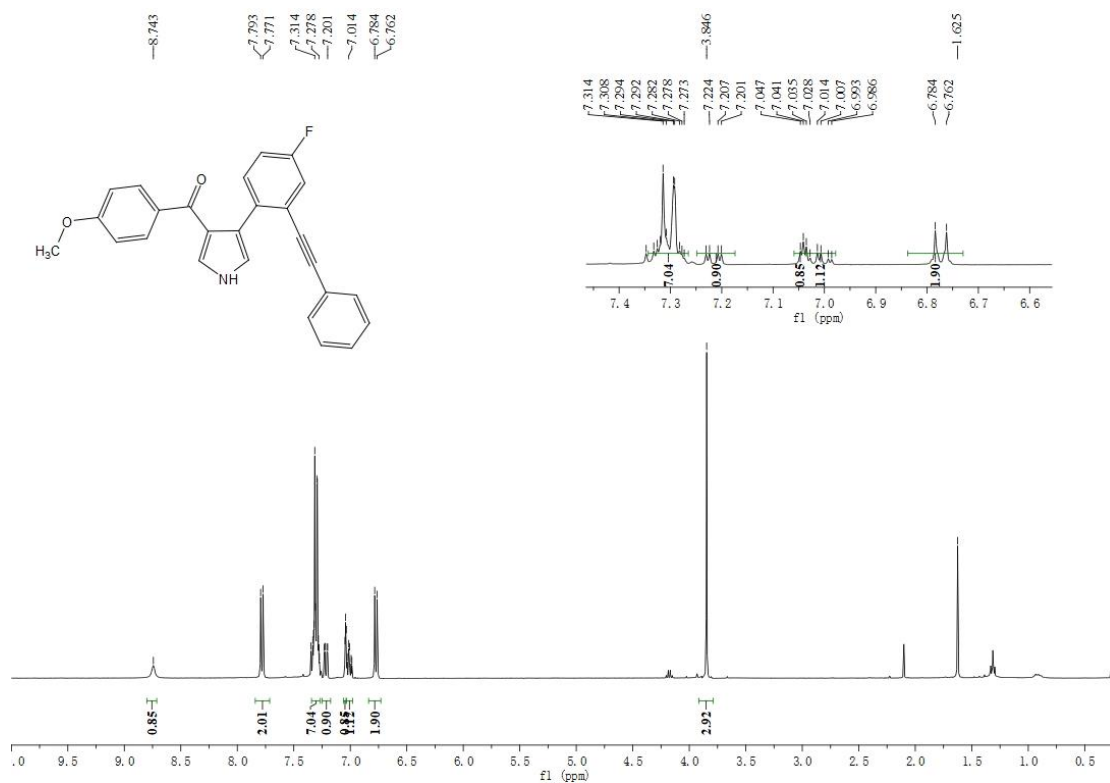


Fig 23 ¹H NMR of 3I

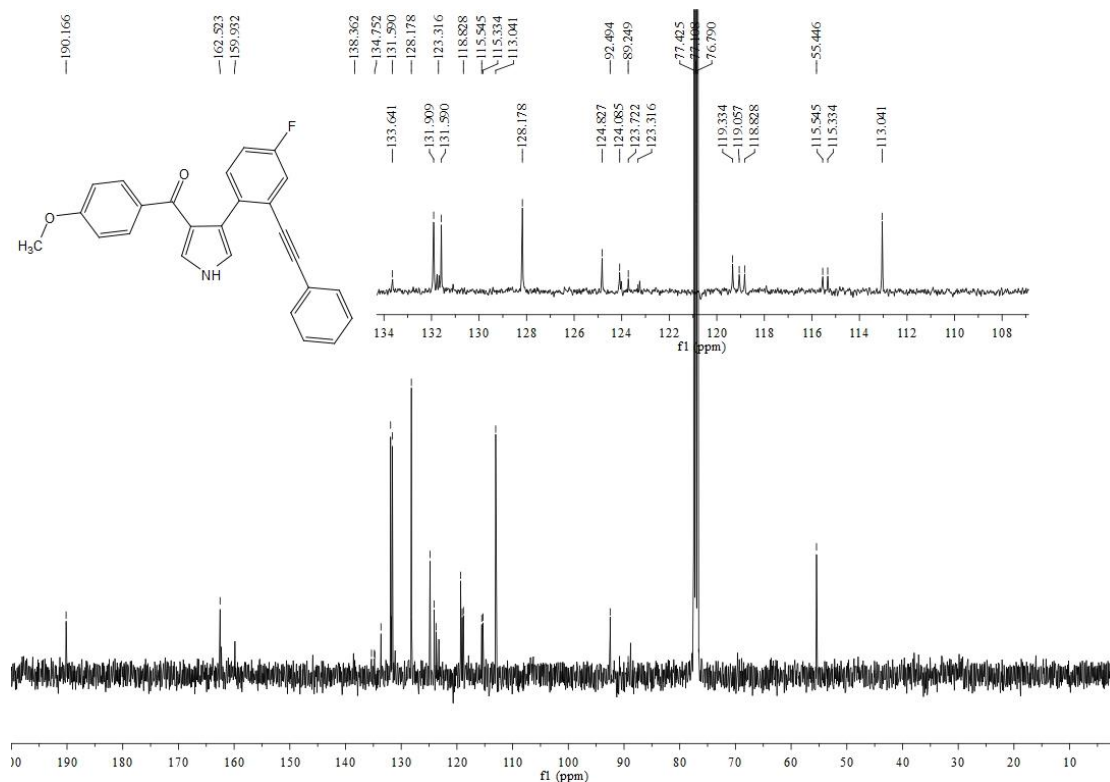


Fig 24 ¹³C NMR of 3I

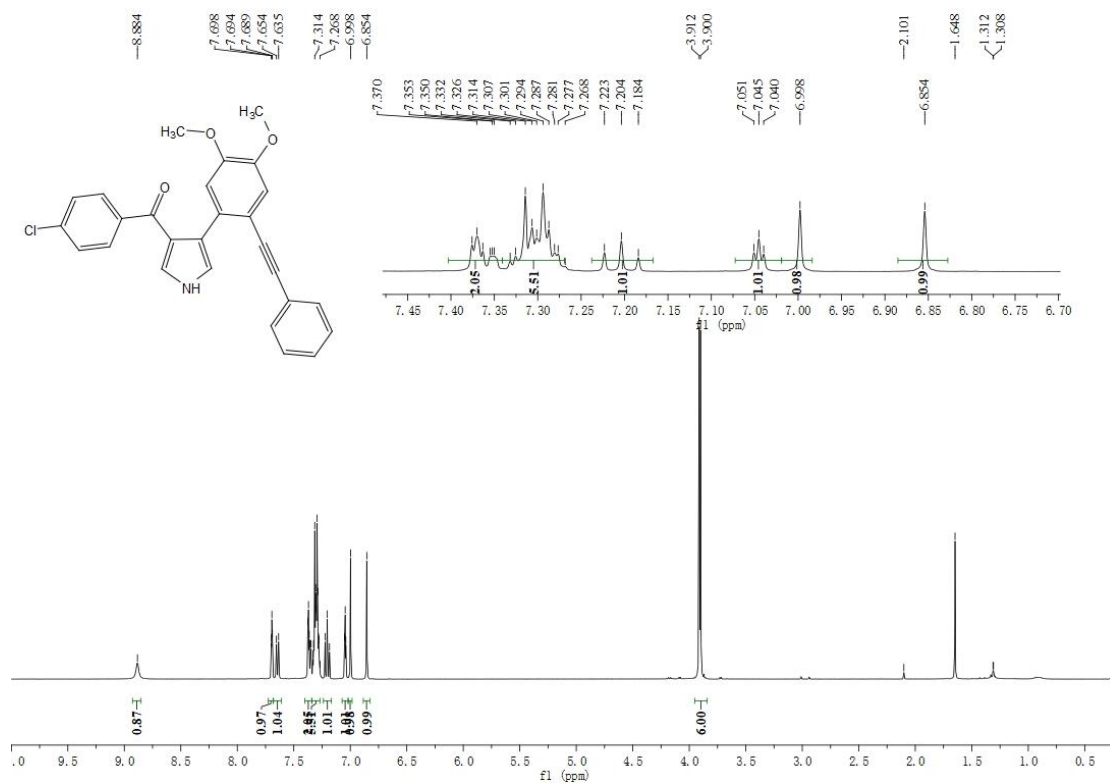


Fig 25 $^1\text{H NMR}$ of **3m**

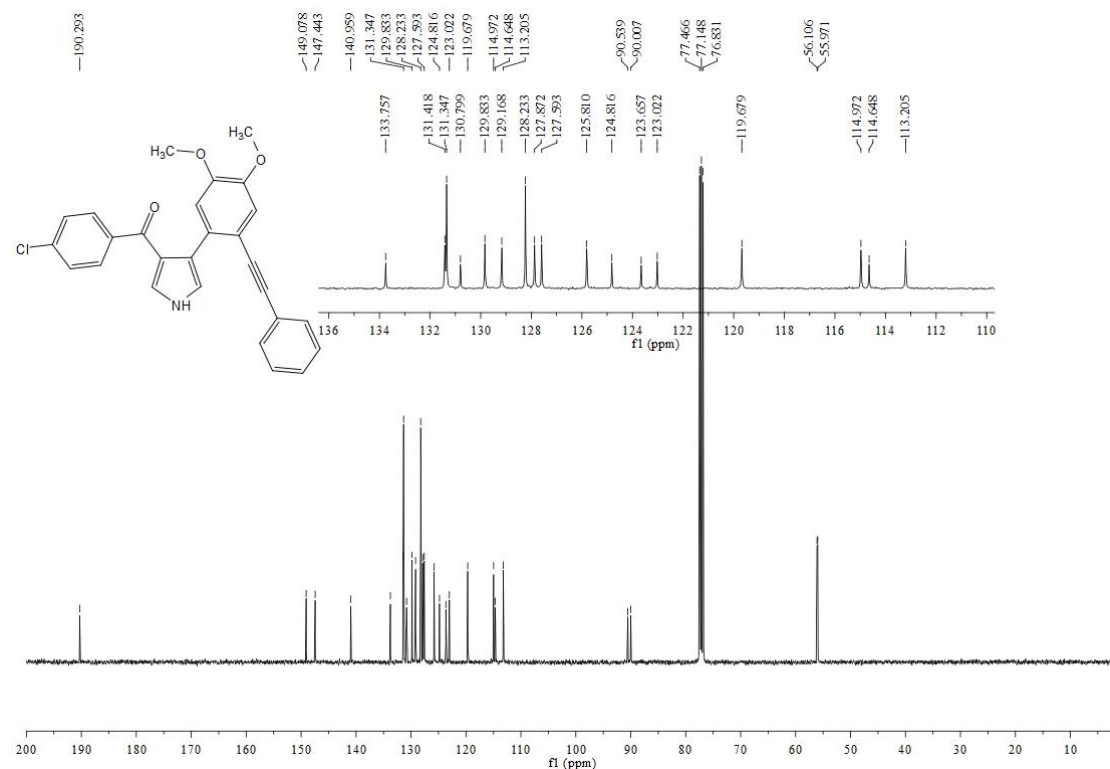


Fig 26 $^{13}\text{C NMR}$ of **3m**

Table 1 Crystal data and structure refinement for 3e.

Identification code	3e
Empirical formula	C ₂₅ H ₁₅ Cl ₂ NO
Formula weight	416.28
Temperature/K	296.15
Crystal system	triclinic
Space group	P-1
<i>a</i> /Å	7.000(2)
<i>b</i> /Å	12.369(4)
<i>c</i> /Å	12.907(4)
α /°	66.522(6)
β /°	84.841(7)
γ /°	80.425(7)
Volume/Å ³	1010.3(5)
<i>Z</i>	2
ρ_{calc} /cm ³	1.368
μ /mm ⁻¹	0.338
F(000)	428.0
Crystal size/mm ³	0.16 × 0.13 × 0.11
Radiation	MoK α (λ = 0.71073)
2 θ range for data collection/°	3.906 to 50.33
Index ranges	-8 ≤ <i>h</i> ≤ 8, -14 ≤ <i>k</i> ≤ 14, -15 ≤ <i>l</i> ≤ 15
Reflections collected	21657
Independent reflections	3610 [<i>R</i> _{int} = 0.1370, <i>R</i> _{sigma} = 0.1271]
Data/restraints/parameters	3610/0/262
Goodness-of-fit on F ²	1.021
Final <i>R</i> indexes [<i>I</i> ≥ 2 σ (<i>I</i>)]	<i>R</i> ₁ = 0.0761, <i>wR</i> ₂ = 0.1797
Final <i>R</i> indexes [all data]	<i>R</i> ₁ = 0.1864, <i>wR</i> ₂ = 0.2451
Largest diff. peak/hole / e Å ⁻³	0.38/-0.38

Crystal structure determination of 3e

Crystal Data for C₂₅H₁₅Cl₂NO (*M* = 416.28 g/mol): triclinic, space group P-1 (no. 2), *a* = 7.000(2) Å, *b* = 12.369(4) Å, *c* = 12.907(4) Å, α = 66.522(6)°, β = 84.841(7)°, γ = 80.425(7)°, *V* = 1010.3(5) Å³, *Z* = 2, *T* = 296.15 K, μ (MoK α) = 0.338 mm⁻¹, *D*_{calc} = 1.368 g/cm³, 21657 reflections measured (3.906° ≤ 2 θ ≤ 50.33°), 3610 unique (*R*_{int} = 0.1370, *R*_{sigma} = 0.1271) which were used in all calculations. The final *R*₁ was 0.0761 (*I* > 2 σ (*I*)) and *wR*₂ was 0.2451 (all data).

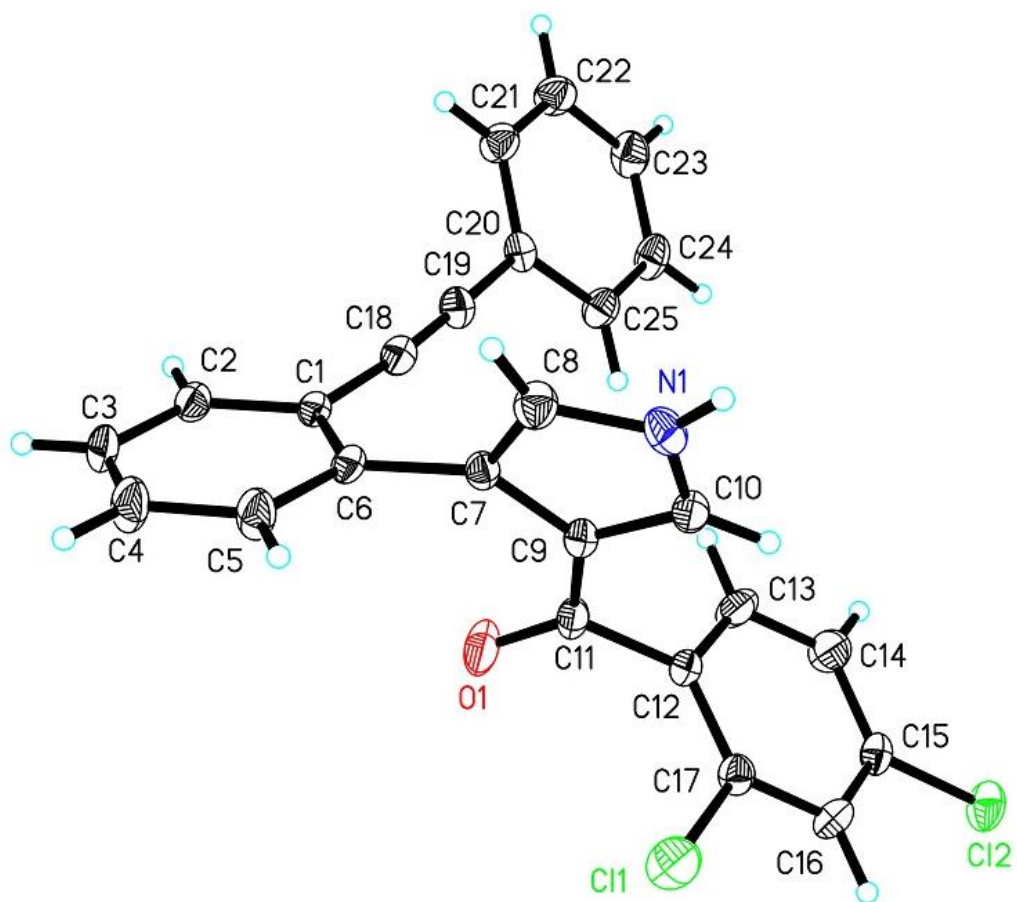


Figure 1 The crystal structure of **3e** (CCDC: 2161393)