

## Electronic Supporting Information

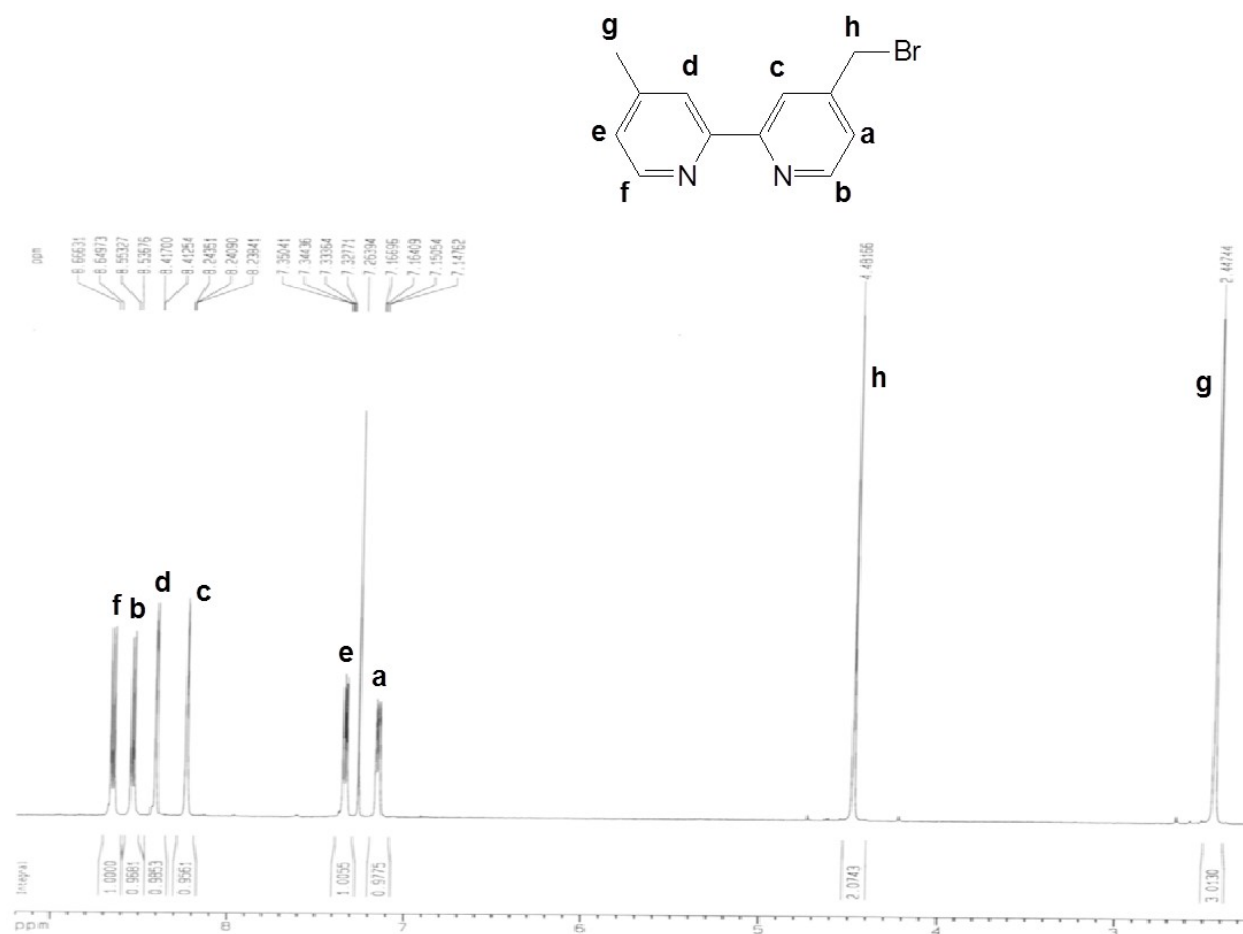
### Squaraine-Sensitized Composite of Reduced Graphene Oxide/TiO<sub>2</sub> Photocatalyst: $\pi$ - $\pi$ Stacking as a New Method of Dye Anchoring

K. L. Vincent Joseph,<sup>a†</sup> Jonghun Lim,<sup>b†</sup> A. Anthonysamy,<sup>a</sup> Hyoungh-il Kim,<sup>b</sup> Wonyong Choi<sup>b</sup> and  
Jin Kon Kim<sup>a,\*</sup>

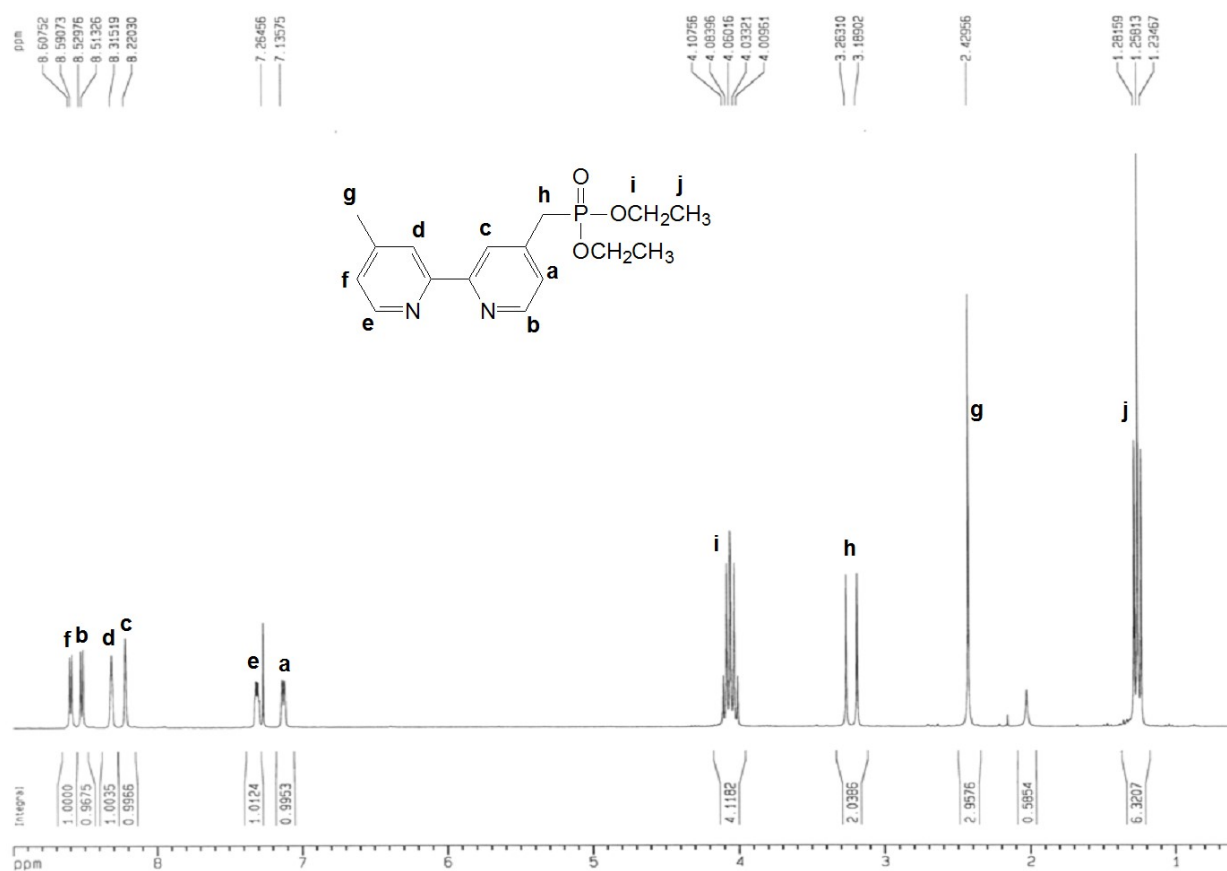
<sup>a</sup> *Creative Research Initiatives Centre for Smart Block Co-polymer Self Assembly, Department of Chemical Engineering,* <sup>b</sup> *School of Environmental Science and Engineering, Pohang University of Science and Technology (POSTECH), Pohang, Kyungbuk, 790-784, Republic of Korea.*

† These authors contributed equally.

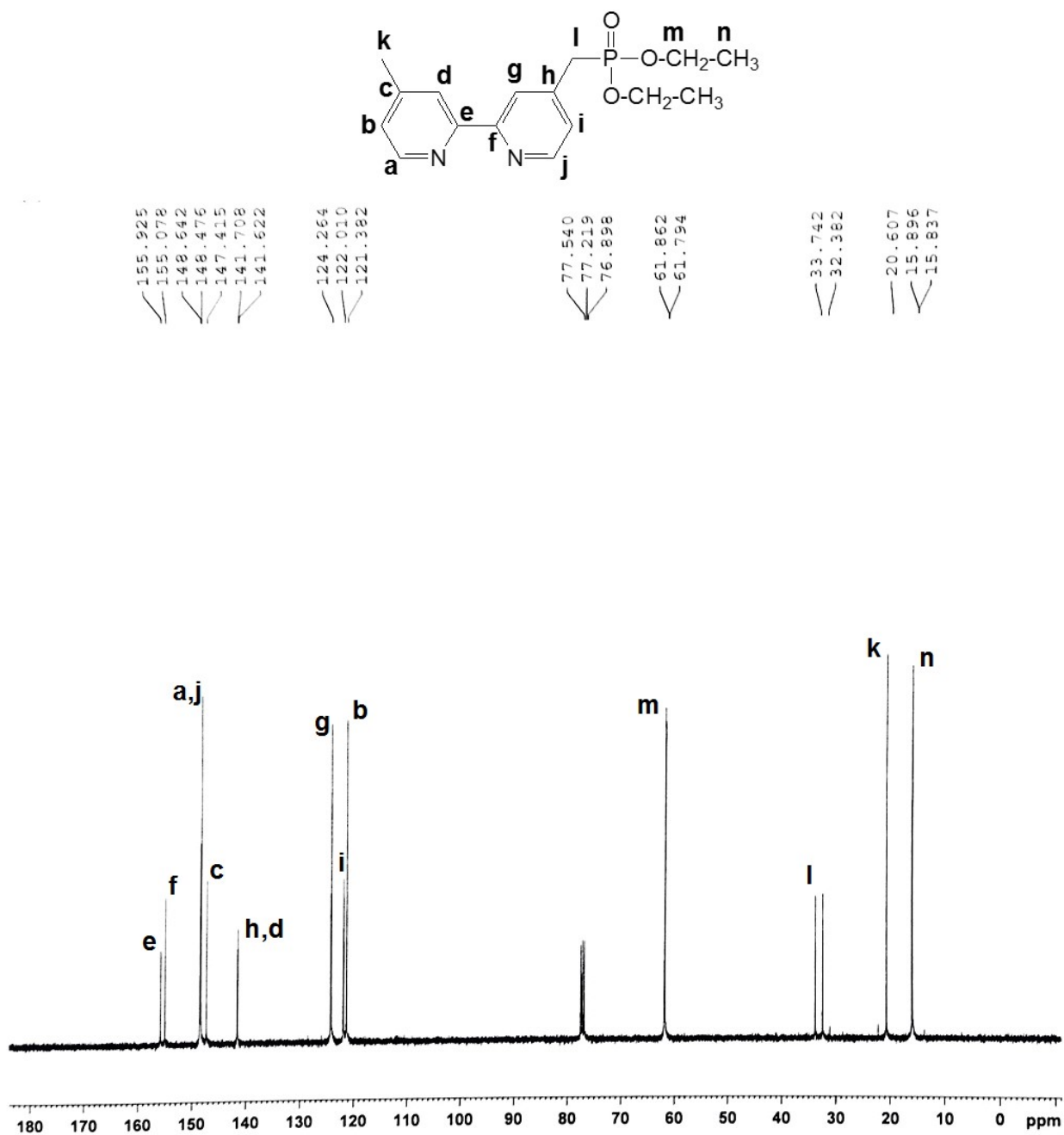
E-mail: [jkkim@postech.ac.kr](mailto:jkkim@postech.ac.kr)



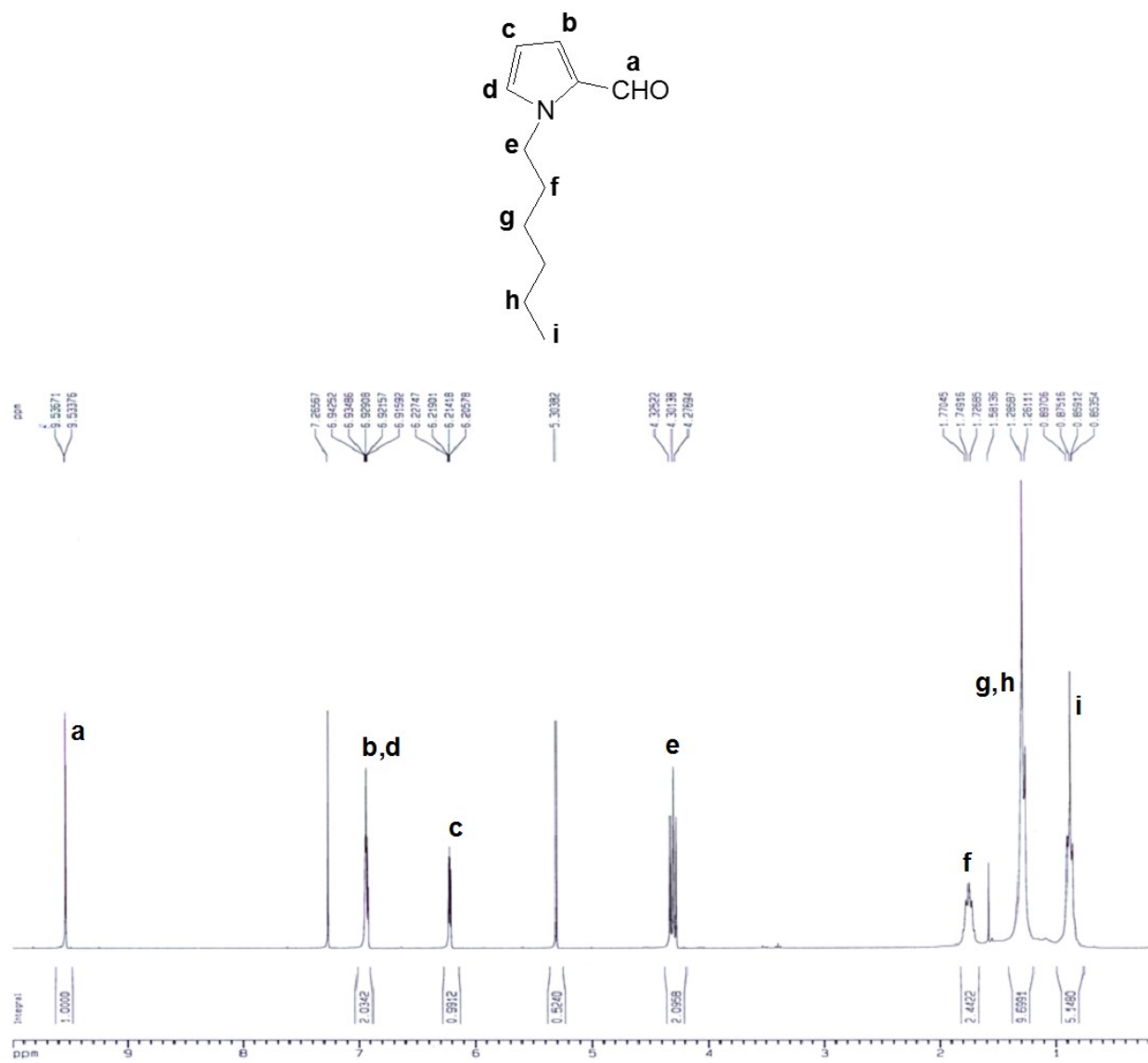
**Figure S1.** <sup>1</sup>H NMR spectrum of 4-(bromomethyl)-4'-methyl-2,2'-bipyridine (**1**).



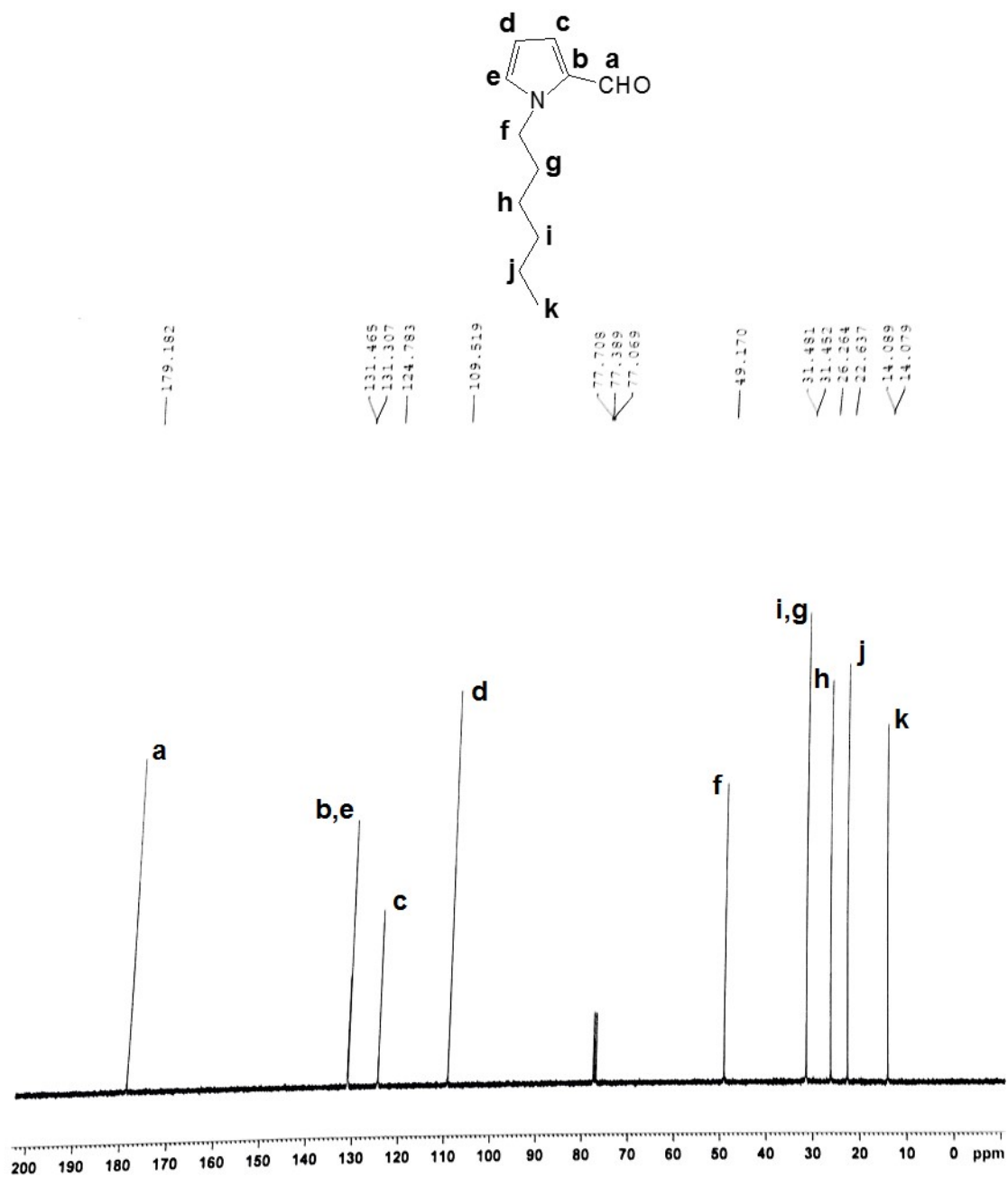
**Figure S2a.** <sup>1</sup>H NMR spectrum of 4-(diethylphosphonomethyl)-4'-methyl-2,2'-bipyridine (**2**).



**Figure S2b.**  $^{13}\text{C}$  NMR spectrum of 4-(diethylphosphonomethyl)-4'-methyl-2,2'-bipyridine (2).



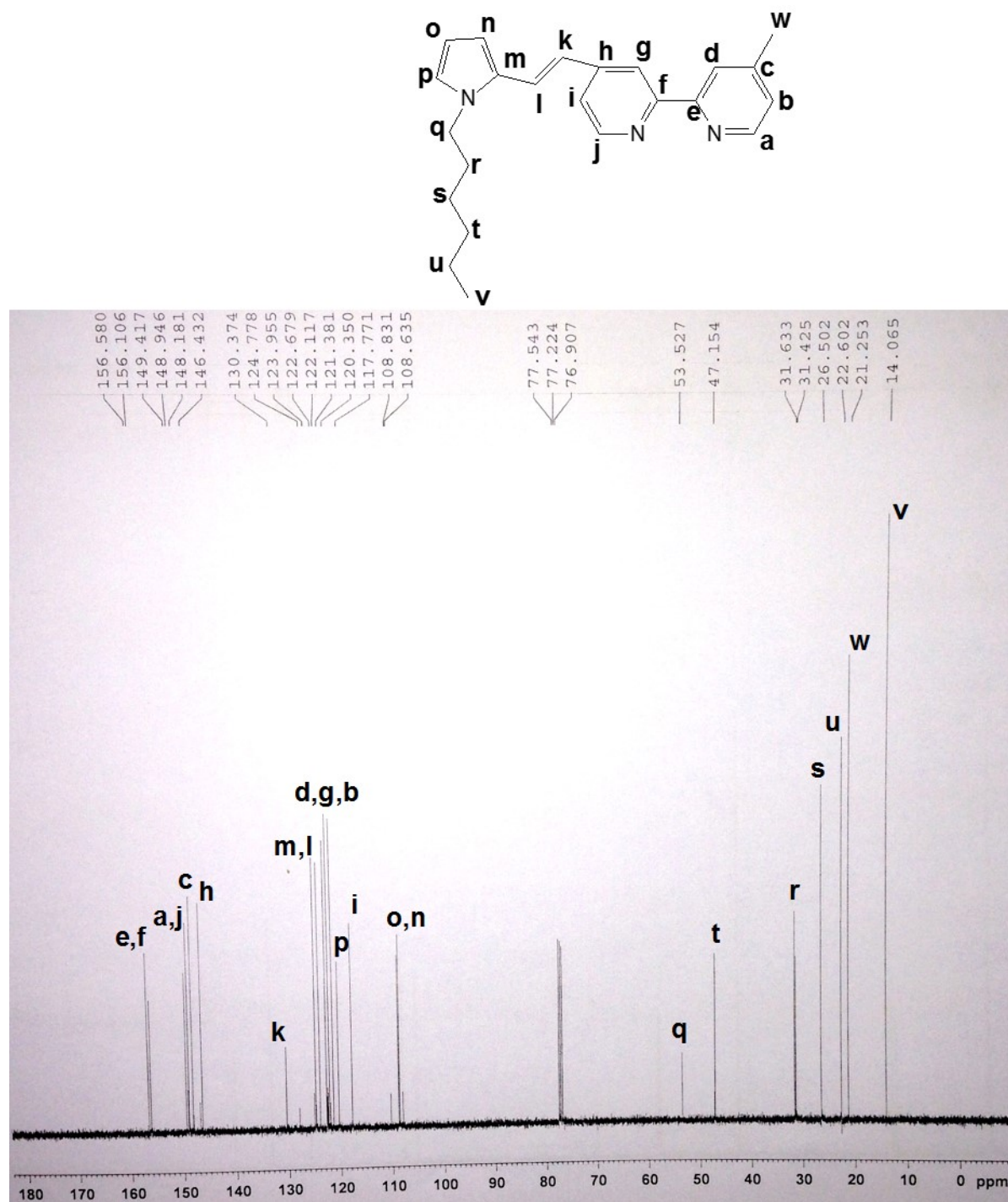
**Figure S3a.** <sup>1</sup>H NMR spectrum of *N*-hexyl-pyrrole-2-carboxaldehyde (**3**).



**Figure S3b.** <sup>13</sup>C NMR spectrum of *N*-hexyl-pyrrole-2-carboxaldehyde (3).

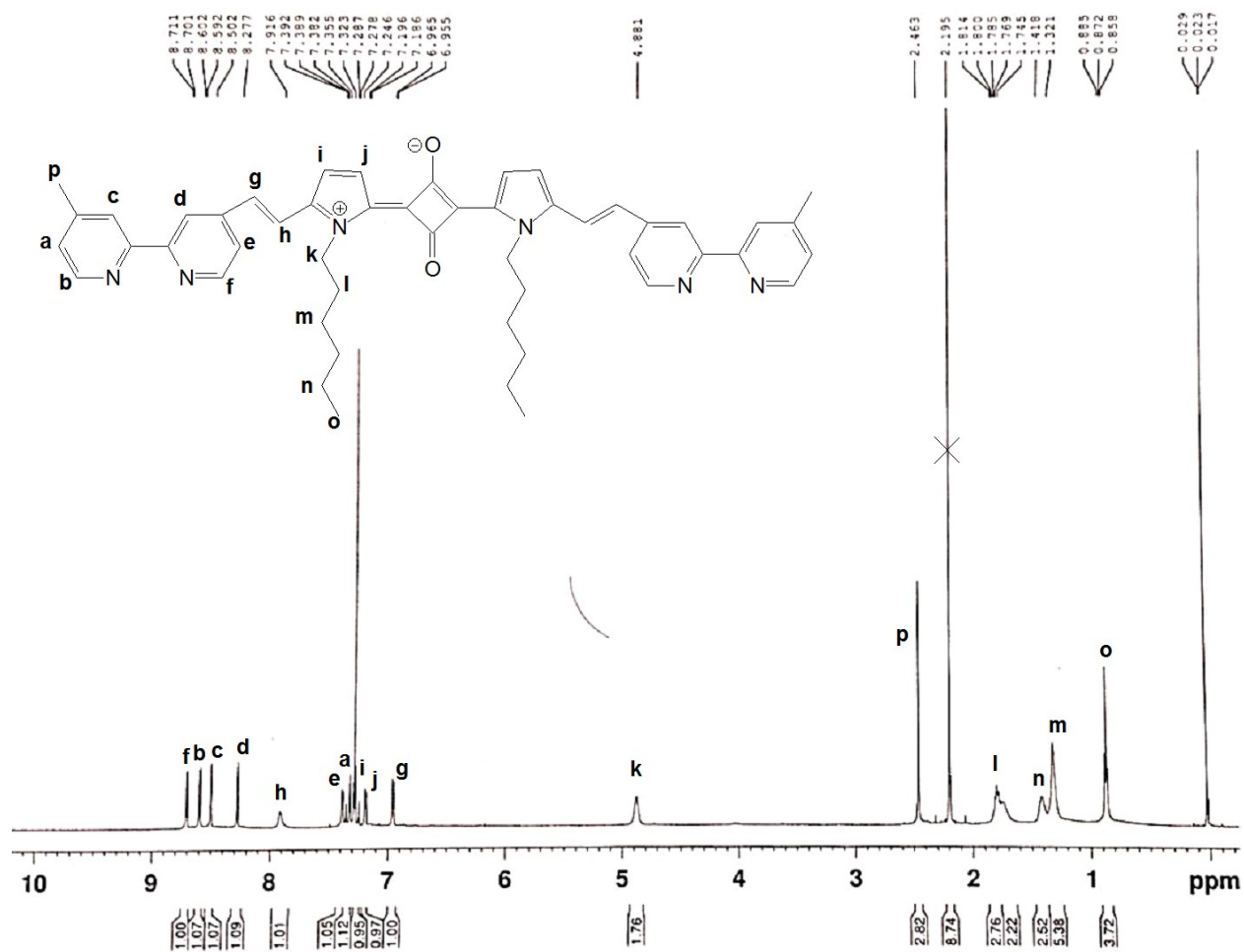


**Figure S4a.**  $^1\text{H}$  NMR spectrum of 4-(*N*-hexyl-pyrrole-2-ethenyl)-4'-methyl-2,2'-bipyridine (**4**).





**Figure S4b.**  $^{13}\text{C}$  NMR spectrum of 4-(*N*-hexyl-pyrrole-2-ethenyl)-4'-methyl-2,2'-bipyridine (**4**).



**Figure S5a.**  $^1\text{H}$  NMR spectrum of **VJ-S**.

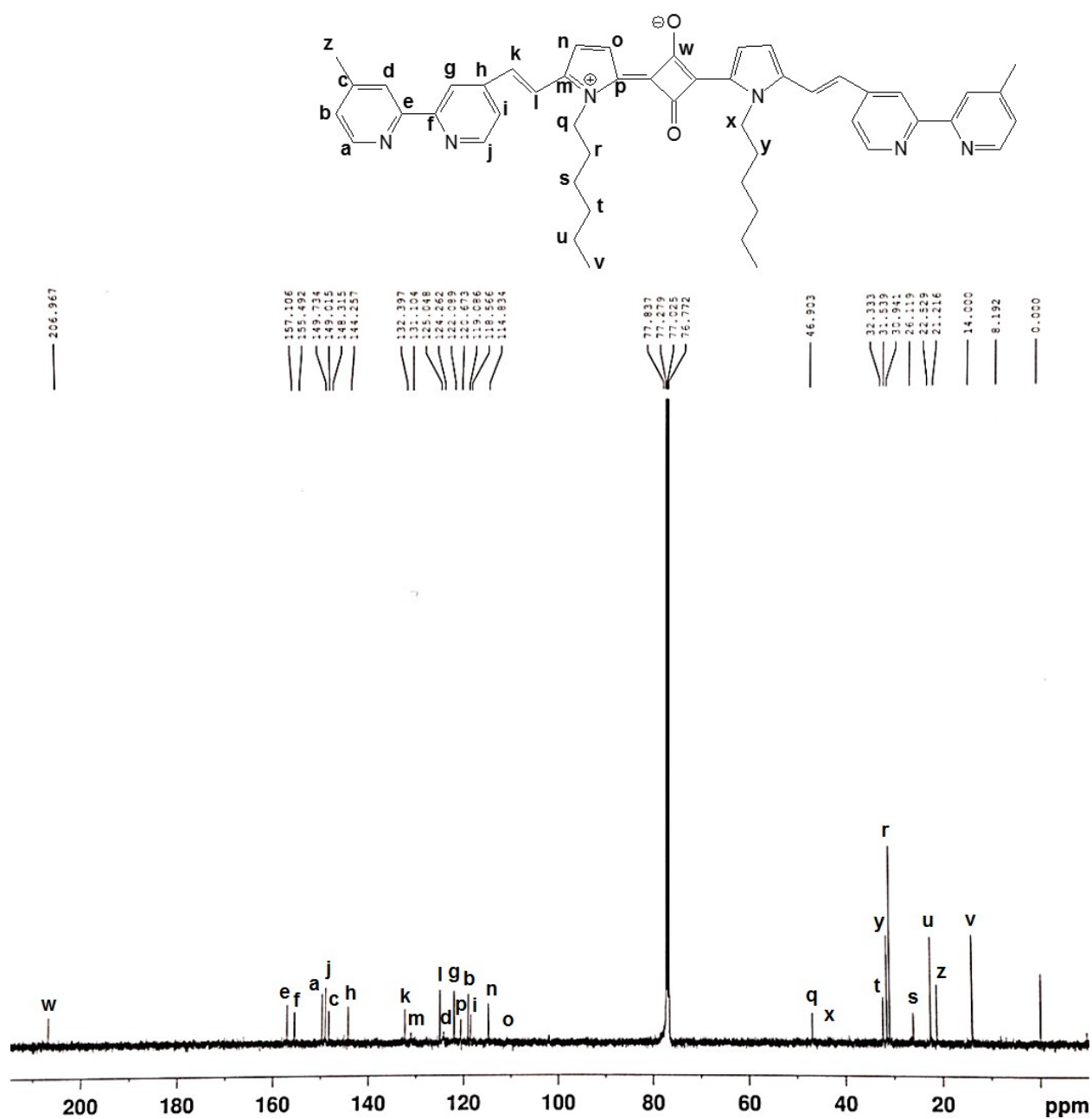
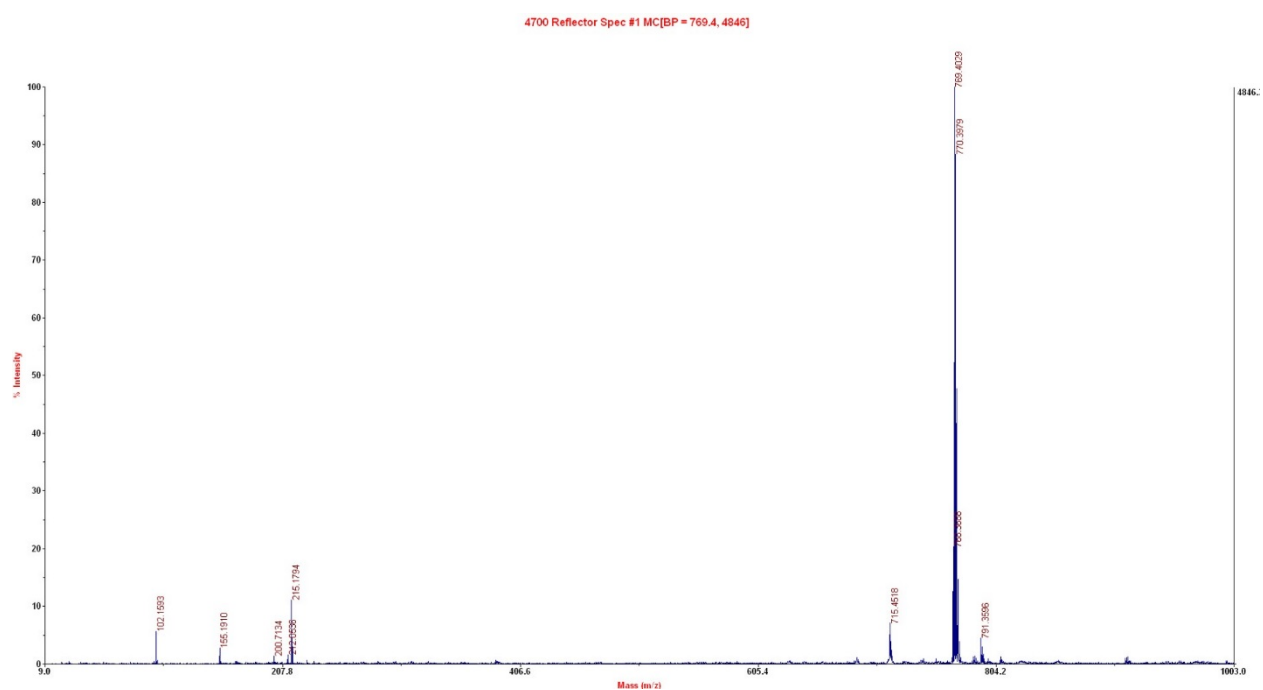
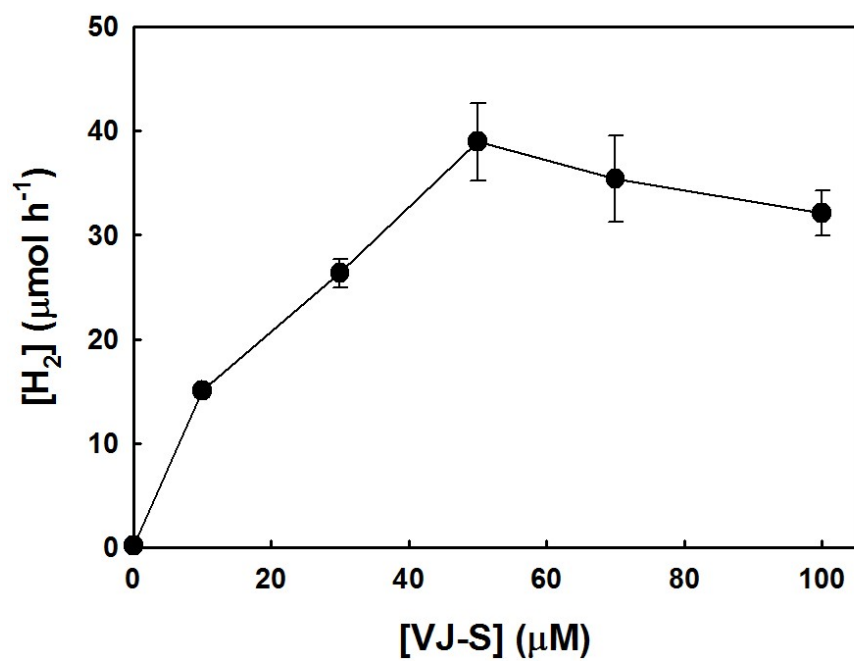


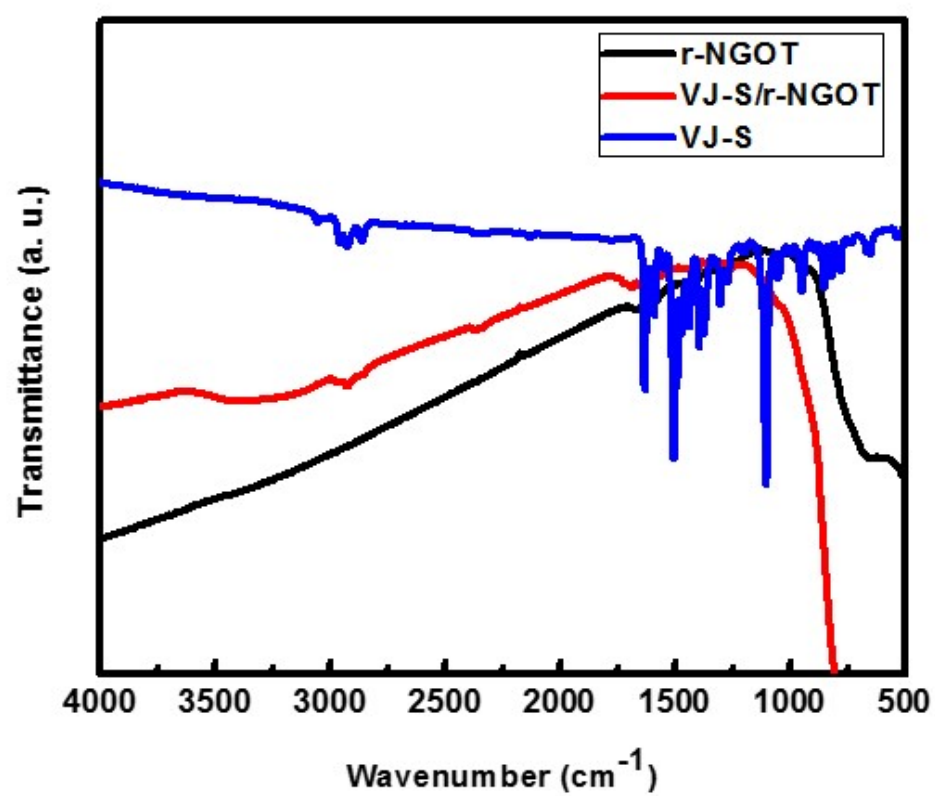
Figure S5b. <sup>13</sup>C NMR spectrum of VJ-S.



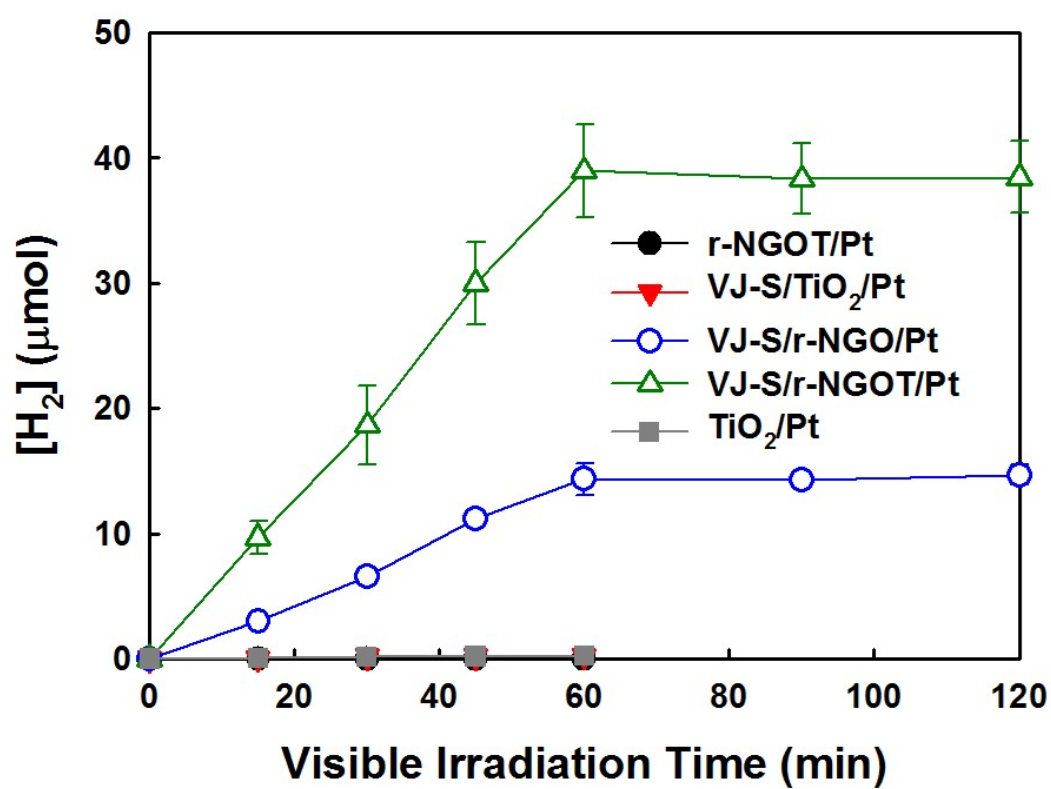
**Figure S5c.** MALDI-TOF mass spectrum of **VJ-S**.



**Figure S6.** Effect of the dye amount on  $\text{H}_2$  production.



**Figure S7.** FT-IR spectra of **r-NGOT**, **VJ-S**, and **VJ-S/r-NGOT**.



**Figure S8.**  $H_2$  production with irradiation time for various samples.