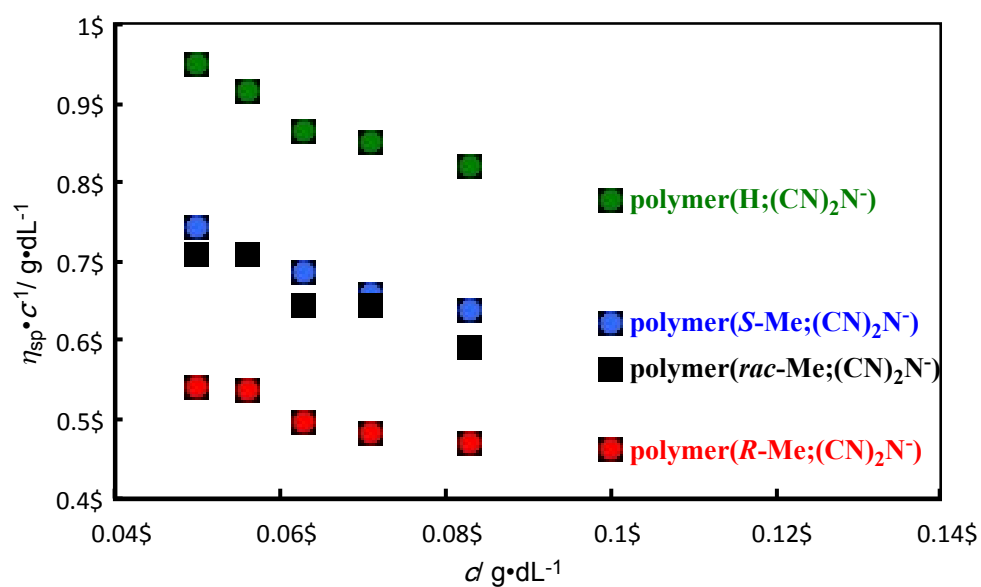


## Supporting Information

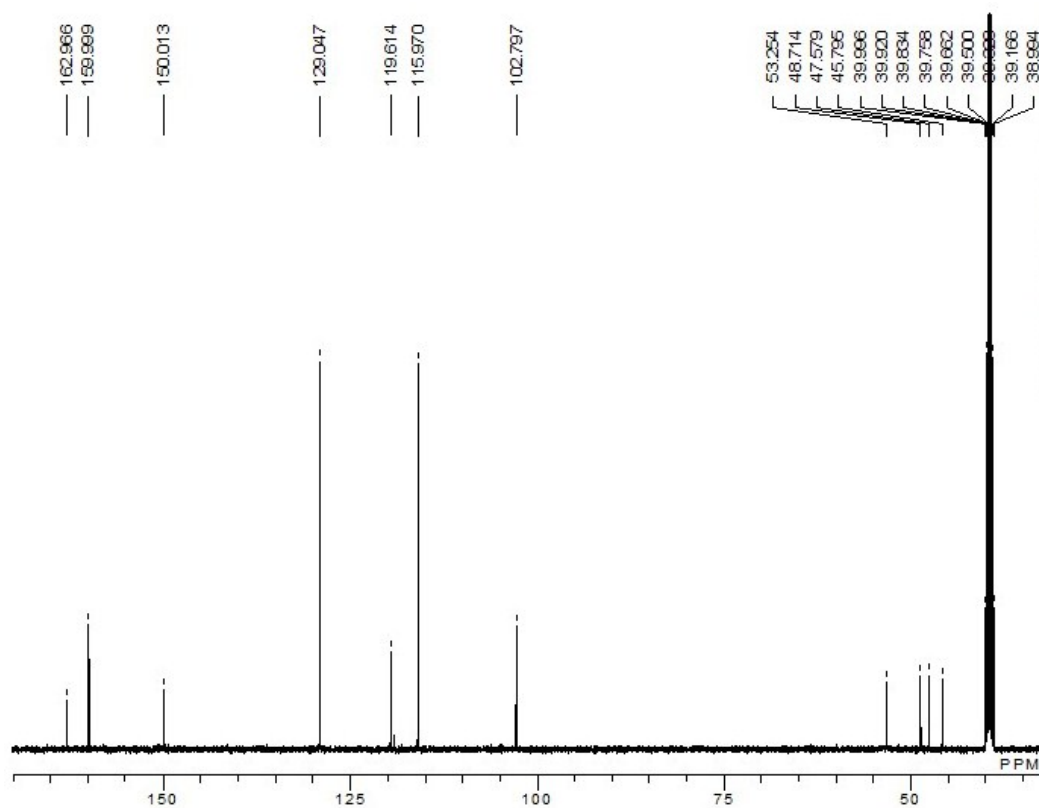
### **Eco-friendly Synthesis of Helical Conjugated Polymers and Their Chemical Properties and Reactivity**

Isao Yamaguchi,\* Yuki Tanaka and Aohan Wang

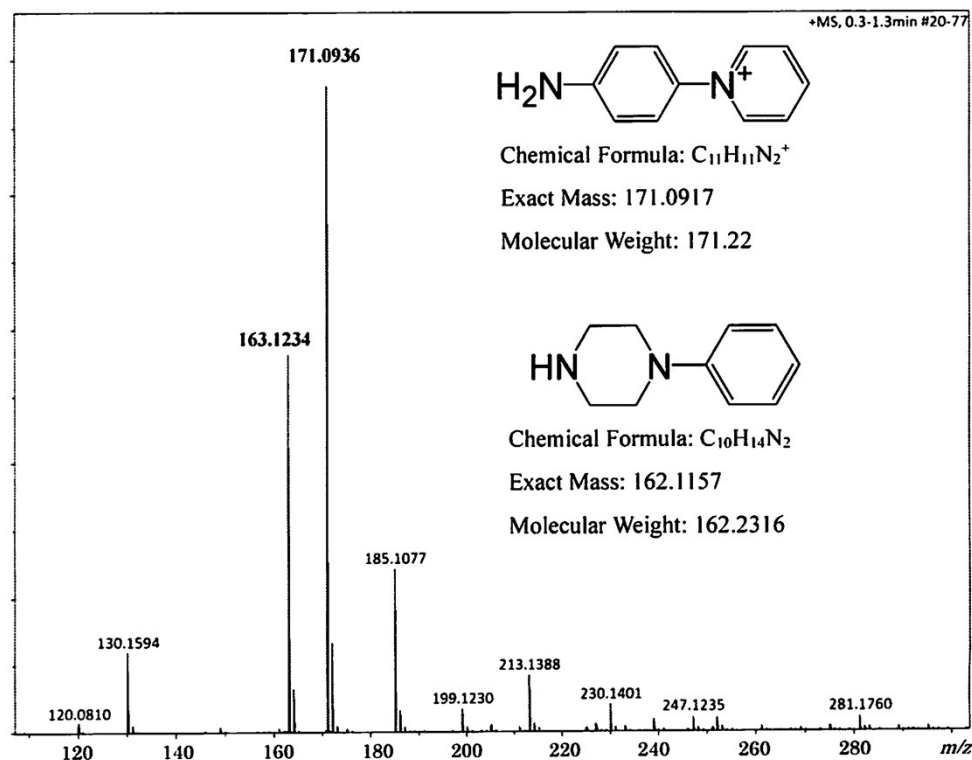
*Department of Material Science, Faculty of Science and Engineering,  
Shimane University, 1060 Nishikawatsu, Matsue 690-8504, Japan*



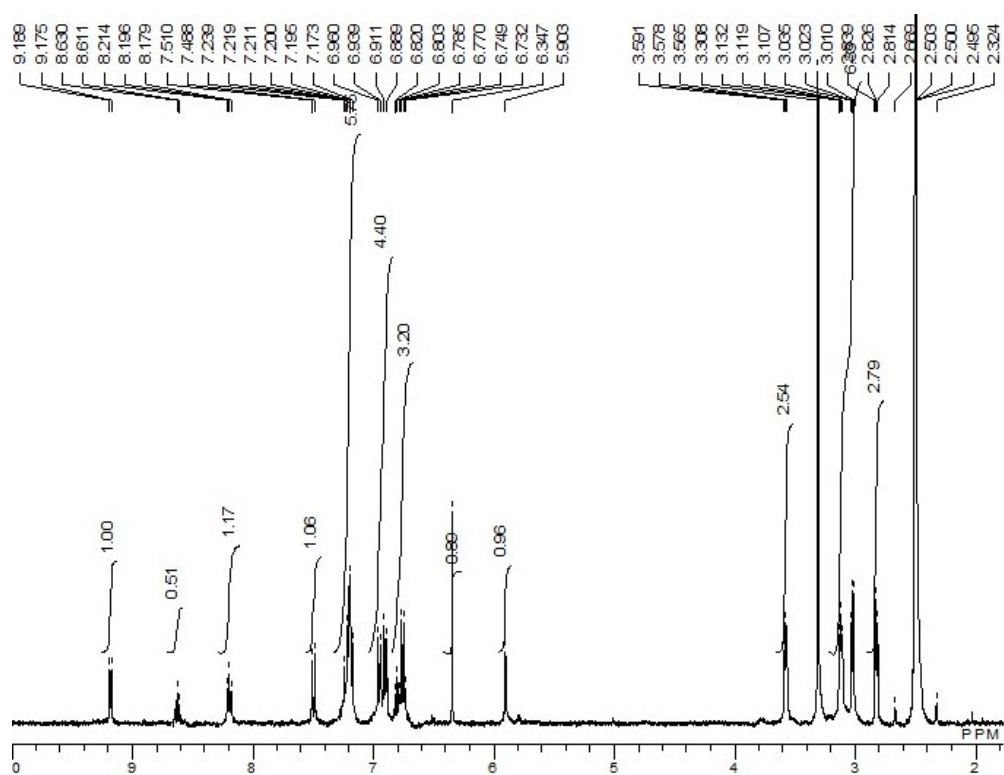
**Figure S1.** Concentration dependence of the reduced viscosities of the polymers in DMSO at 30 °C.



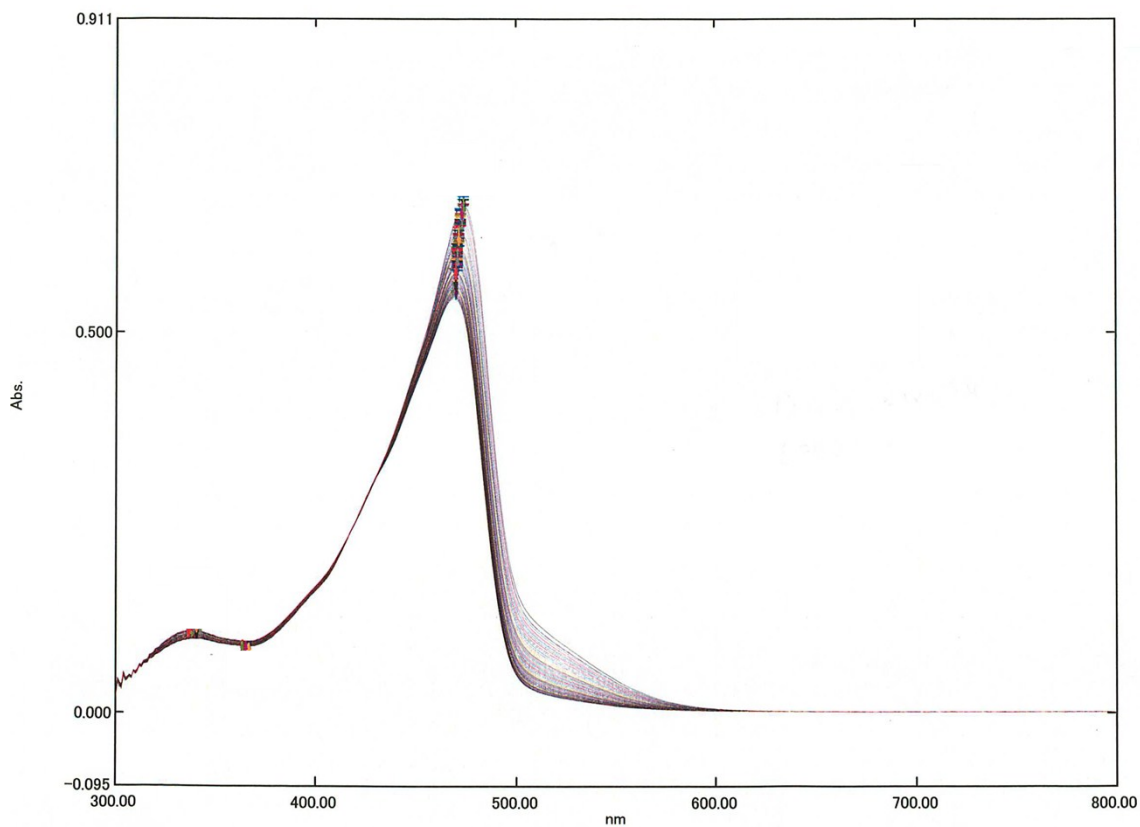
**Figure S2.**  $^{13}\text{C}$  NMR spectrum of **model(H;(CN) $_2$ N $^-$ )** in DMSO- $d_6$ .



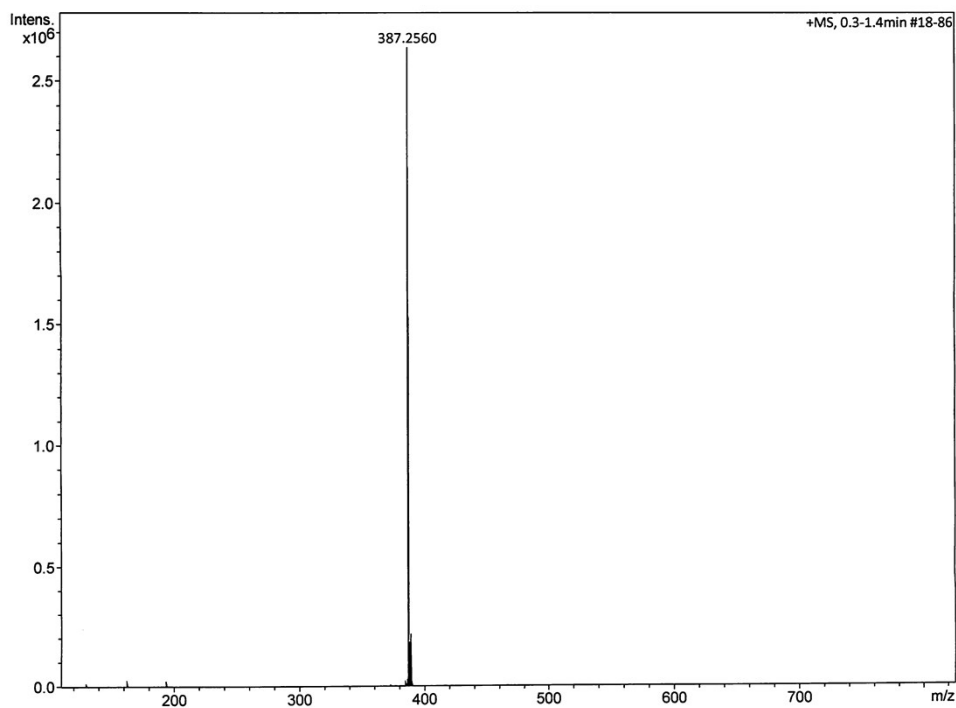
**Figure S3.** ESI TOF-MS spectrum of the products from the reaction of **model(H;(CN)<sub>2</sub>N<sup>-</sup>)** with PDA.



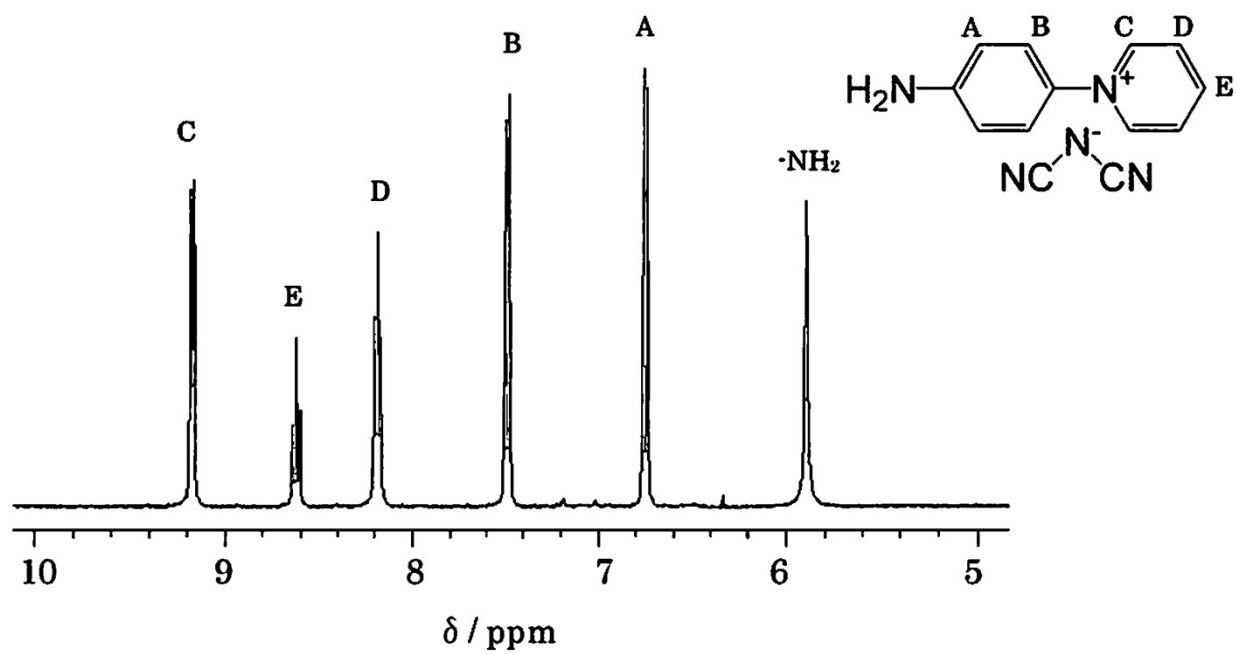
**Figure S4.**  $^1H$  NMR spectrum of the products of the reaction of **model(H;(CN)<sub>2</sub>N<sup>-</sup>)** with PDA.



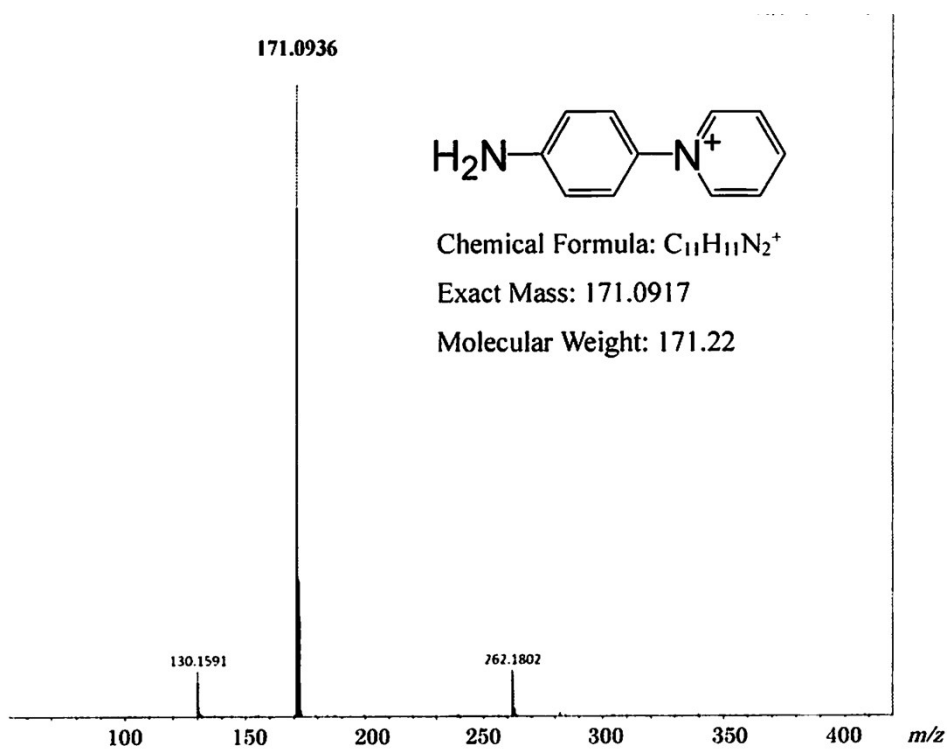
**Figure S5.** The UV-vis spectral changes of the DMSO solution of **polymer(H;(CN)<sub>2</sub>N<sup>-</sup>)** ( $c = 1.0 \times 10^{-5} \text{ M}^{-1}$ ) in the presence of an equimolar amount of PDA.



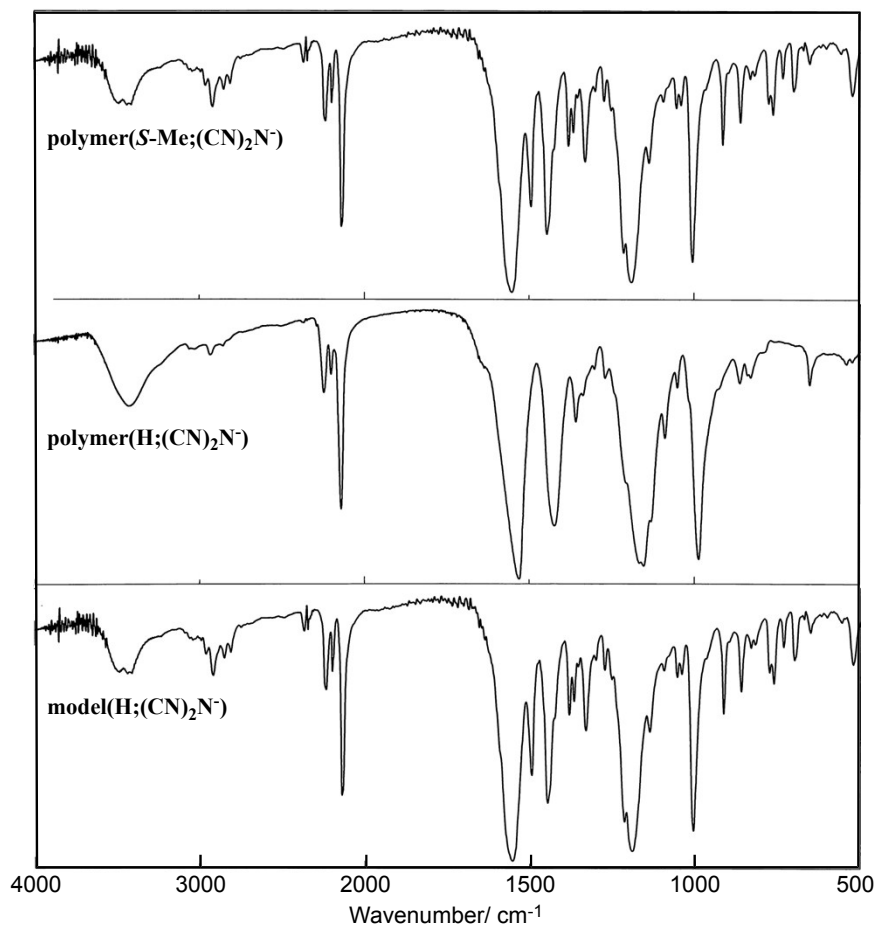
**Figure S6.** ESI TOF-MS spectrum of **model(H;(CN)<sub>2</sub>N<sup>-</sup>)** in DMSO- $d_6$ .



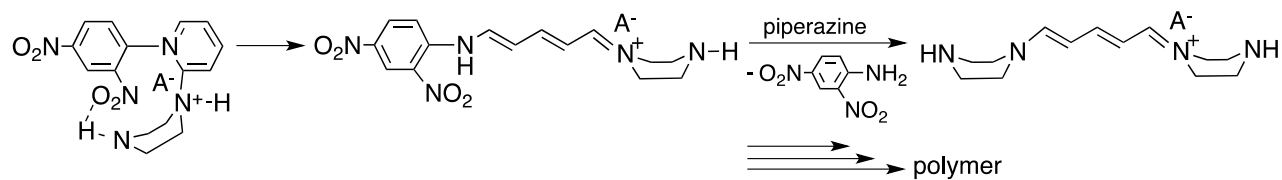
**Figure S7.**  $^1\text{H}$  NMR spectrum of APD in  $\text{DMSO}-d_6$ .



**Figure S8.** ESI TOF-MS spectrum of APD.



**Figure S9.** IR spectra of polymer(*S*-Me;(CN)<sub>2</sub>N<sup>-</sup>), polymer(H;(CN)<sub>2</sub>N<sup>-</sup>) and model(H;(CN)<sub>2</sub>N<sup>-</sup>).



**Scheme S1.** Intramolecular hydrogen bond between the nitro group and the NH group..

Intramolecular hydrogen bond between the nitro group and the NH group.