polymers

MDPI

Supporting Information

Synthesis, Crystal Structures and Spectroscopic Characterization of *bis*-aldehyde Monomers and Their Electrically Conductive Pristine Polyazomethines

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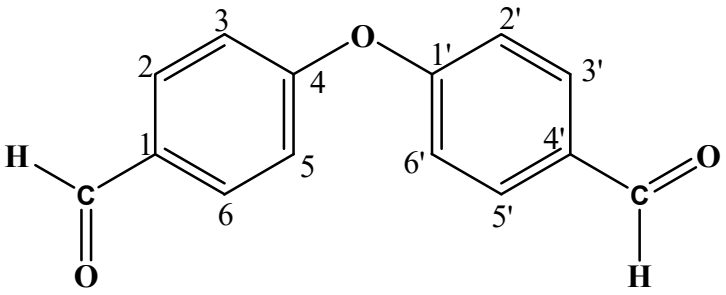
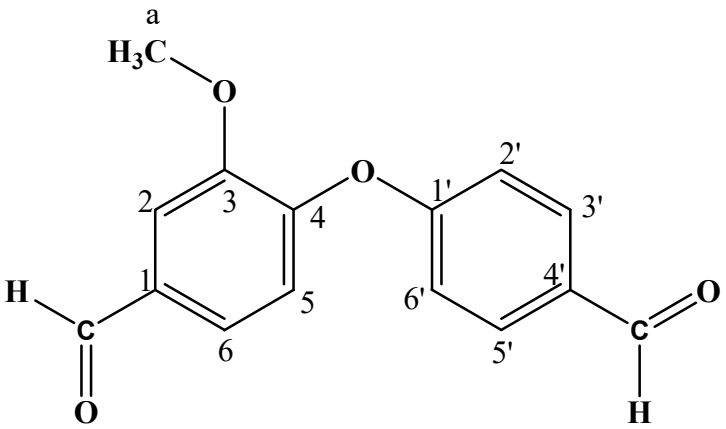
3a



3b



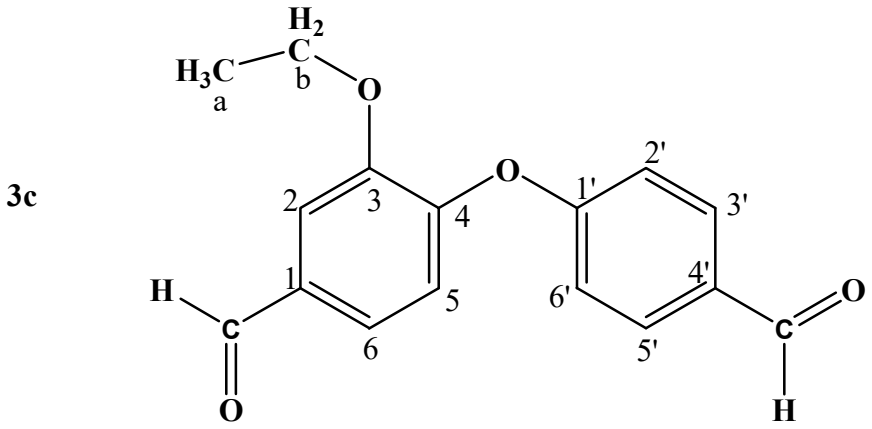


Figure S1. Labelling of monomers.

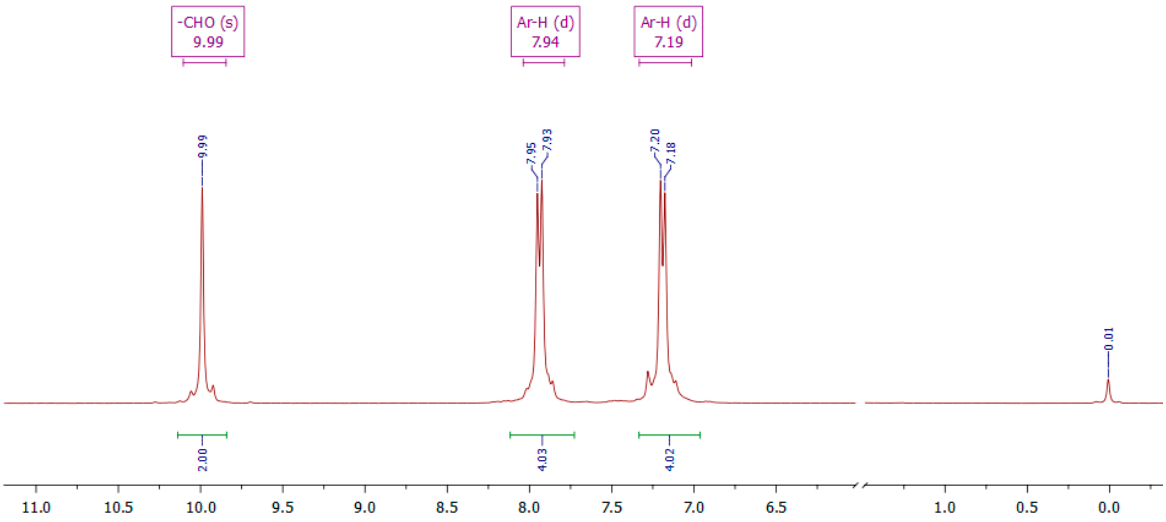


Figure S2. Proton NMR of 3a monomer.

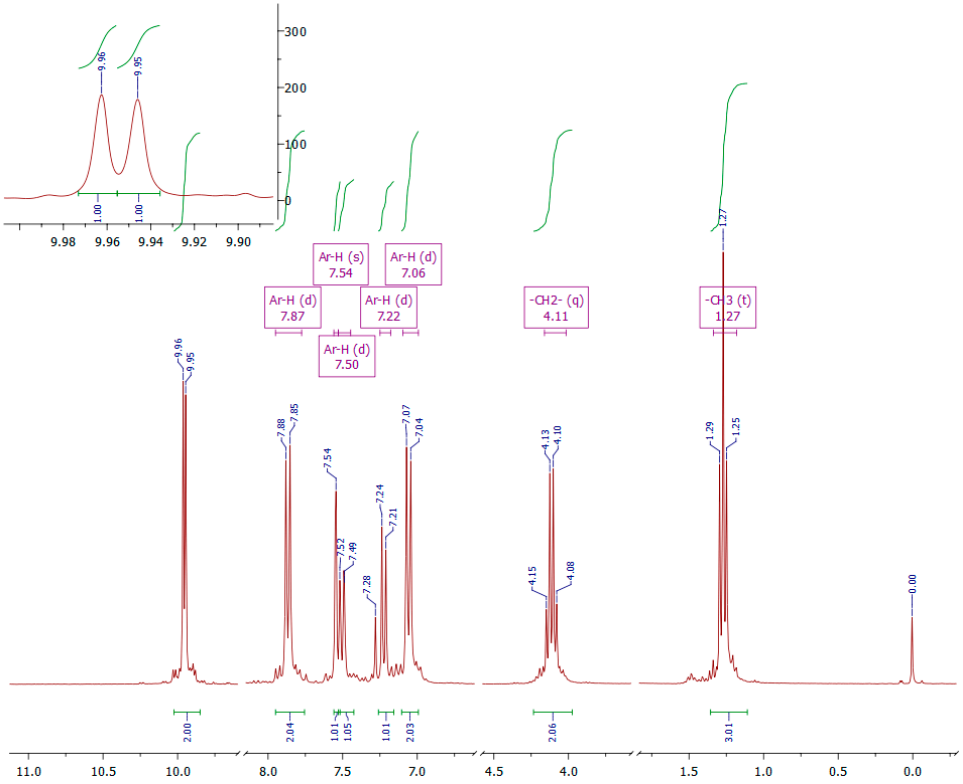


Figure S3. Proton NMR of 3c monomer.

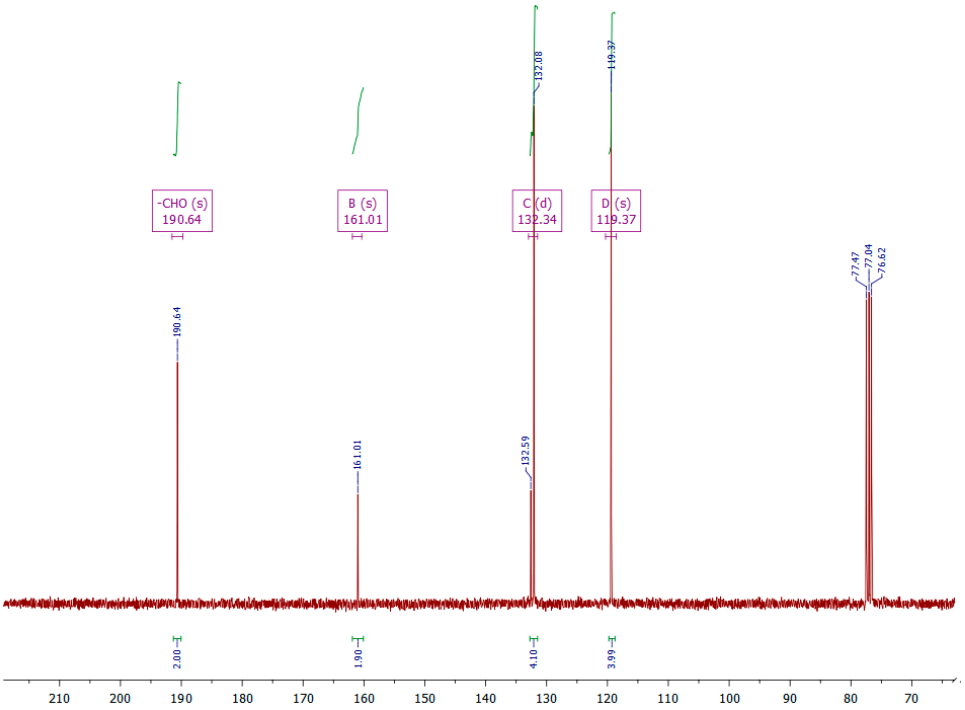


Figure S4. Carbon-13 NMR of 3a monomer.

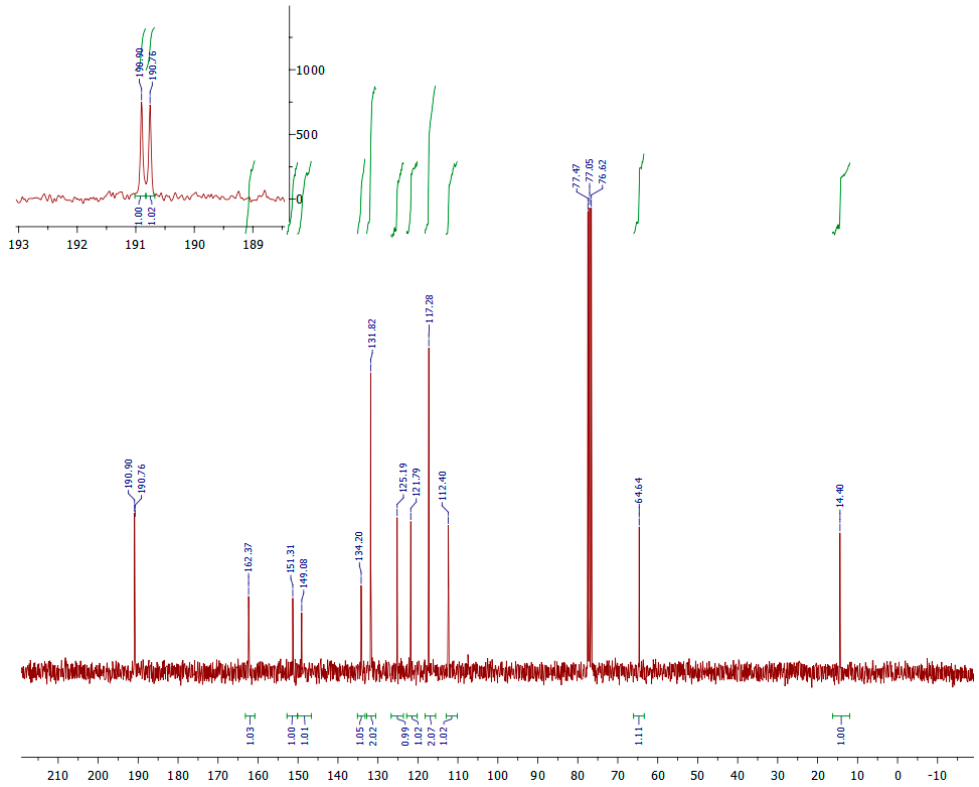


Figure S5. Carbon-13 NMR of 3c monomer.

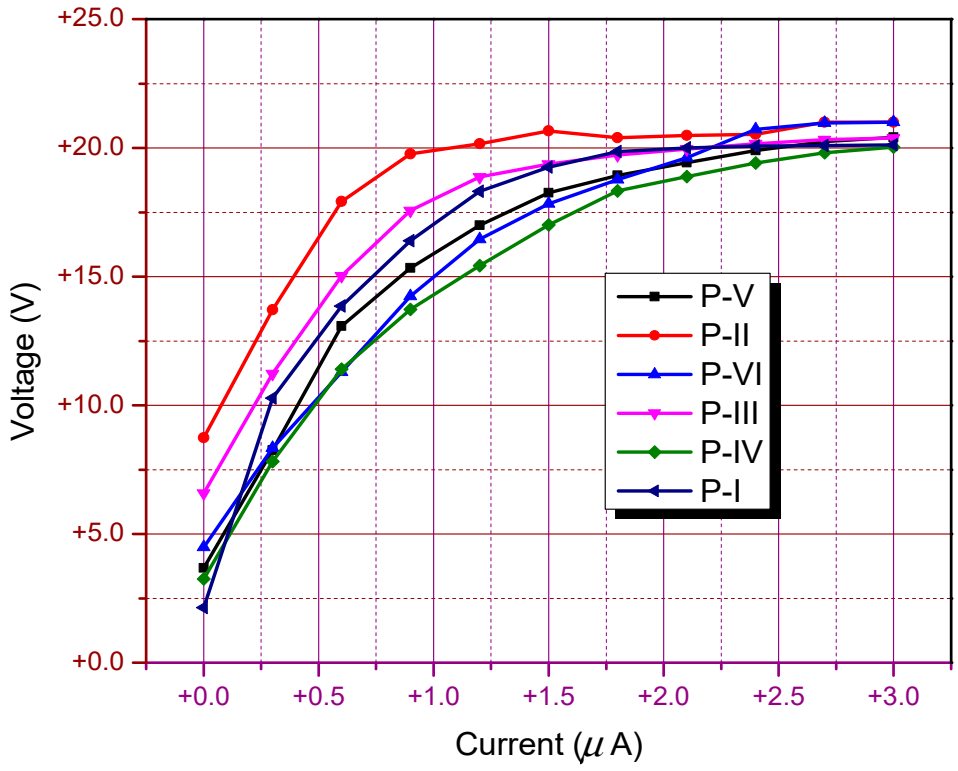


Figure S6. current vs voltage (I-V) curves of polyazomethines polymers.

Organosolubility and inherent viscosities

The organosolubility of polymeric azomethines was checked at 30 °C in various solvents such as *n*-hexane, DMF, DMSO, NMP, $CHCl_3$ and sulfuric acid by dissolving 10 mg powdered polymer sample in 1 mL of solvent and the results are presented in Table S1. It was found that the polymers synthesized from non-substituted aromatic dialdehyde (*i.e*. 3a) were almost insoluble in most of the solvents whereas others having –OCH_3, and –OC_2H_5 showed reasonable solubility in all the solvents. The limited solubility of wholly aromatic polyazomethines may be attributed to the chain rigidity, regularity and inter-chain packing efficiency. It may also be noted that the polymer **P-I** and **P-IV** showed semi-crystalline characteristics in powder XRD which reinforces the fact that polymer chains stacked over one another. However, all the polymeric azomethines showed good solubility in *conc*. H_2SO_4 at room temperature and Table S1 shows the respective solubility behavior of polyazomethines in aforementioned solvents. The polymers had viscosity in the range 1.98-1.72, as shown in Table S2.

Table S1. Organosolubility of polyazomethines in common organic solvents.

Polymer	n-hexane	DMF	DMSO	NMP	$CHCl_3$	H_2SO_4
P-I	− − h	− − h	− − h	− − h	− − h	+ + +
P-II	− − h	+ + +	+ + h	+ + h	+ + +	+ + +
P-III	− − h	+ + +	+ + +	+ + +	+ + +	+ + +
P-IV	− − h	− − h	− − h	− − h	− − h	+ + +
P-V	− − h	+ − h	+ − h	+ − h	+ − h	+ + +
P-VI	− − h	+ + h	+ + h	+ − h	+ + +	+ + +

+ + + = soluble at room temperature, + − h = partially soluble on heating
− − h = insoluble on heating, + + h = soluble on heating

Table S2. Viscometric Data of polyazomethine Polymers.

Code	η_{rel}	η_{sp}	η_{red} (dl/g)	η_{inh} (dl/g)
P-I	1.17	0.17	0.86	1.77
P-II	1.25	0.25	1.28	1.84
P-III	1.12	0.12	0.60	1.72
P-IV	1.136	0.14	0.68	1.74
P-V	1.45	0.45	2.25	1.98
P-VI	1.18	0.18	0.94	1.78