Supplementary Information

High-Temperature Resistant Water-Soluble Polymers Derived from Exotic Amino Acids

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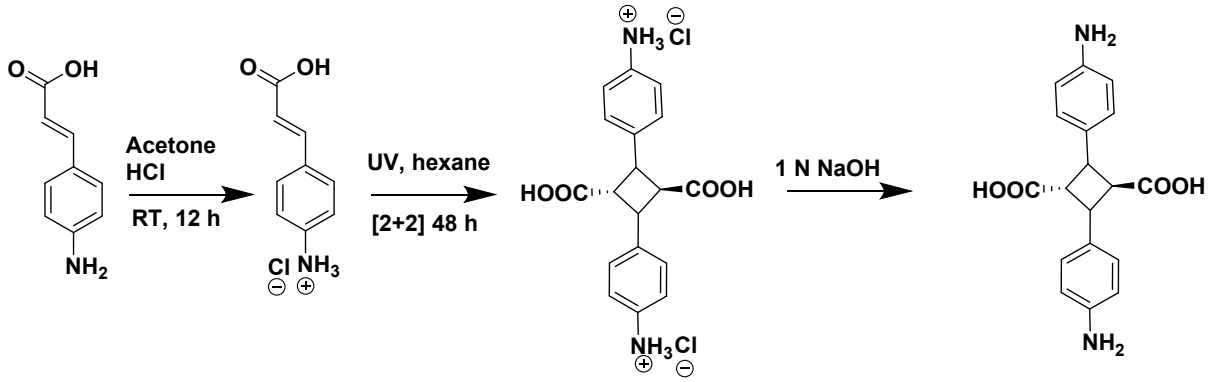

Scheme S1. Monomer synthesis from 4-aminocinnamic acid (4ACA) via photodimerization.

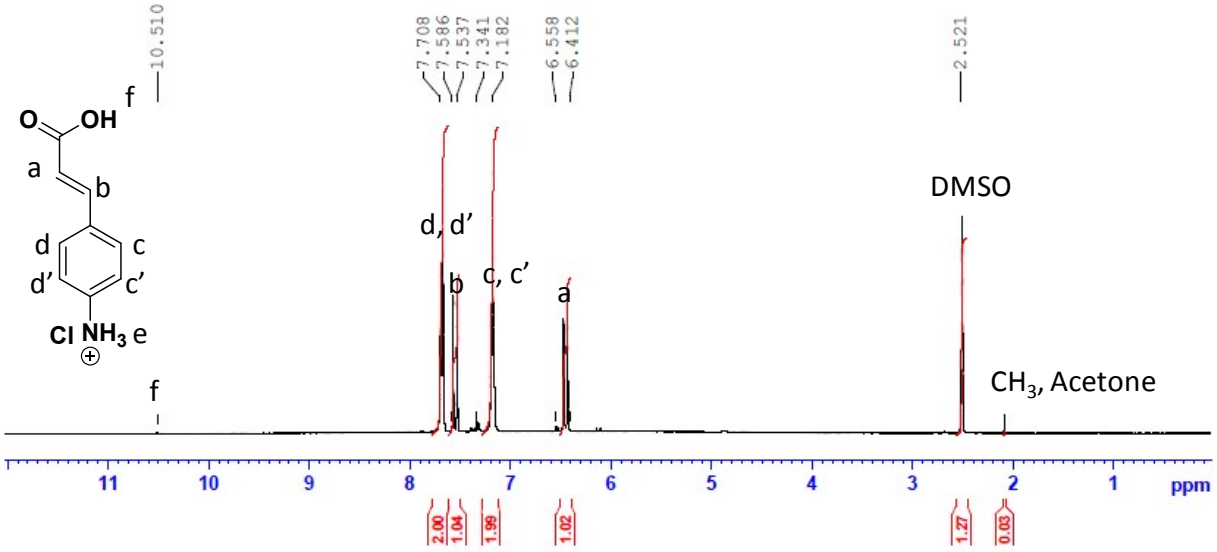

Figure S1. ^{1}H NMR spectrum for 4ACA salt.

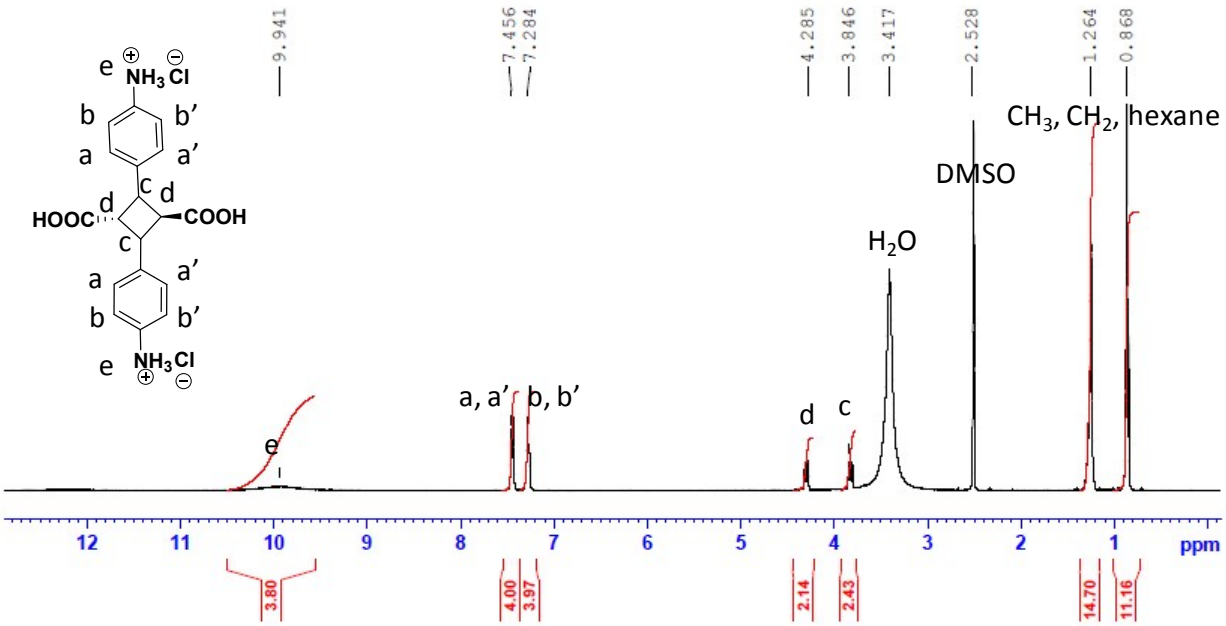

Figure S2. ^{1}H NMR spectrum for 4ATA salt.

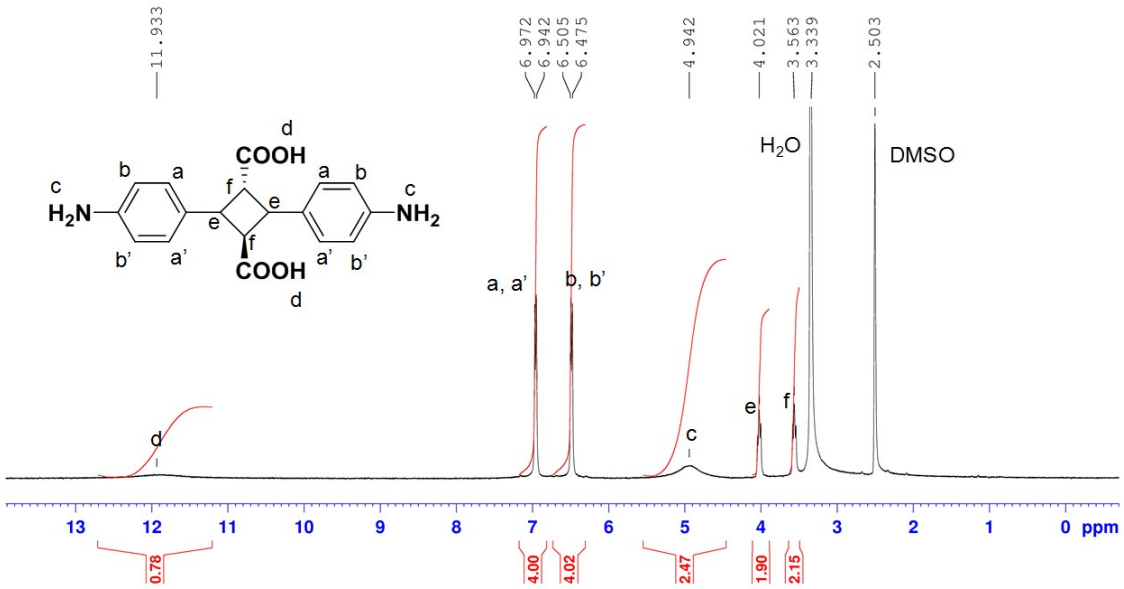

Figure S3. ^{1}H NMR spectrum for 4ATA.

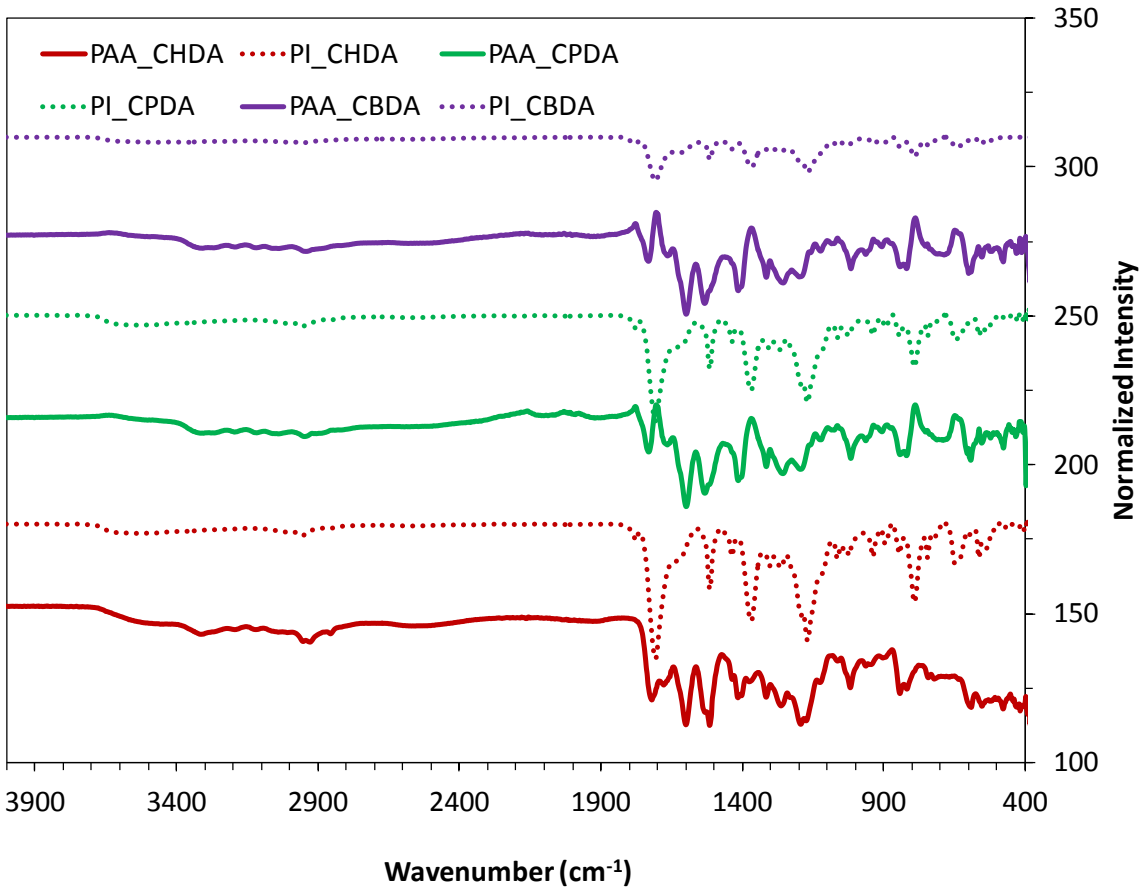

Figure S4. FT-IR spectra for representative poly(amic acid)s and polyimides derived from 4ATA with dianhydrides, CBDA, CHDA and CPDA.

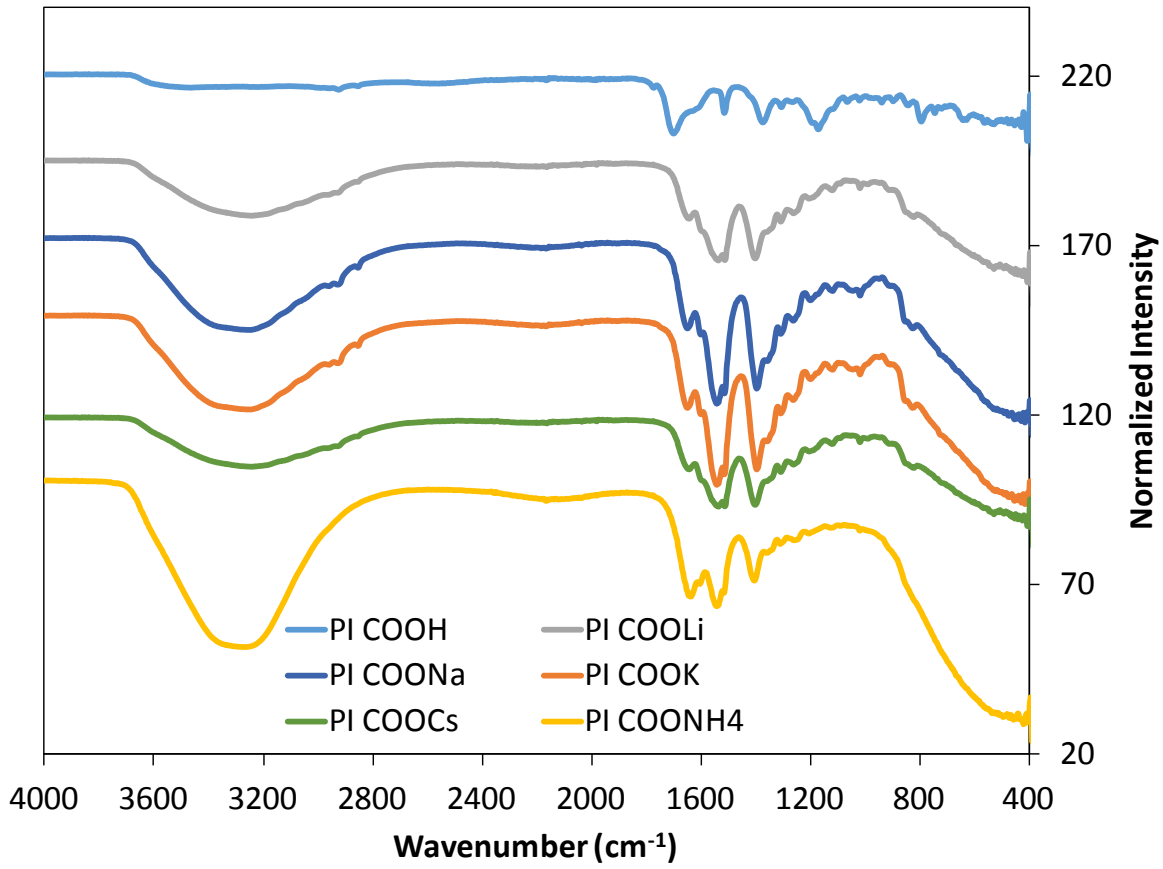

Figure S5. FT-IR spectrum for the polyimide derived from 4ATA and CBDA with various metals/ammounium hydroxide.

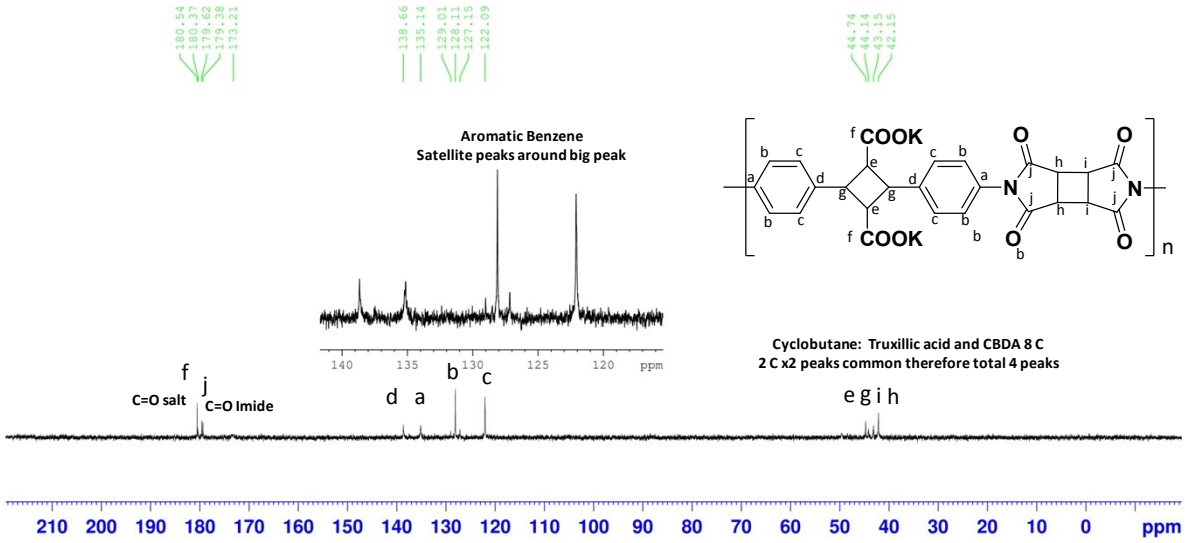

Figure S6. ^{13}C NMR spectrum for water-soluble polyimide salts with potassium.

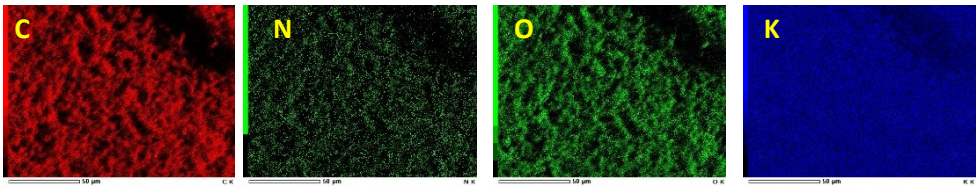

Figure S7. SEM-EDX analyses for K^+ ion contaning water soluble polyimides resulted from CBDA and 4ATA acid.

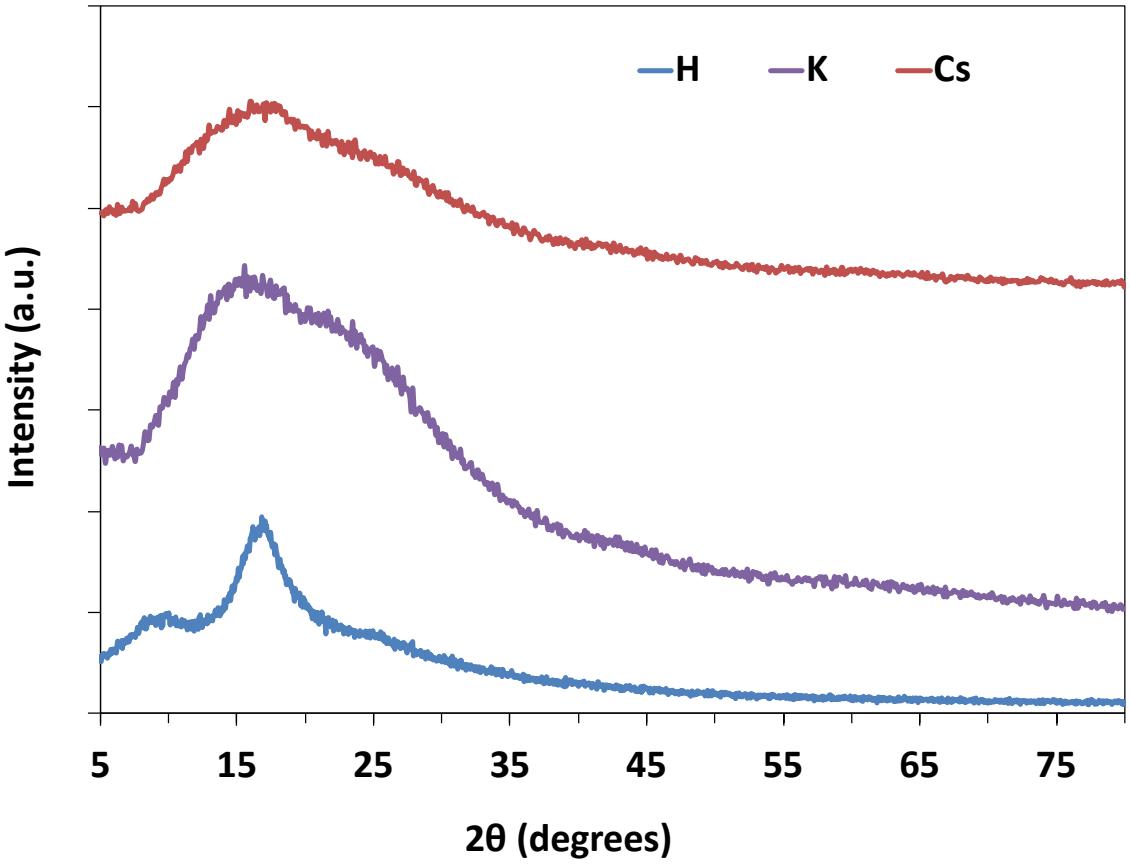

Figure S8. XRD patterns for the polyimide CBDA and ATA-COOM type (where M = H, K, Cs).

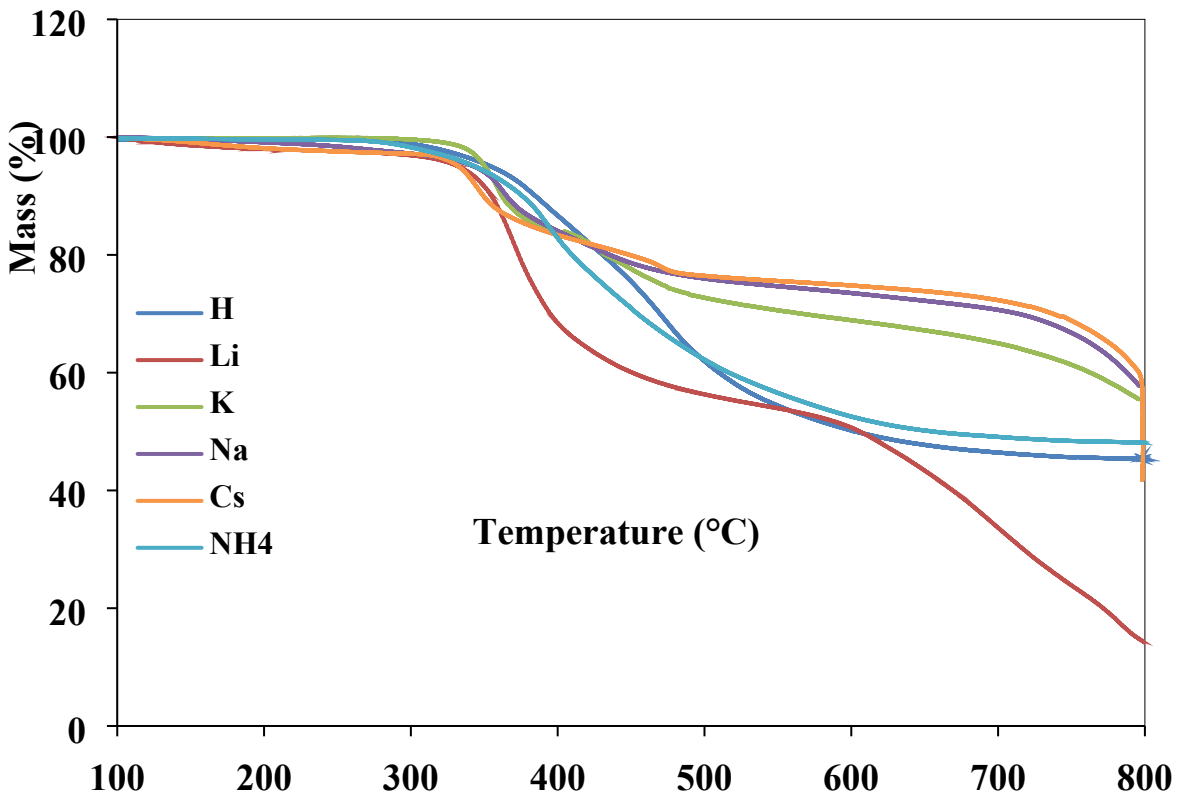

Figure S9. TGA patterns for the polyimide yielded from CBDA and ATA-COOM type (where M = H, Li, Na, K, Cs and NH_4).

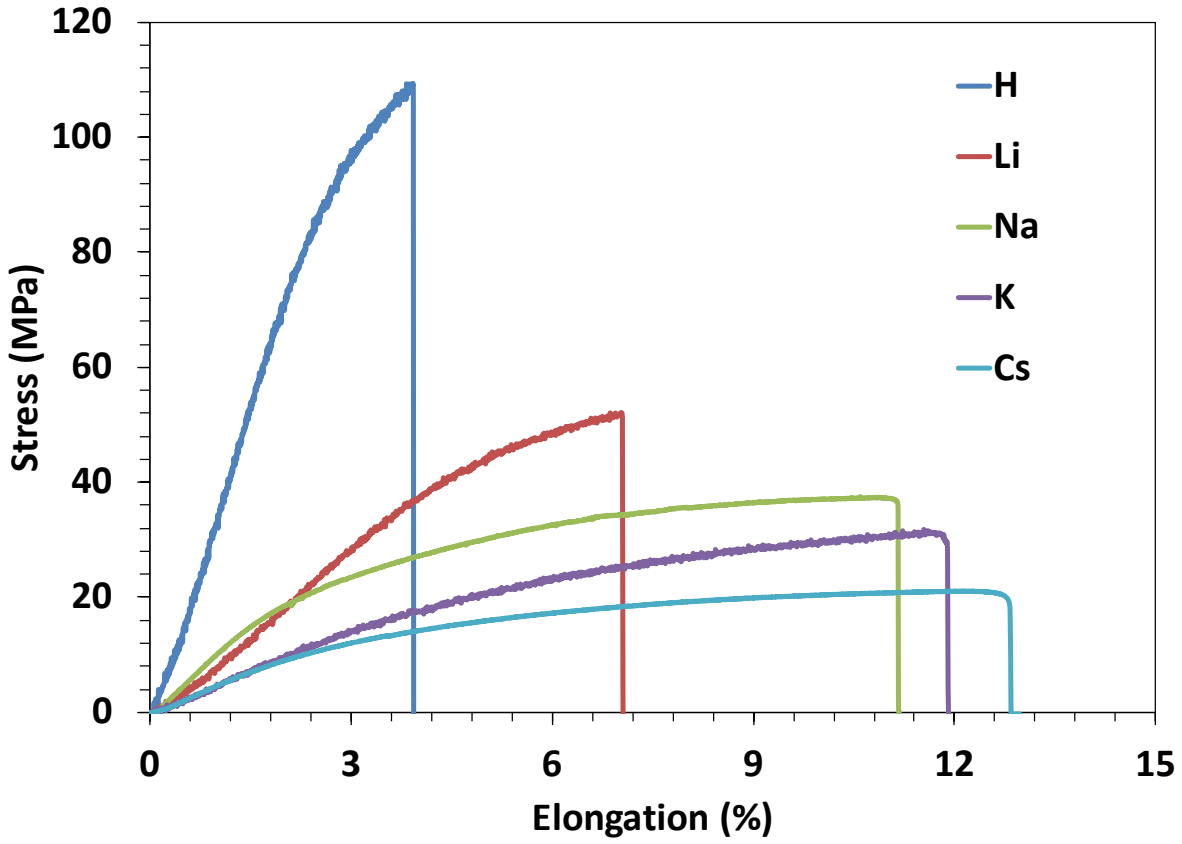

Figure S10. Mechanical properties of the the polyimide CBDA and ATA-COOM type (where M = H, Li, Na, K and Cs).

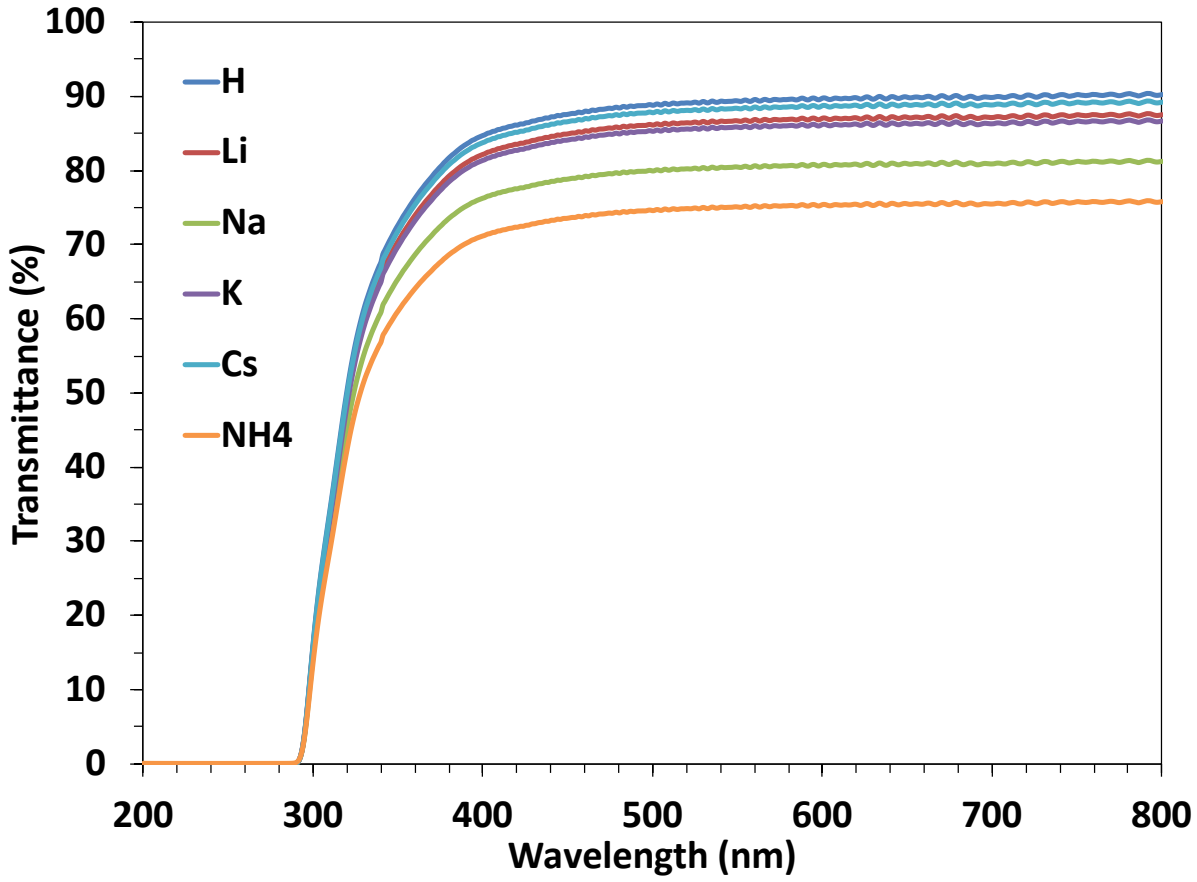

Figure S11. Optical properties of the the polyimide CBDA and ATA-COOM type (where M = H, Li, Na, K, Cs and NH_4).