

## Supporting Information

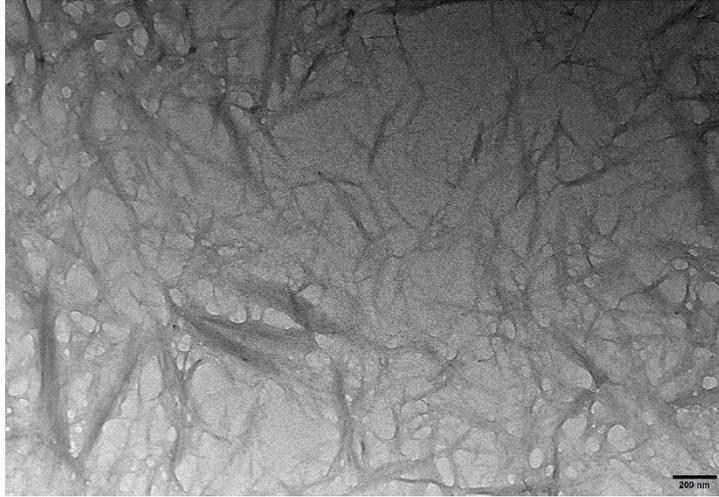
### **RAFT-mediated Pickering Emulsion Polymerization with Cellulose Nanocrystals Graft Random Copolymer as Stabilizer**

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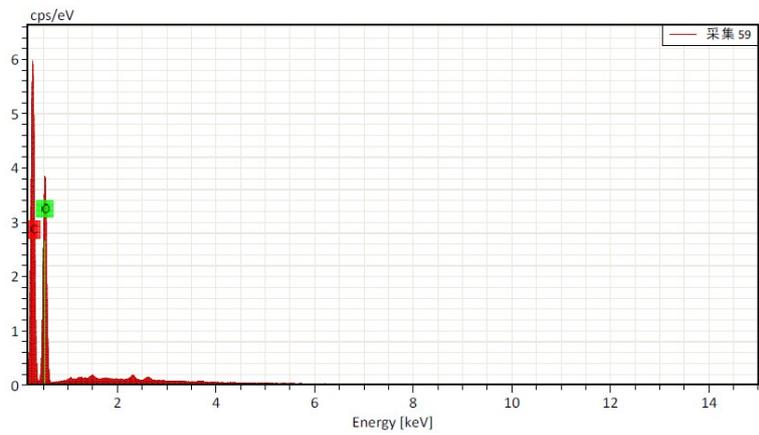
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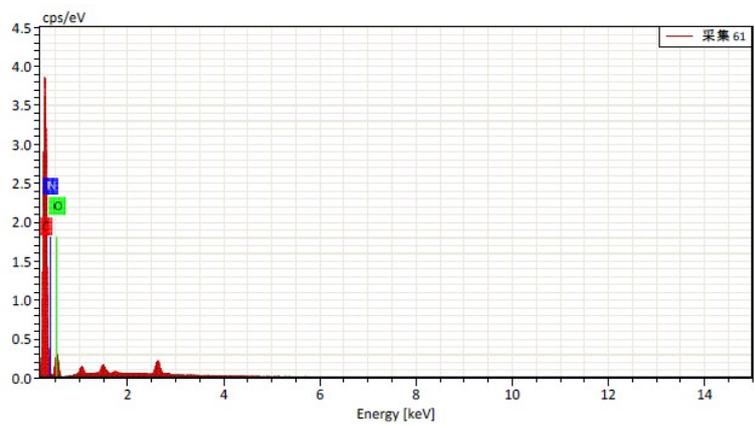
**Figure S1.** TEM image of CNCs.

**Table S1.** EDS data of CNCs, Poly(AN-*r*-BA), Poly(VT-*r*-BA) and Poly(VT-*r*-BA)-*g*-CNCs.

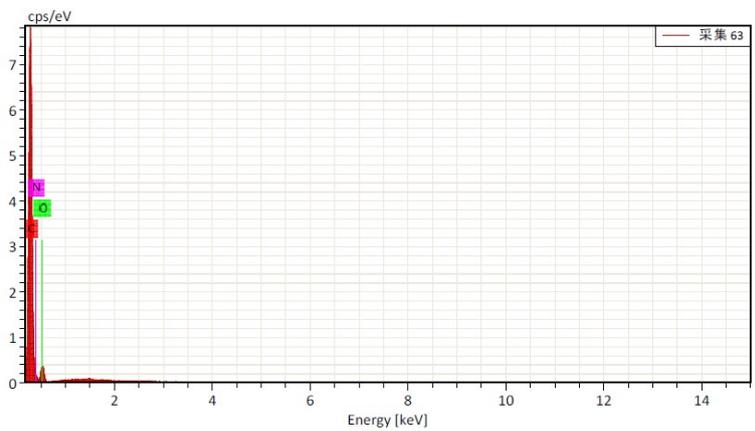
Sample	Composition (wt%)			[N]/[O]	[C]/[O]
	C	O	N		
CNCs	50.69	40.31	--	--	1.68
Poly(AN- <i>r</i> -BA)	69.70	19.10	11.20	0.67	4.88
Poly(VT- <i>r</i> -BA)	62.44	11.30	26.06	2.63	7.37
Poly(VT- <i>r</i> -BA)- <i>g</i> - CNCs	56.95	20.15	22.90	1.30	3.76



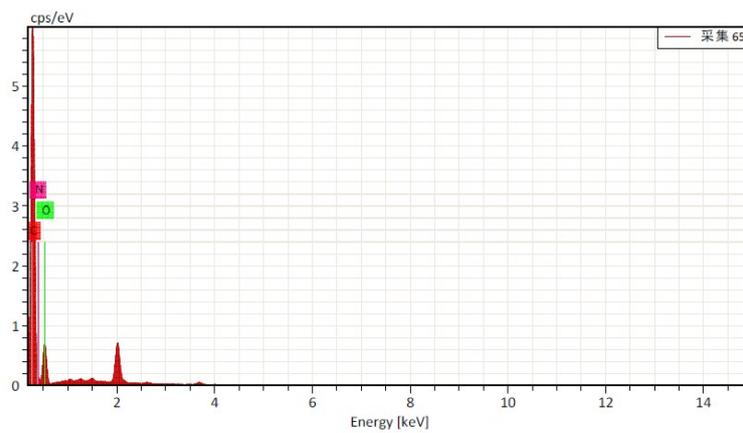
(a)



(b)



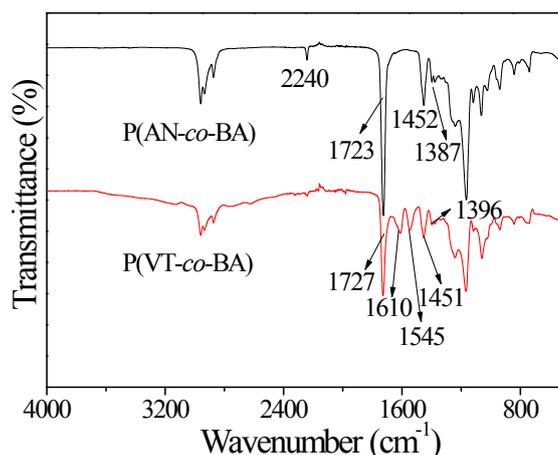
(c)

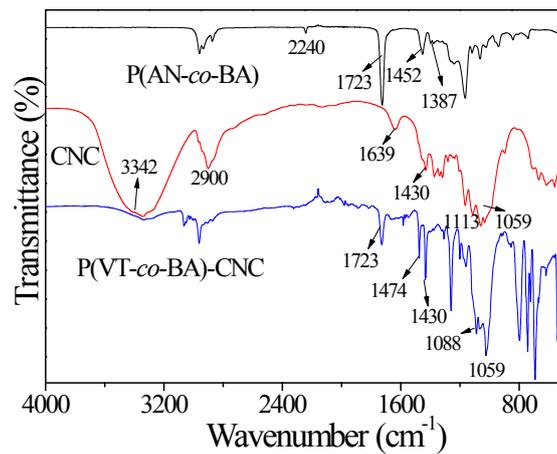


(d)

**Figure S2.** EDS picture of CNCs (a), Poly(AN-*r*-BA) (b), Poly(VT-*r*-BA) (c) and Poly(VT-*r*-BA)-*g*-CNCs (d).

**FT-IR spectra of poly(AN-*r*-BA), poly(VT-*r*-BA), CNCs and poly(VT-*r*-BA)-*g*-CNCs.** Poly(AN-*r*-BA), poly(VT-*r*-BA), CNCs and poly(VT-*r*-nBA)-*g*-CNCs was further characterized by IR measurement. The click chemistry of poly(AN-*r*-BA) with sodium azide lead to poly(VT-*co*-BA) containing tetrazolium group. As shown in figure 5, the FTIR spectrums of poly(AN-*r*-BA) and 5 poly(VT-*r*-BA)had their obvious IR characters. In spectrogram line of poly(AN-*r*-BA), the peak absorption at 2240 cm<sup>-1</sup> was in accordance with C≡N stretching vibration, absent in the IR spectrum of poly(VT-*r*-BA) due to C≡N groups converted into tetrazolium group. Moreover, there was additional peak at 1545 cm<sup>-1</sup> and 1610 cm<sup>-1</sup> associated with tetrazolium group, appears with the IR spectrum of poly(VT-*r*-BA). Therefore, these phenomenon manifest successfully preparation of poly(VT-*r*-BA) 10 from poly(AN-*r*-BA). poly(VT-*r*-BA)-CNCs was obtained by Mitsunobu reaction between poly(VT-*r*-BA) and CNCs. In IR spectra of CNCs, all characteristic was found. Meanwhile, the peak at 1723 cm<sup>-1</sup> attributed to C=O stretching vibration derived from poly(VT-*r*-BA) and 1059 cm<sup>-1</sup> from CNCs were observed in IR spectrum line poly(VT-*r*-BA)-CNCs at the same time. On the basis of analyzing these character, it clearly demonstrated that the successful synthesis of poly(VT-*r*-nBA)-*g*-CNCs.





**Figure S3.** The FT-IR spectrogram of poly(AN-*r*-BA), poly(VT-*r*-BA), CNCs and poly(VT-*r*-BA)-*g*-CNCs.