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Supporting Information for

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Fractionation of beech wood cell walls into digestible cellulose-rich residues and

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photoluminescent lignin-rich precipitates via semi-flow hot-compressed water treatment

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with 2-naphthol

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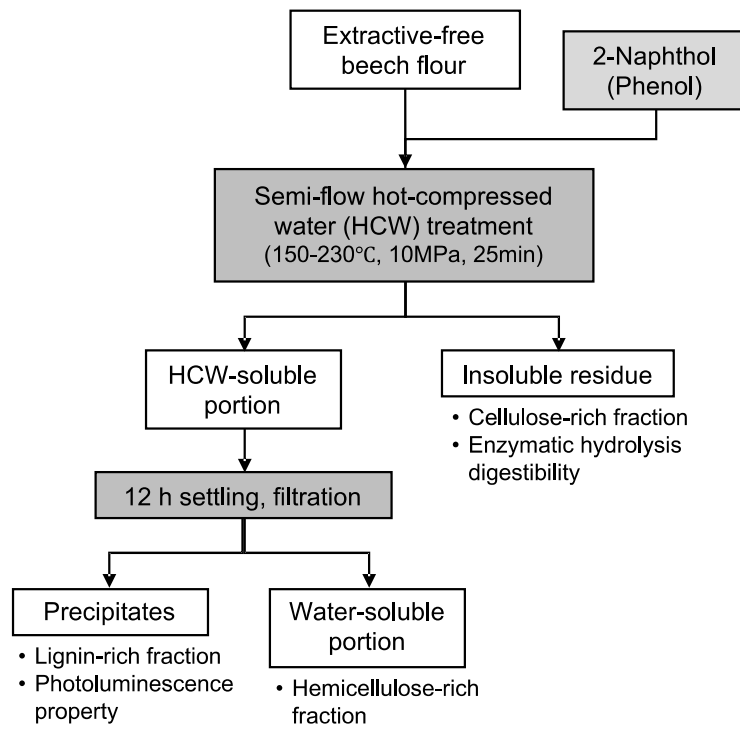
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20 Figure S1 Schematic images of fractionation of beech wood by semi-flow hot-

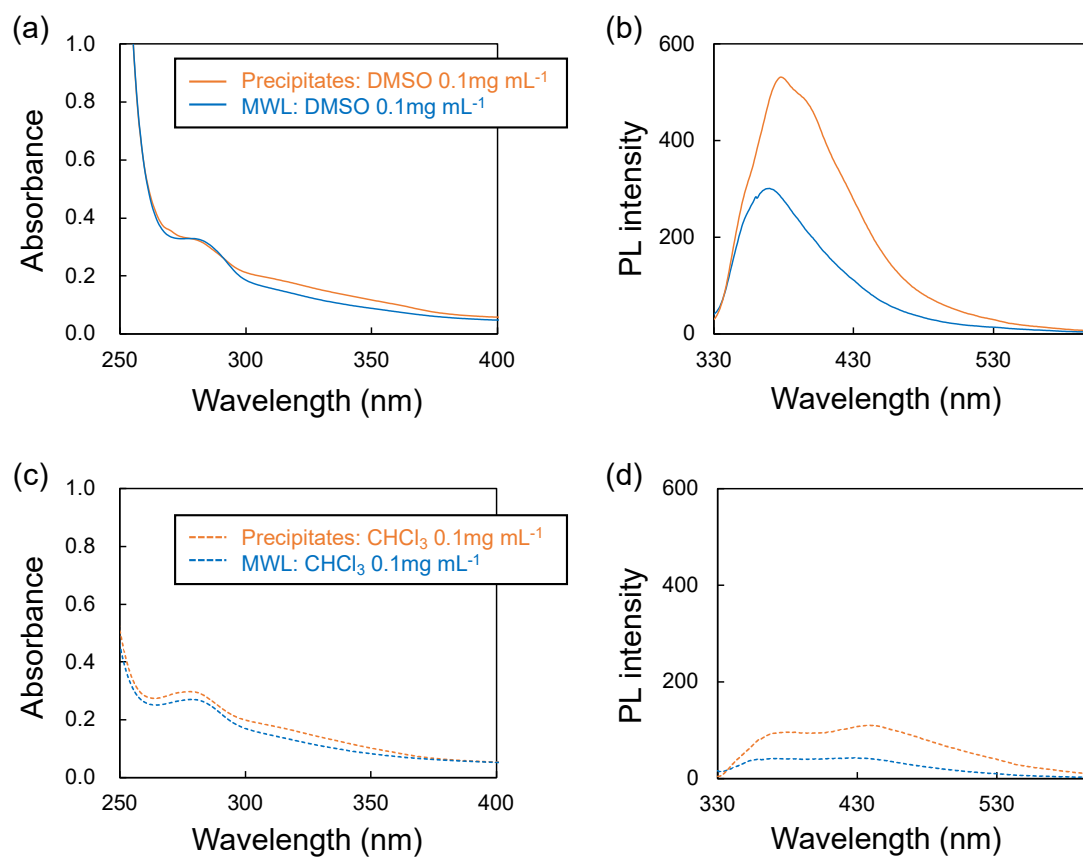
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compressed water (HCW) treatment.

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26 Figure S2 (a) UV-Vis absorbance spectra of MWL and precipitates from HCW

27 treatment dissolved in DMSO at 0.1 mg mL⁻¹, (b) those photoluminescence spectra

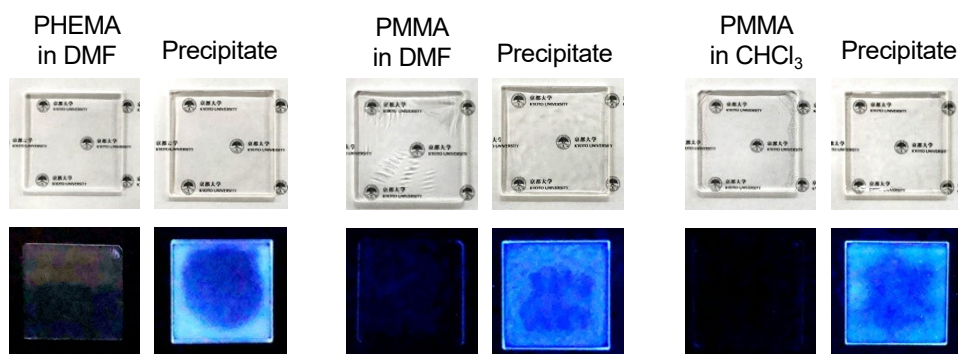
28 excited at 320 nm, (c) UV-Vis absorption spectra of MWL and precipitates in CHCl₃ at

29 0.1 mg mL⁻¹, (d) those photoluminescence spectra excited at 320 nm.

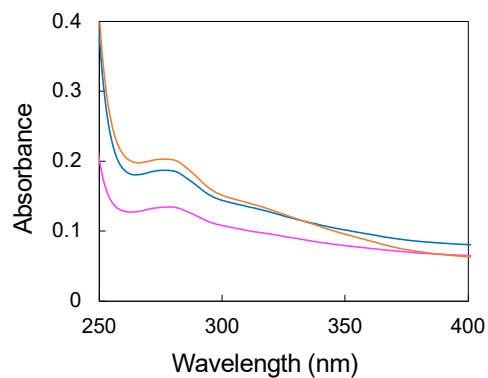
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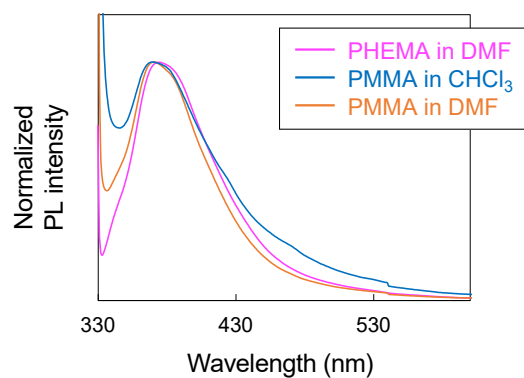
(a) Pictures



(b) UV-Vis absorbance spectra



(c) Normalized PL spectra excited at 320 nm



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33 Figure S3 (a) Photos of precipitates from HCW treatment of beech wood in PHEMA

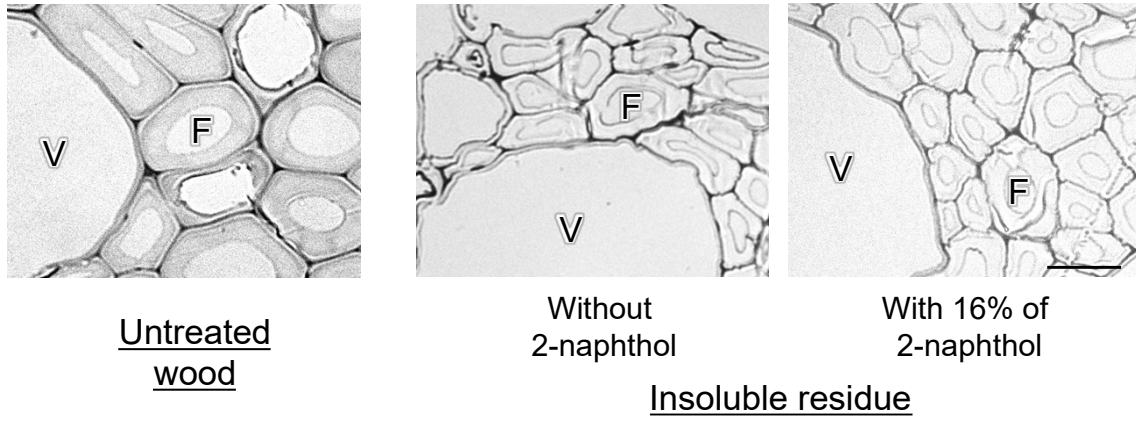
34 and PMMA films, (b) their UV-Vis absorption spectra, (c) PL spectra excited at 320 nm.

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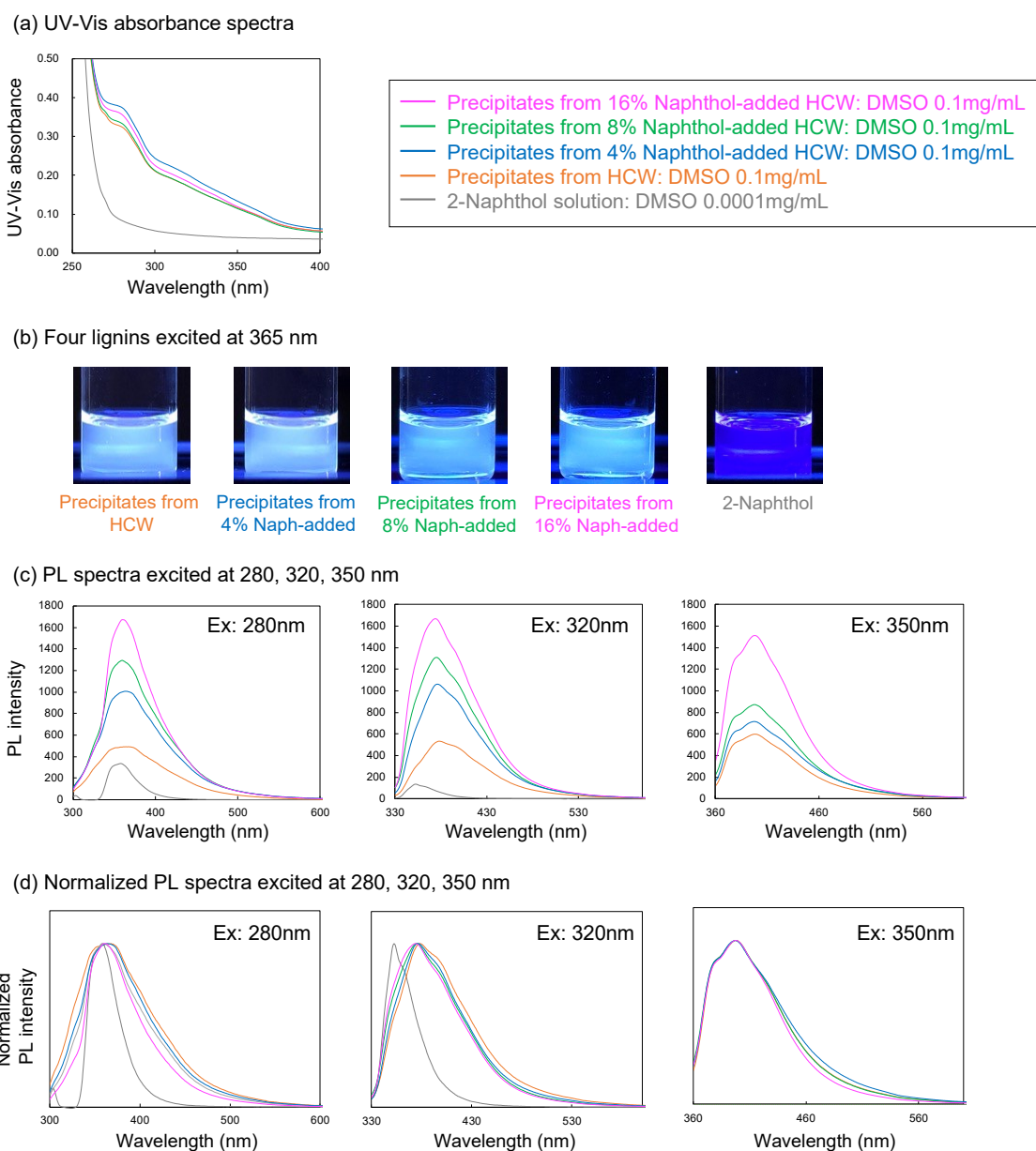


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40 Figure S4 UV micrographs of insoluble residue from Japanese beech as treated by HCW

41 with 16% 2-naphthol.

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44 Figure S5 (a) UV-Vis absorption spectra of precipitates from hot-compressed water

45 treatment with 0%, 4%, 8%, and 16% of 2-naphthol dissolved in DMSO at 0.1 mg mL⁻¹.

46 (b) those pictures excited at 365 nm, (c) photoluminescence spectra excited at 280, 320,

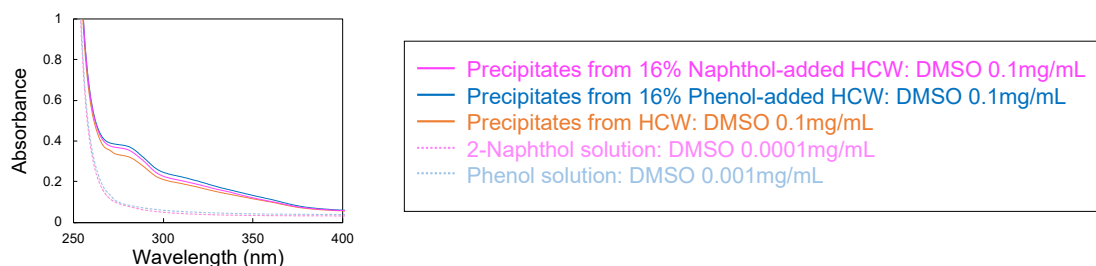
47 350 nm, and (d) their normalized spectra.

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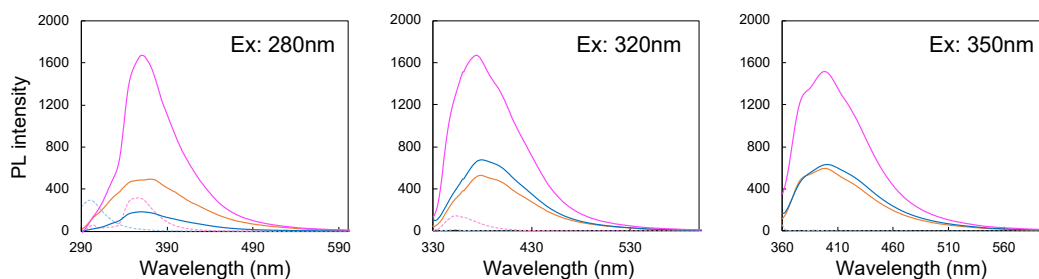
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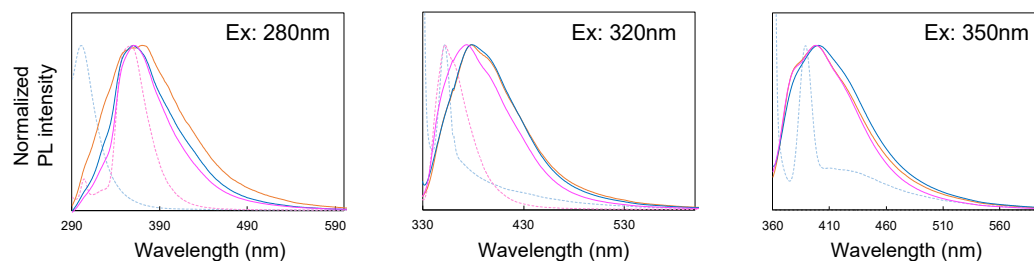
(a) UV-Vis absorbance spectra



(b) PL spectra excited at 280, 320, 350 nm



(c) Normalized PL spectra excited at 280, 320, 350 nm



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52 Figure S6 (a) UV-Vis absorption spectra of precipitates from hot-compressed water

53 with/without addition of 16% 2-naphthol or phenol, dissolved in DMSO at 0.1 mg mL⁻¹.

54 (b) photoluminescence spectra excited at 280, 320 and 350 nm, (c) their normalized

55 spectra.

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58 Table S1 Average molecular weight of precipitates and MWL detected by gel

59 permeation chromatography.

Sample	Mw	Mn
Precipitates	3,670	1,180
MWL	7,180	3,230

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62 Table S2 Fluorescence lifetime of precipitates by HCW treatment with/without 2-

63 naphthol excited at 373 nm.

Sample in DMF	Fluorescence Life time (τ)
Prec(0%)	2.84
Prec(16%)	3.16
2-naphthol	4.56

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