Electronic Supplementary Material (ESI) for Biomaterials Science.

Enhanced Sealing Strength of Hydrophobically-modified Alaska Pollock Gelatin-based Sealant

Supporting Information

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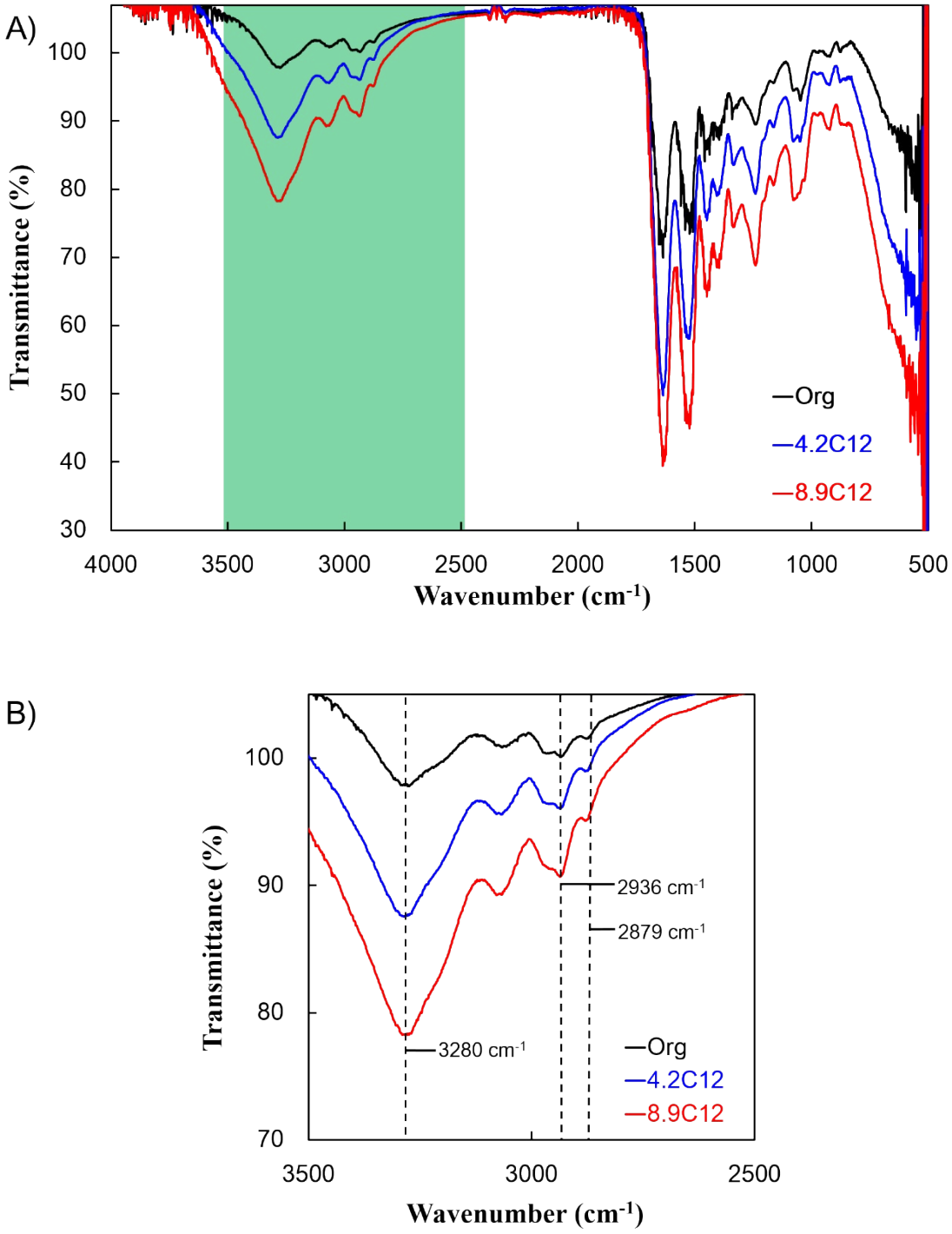

Figure S1. Characterisation of C12-ApGltn by FT-IR. (A) Full transmittance spectrum of Org- and C12-ApGltn. (B) Enlarged area of highlighted region in (A). Transmittance peak at 3280 cm^{-1} indicates N-H stretch of secondary amine, and peaks at 2936 and 2879 cm^{-1} indicate C-H stretch of sp^3 carbon chain of dodecyl group.

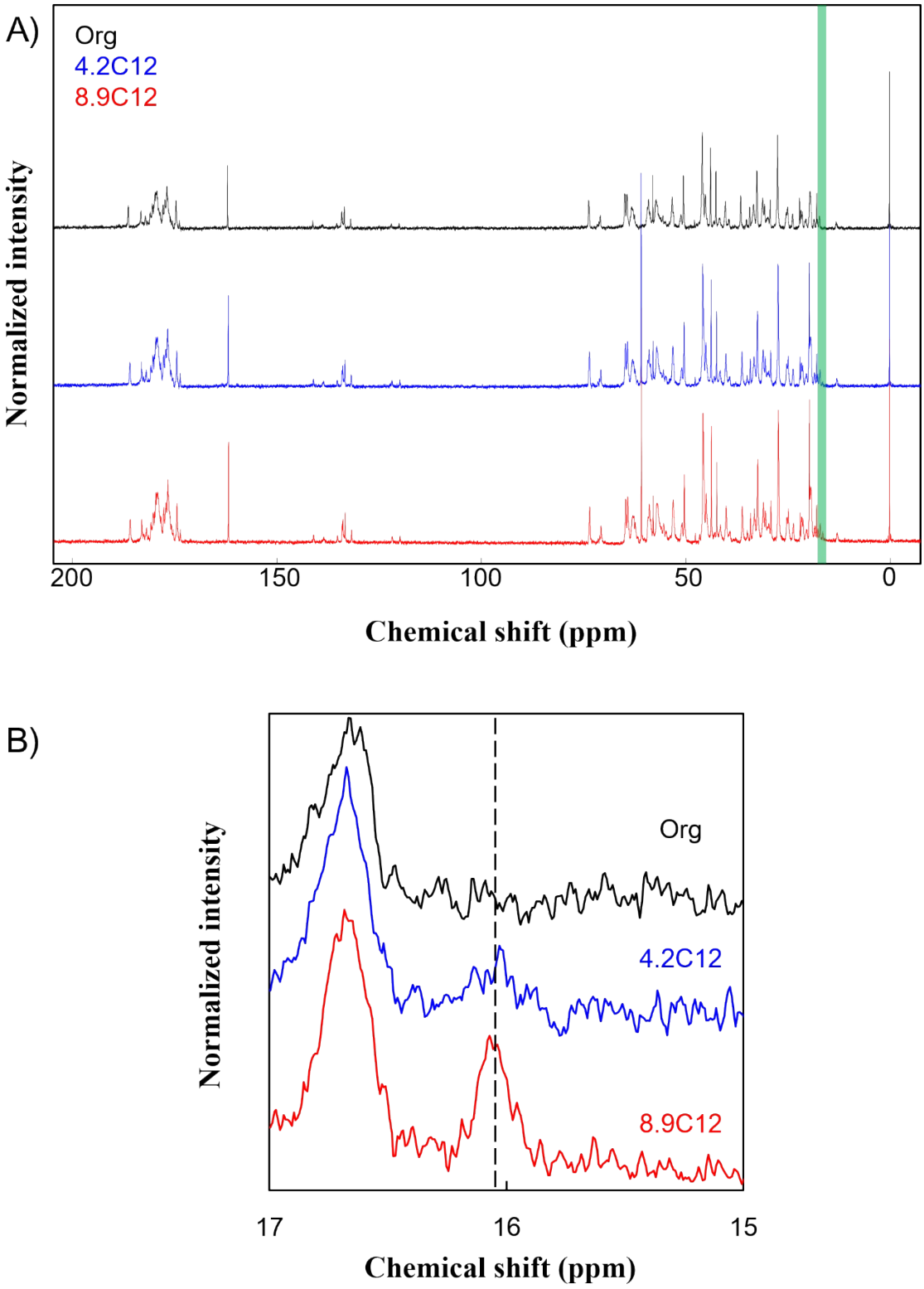

Figure S2. Characterisation of C12-ApGltn by ^{13}C-NMR. (A) Full spectrum of Org-and C12- ApGltn. The highlighted area in the full spectrum was expanded and shown in (B). (B) Intensity at 16.08 ppm indicates terminal carbon of dodecyl group.

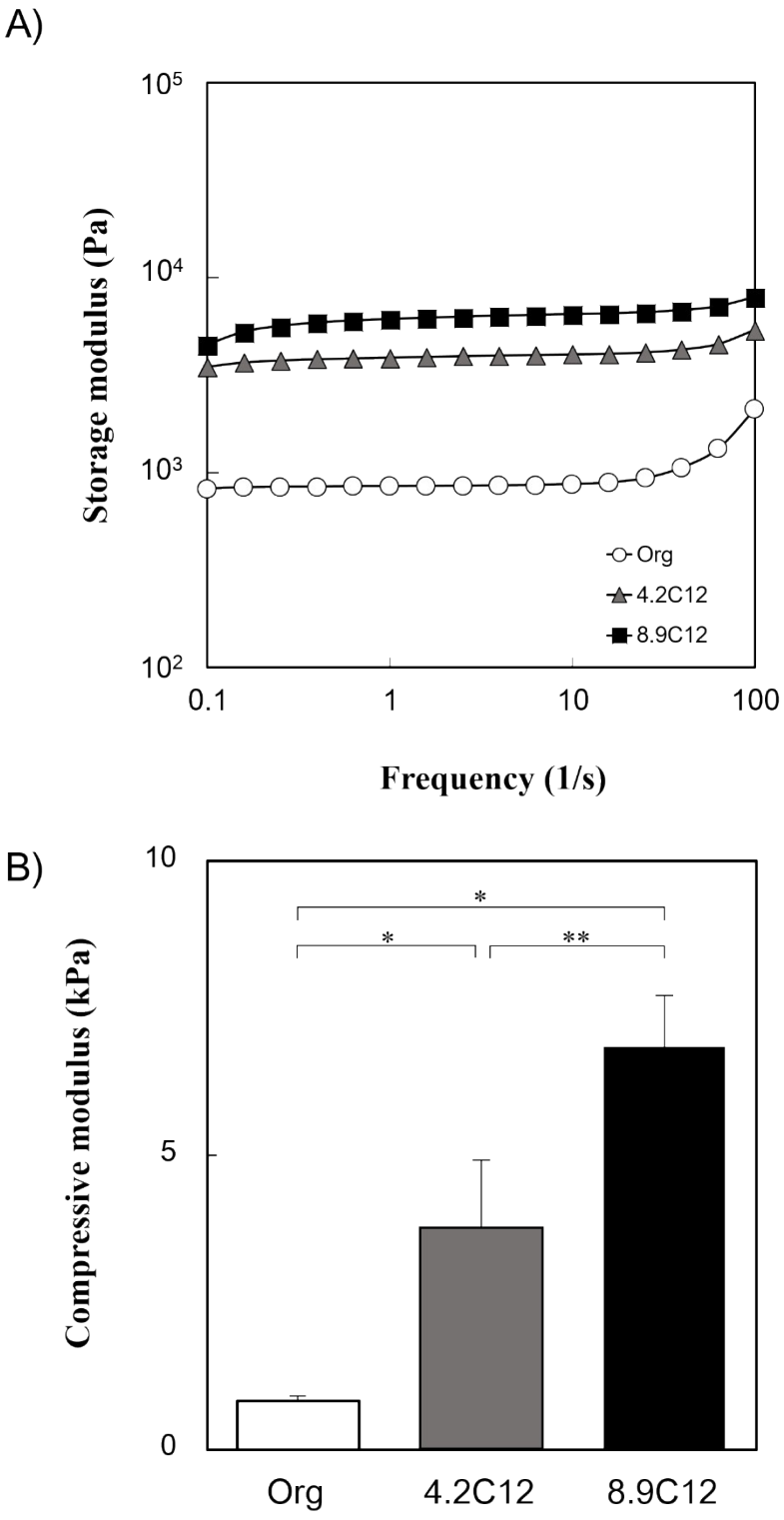

Figure S3. Rheological property of sealants. (A)Storage modulus of C12- and Org-ApGltn. (B)Compressive modulus of sealants taken at 1.0 Hz. Data are the means ± SD of five samples (n = 5), *$p < 0.05$, **$p > 0.05$.

Table S1. The changes in molecular weight of ApGltn before and after the synthesis.

Abbreviation	Weight-average molecular weight (Mw) (g/mol)	Number-average molecular weight (Mn) (g/mol)	Molecular weight distribution (Mw/Mn)
Org	8,025	154	52.0
4.2C12	7,374	131	56.3
8.9C12	6,836	115	59.4

Table S2. Curing time of C12-ApGltn-based sealants with different pH. Data are the means ± SD of three samples (n = 3). "*" indicate significant difference between Org (control) and indicated value for each pH.

Abbreviation	Curing time (sec.)	
	pH 8	pH 9
Org	153.3 ± 3.5	37.0 ± 2.0
4.2C12	166.3 ± 1.4*	28.9 ± 0.9*
8.9C12	149.6 ± 1.3*	24.9 ± 0.4*

*$p < 0.05$