

Analytical and Bioanalytical Chemistry

Electronic Supplementary Material

Quantification of fractional and absolute functionalization of gelatin hydrogels by optimized ninhydrin assay and ^1H NMR

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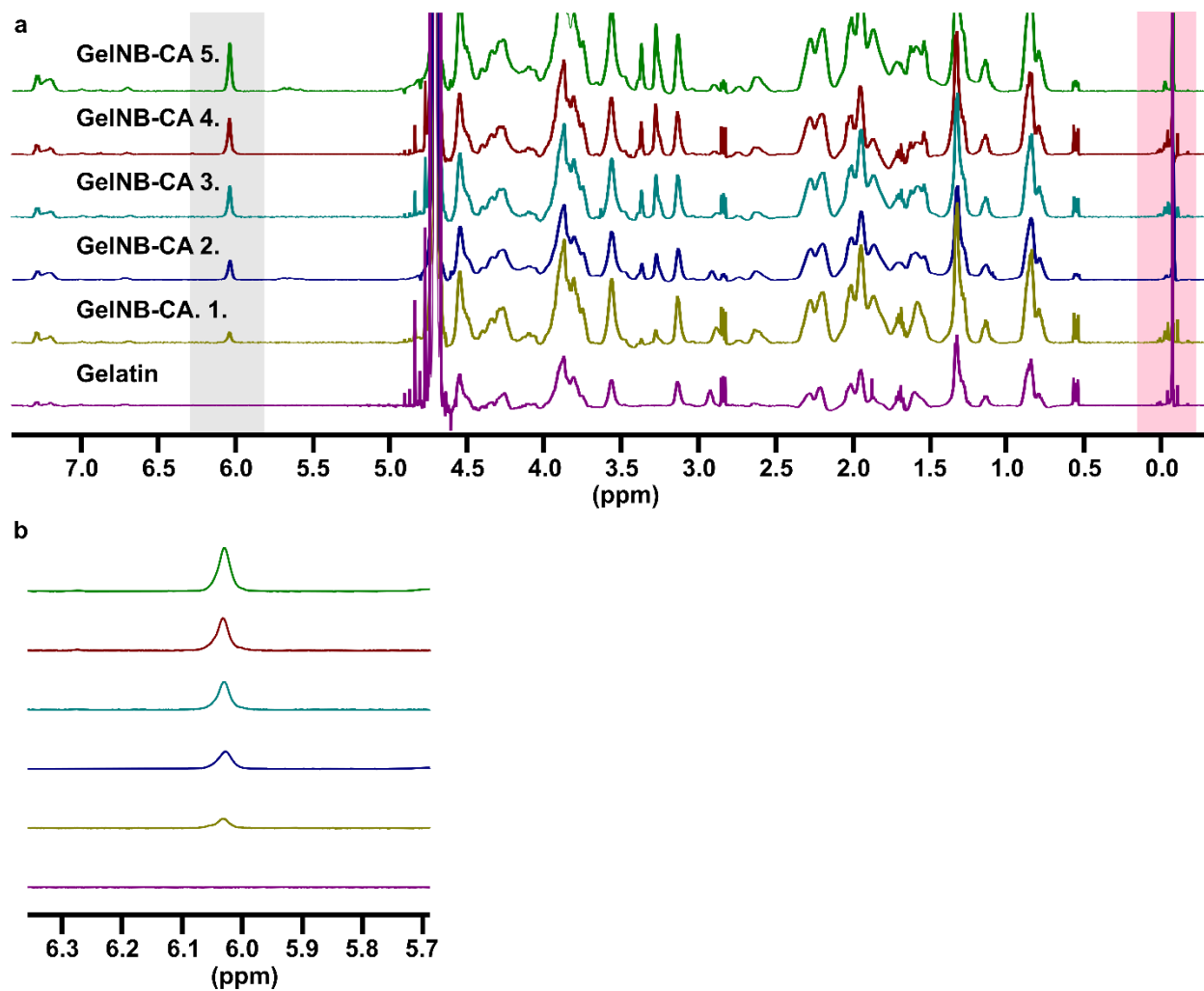


Fig. S1 GelNB NMR spectra. (a) Full NMR spectra of non-functionalized gelatin and GelNB. Integration ranges for the functional group peak and internal standard are shown in gray and pink respectively. Note: GelNB-CA 5 is also shown in Fig. 3. The spectrum is redisplayed here to allow for comparison to other GelNB-CA samples. (b) Expanded functional group range

Table S1 DoF values for each sample, including those nominally reported, determined by ¹H-NMR, and determined by the optimized ninhydrin assay

Sample	Nominal fractional DoF^a	¹H NMR absolute DoF (mmol -R per g gelatin)	¹H NMR fractional DoF (%)	Ninhydrin fractional DoF (%)	Ninhydrin StDev (%)
GelNB - CA 1	N/A	0.067	22	3	8.7
GelNB - CA 2	N/A	0.157	52	56	3.0
GelNB - CA 3	N/A	0.191	64	61	2.3
GelNB - CA 4	N/A	0.195	65	65	0.5
GelNB - CA 5	N/A	0.227	76	40	2.1
GelNB - NHS	N/A	0.216	72	78	0.05
GelMA*	N/A	0.195	65	50	2.3
GelMA S32	32%	0.088	23	59	3.9
GelMA S63	63%	0.191	50	74	0.5
GelMA S70	70%	0.232	61	76	0.5

^a Nominal values were reported by Sigma based on NMR analysis. The method for analyzing the spectra was proprietary.

* This GelMA sample was prepared in-house.