

ELECTRONIC SUPPLEMENTARY INFORMATION

The promising indicators for thermal and mechanical properties of collagen from bass and tilapia: Synergistic effect of hydroxyproline and cysteine

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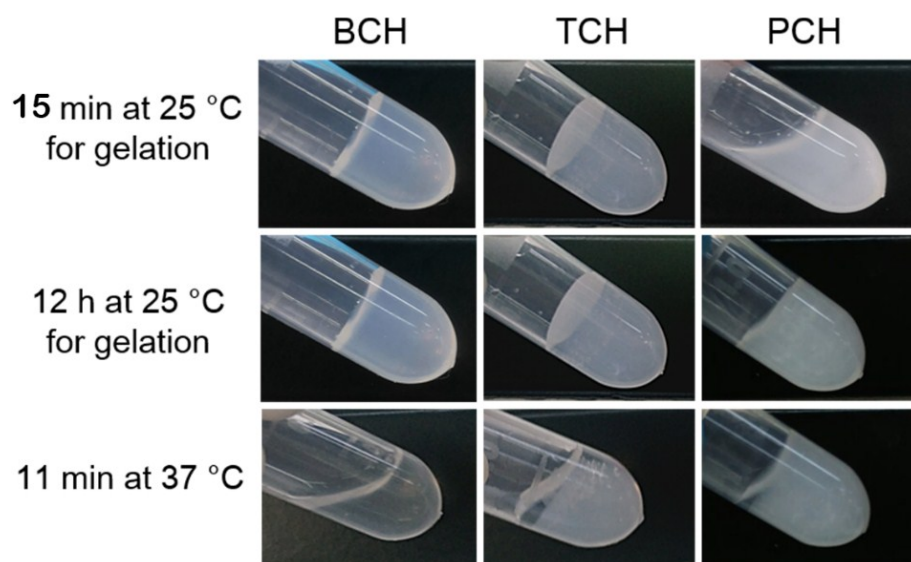


Fig. S1 The photos of different collagen hydrogels (bass, tilapia and pig, 0.5 mL) kept at 25 °C after neutralization for 15 min and 12 h, and then incubated at 37 °C for 11 min.

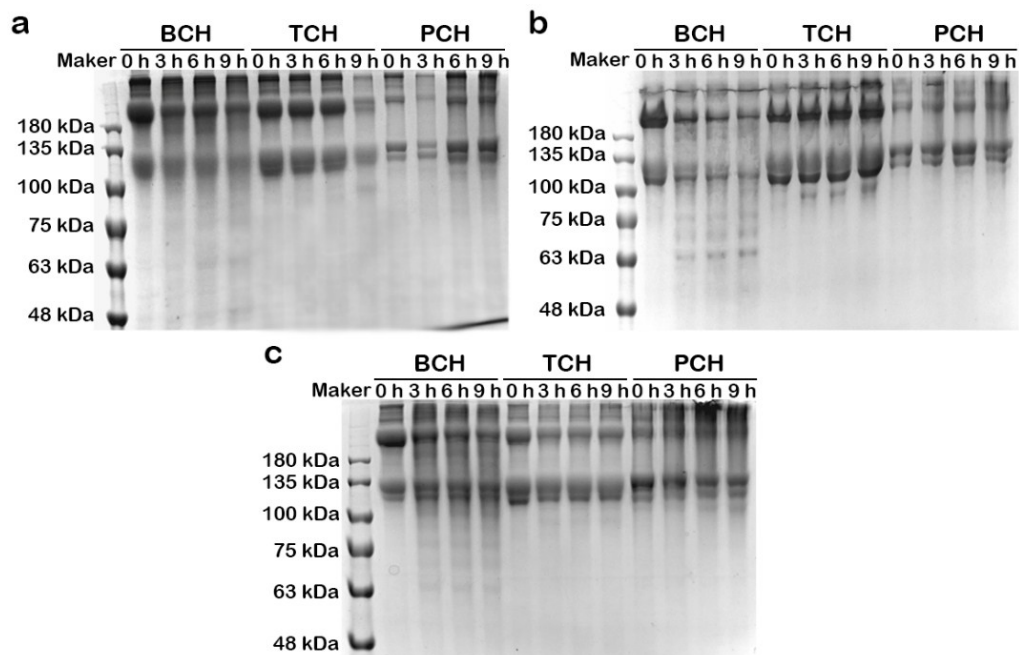


Fig. S2 Electrophoretic patterns of BCH, TCH and PCH incubated at (a) 30 °C, (b) 42 °C, (c) 50 °C for 0 h, 3 h, 6 h and 9 h.

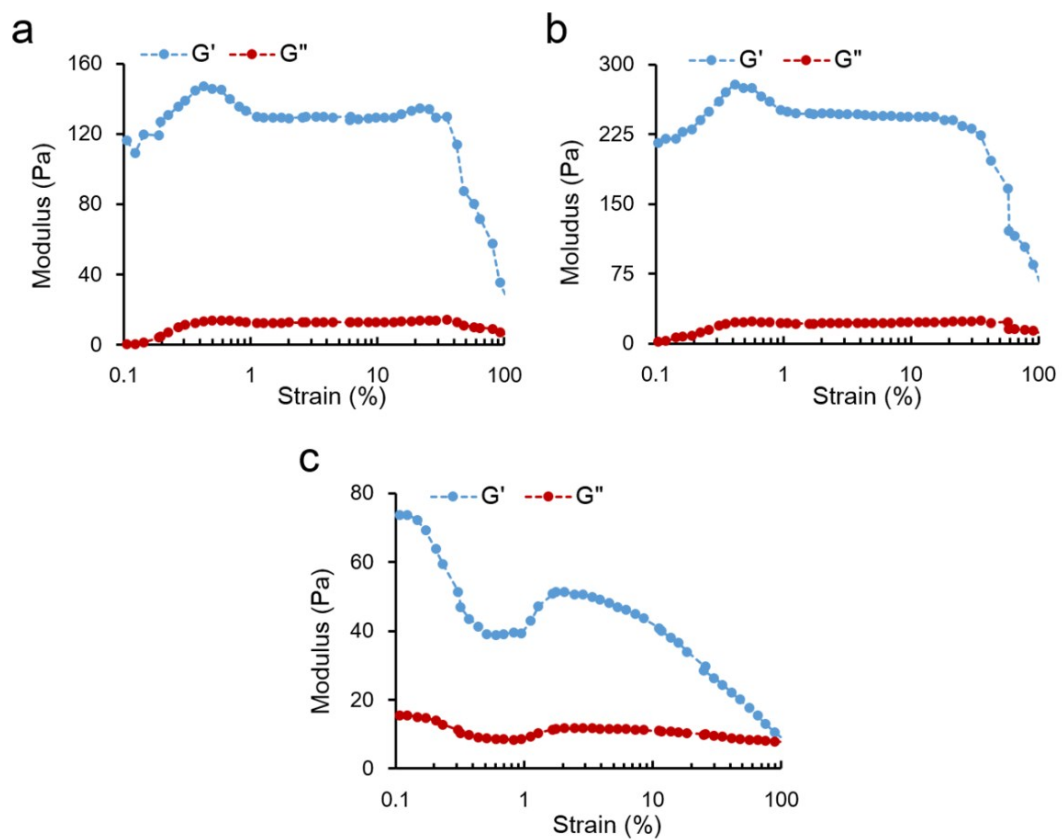


Fig. S3 Strain-dependent oscillatory shear rheology of the collagen hydrogels. a) BCH, b) TCH, c) PCH.

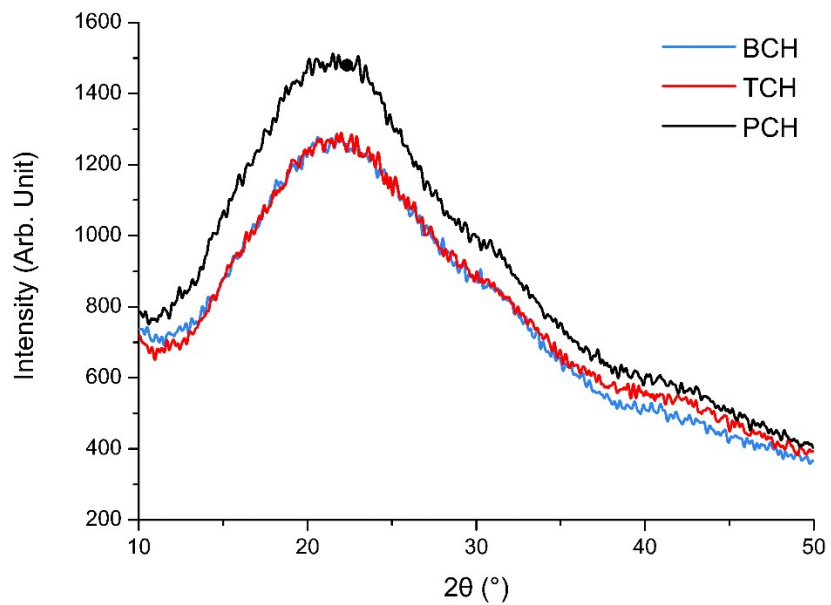


Fig. S4 XRD patterns of freeze-dried BCH, TCH and PCH samples.

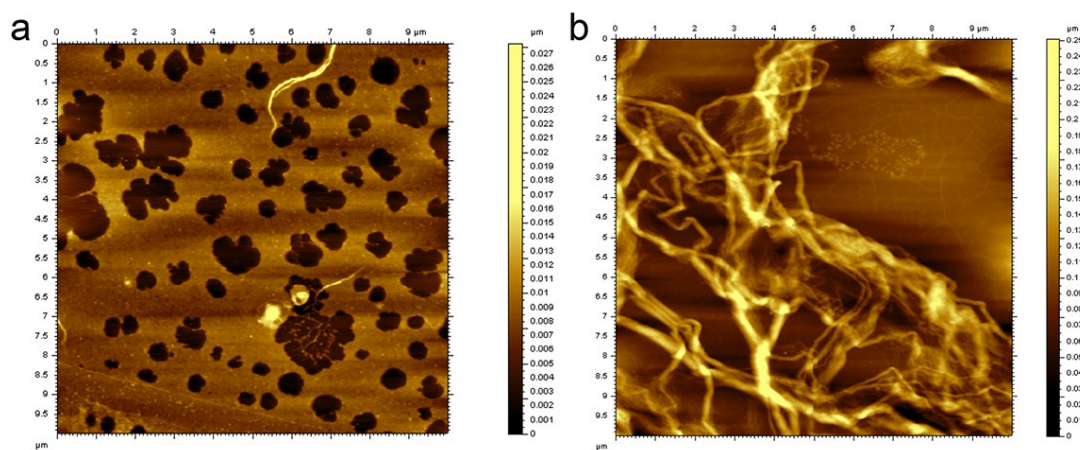


Fig. S5 AFM observation of the self-assembly of different collagen samples. (a) TC, (b) PC.

Table S1 List of denaturing temperature and hydroxyproline content of extracted COL-I from different species.

Class	Species	Source	Hydroxyproline content (g/1000 g protein)	Denaturing temperature (°C)	Ref.	
Mammalia	Calf	Skin	94	40.8	60	
	Pig	Skin	136	37.1	This work	
Amphibia	Frog	Skin	76	31.5	60	
Reptilia	Soft-shelled turtle	Skin	78	36.0	53	
		Calipash	108.4	35.1	54	
Fish	Carp	Skin	84	31.7	28	
	Eel	Skin	74	29.3		
	Common mackerel	Skin	72	26.1	29	
	Saury	Skin	70	23.0		
	Chum salmon	Skin	63	19.4		
	Skipjack	Bone	—	29.7		
	Ayu	Bone	—	29.7		
	Yellow sea bream	Bone	—	29.5		
	Horse mackerel	Bone	—	29.5		
	Ocellate pufferfish	Skin	67	28.0		41
	Alaska pollack	Skin	55	16.8		42
		Swim bladder	52	18.4		
		Sardine	Scale	86	28.5	43
		Red sea bream	Scale	87	28.0	
		Bigeye snapper	Skin	77	31.0	44
			Bone	68	31.5	
		Lizard fish	Scale	68	27.6	45
		Horse mackerel	scale	71	28.1	
		Grey mullet	Scale	67	27.1	
		Flying fish	Scale	73	29.2	
		Yellowback seabream	Scalle	65	28.2	
		Pacific saury	Scale	13.3	24.5	46
		Rohu	Scale	83	36.5	47
	Catla	Scale	84	36.5	47	
	Silver carp	Skin	84	34.5	48	
	Brown backed toadfish	Skin	77	28.0	49	
	Deep-sea redfish	Skin	64	16.1	50	

		Scale	65	17.7	
		Bone	61	17.5	
	Batilic Cod	Skin	53	15.0	51
	Giant snakehead	Scale	—	52.8	61
	Brownbanded bamboo shark	Cartilage	94	35.9	58
	Blacktip shark	Cartilage	91	34.5	
Other classes from sea	Rhizostomous jellyfish	Mesoglea	38	28.8	52, 59
	Sea cucumber (<i>Holothuria parva</i>)	Skin	62	32.5	55
	Sea cucumber (<i>Stichopus monotuberculatus</i>)	Body wall	67	30.2	56
	Squid	Skin	101	34.8	57

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