



Fig. S1. Schematic illustration of experimental ayran production. Ctr 1 and 2=samples without RWP and MTG (1) and with MTG (2) as control; A₅, A₁₀ and A₁₅=samples with 5, 10 and 15 % RWP; A_{5+MTG}, A_{10+MTG} and A_{15+MTG}=samples with 5, 10 and 15 % RWP and 0.5 U/g MTG, RWP=reconstituted whey powder, MTG=microbial transglutaminase

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Table S1. Phase separation and sensory results of preliminary trials

Sample	t/day	Phase separation/%	Appearance	Body and texture	Aroma and flavour
Ctr 1	1	11.5±2.0	5.0±0.0	4.6±0.34	4.1±0.2
	7	25.0±3.5	4.9±0.3	4.2±0.3	4.0±0.3
	15	27.5±4.5	4.6±0.2	4.2±0.3	4.0±0.5
MG-0	1	10.0±2.5	4.5±0.3	4.5±0.3	4.4±0.4
	7	22.0±4.0	4.8±0.4	4.5±0.5	4.0±0.4
	15	23.0±2.0	4.5±0.3	4.0±0.3	2.7±0.2
MTG-0.5	1	2.50±0.5	5.0±0.0	4.7±0.3	4.6±0.5
	7	10.0±3.0	5.0±0.0	4.6±0.3	4.3±0.3
	15	18.5±3.5	4.7±0.2	4.8±0.4	4.3±0.2
MTG-1.0	1	2.8±1.3	5.0±0.0	4.6±0.3	4.5±0.3
	7	13.0±2.0	5.0±0.0	4.5±0.3	4.1±0.3
	15	20.0±2.5	4.8±0.7	4.7±0.3	4.0±0.2
MTG-1.5	1	6.5±1.5	4.4±0.2	4.0±0.5	4.4±0.2
	7	16.0±2.0	4.5±0.4	4.3±0.4	4.1±0.4
	15	21.5±3.5	4.6±0.2	4.1±0.4	3.4±0.2

Values are presented as mean±S.E. (N=2). Ctr 1=control sample without RWP or MTG; MTG-0, MTG-0.5, MTG-1.0 and MTG-1.5=ayran sample with 0.0, 0.5, 1.0 and 1.5 U per g MTG; MTG=microbial transglutaminase

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Table S2. Sample composition and descriptions

Sample	(m(RWP))/V(solution)/%	Protein source		Activity(MTG)/(U/g)
		(m(milk protein))/(V(solution))/%	(m(RWP))/V(solution)/%	
Ctr 1	0	2	–	–
Ctr 2	0	2	–	0.5
A ₅	5	1.9	0.1*	–
A ₁₀	10	1.8	0.2**	–
A ₁₅	15	1.7	0.3***	–
A _{5+MTG}	5	1.9	0.1*	0.5
A _{10+MTG}	10	1.8	0.2**	0.5
A _{15+MTG}	15	1.7	0.3	0.5

V(solution)=100 mL (milk with different additions of water). Ctr 1 and 2=samples without RWP and MTG (1) and with MTG (2) as control; A₅, A₁₀ and A₁₅=samples with 5, 10 and 15 % RWP; A_{5+MTG}, A_{10+MTG} and A_{15+MTG}=samples with 5, 10 and 15 % RWP and 0.5 U/g MTG; RWP=reconstituted whey powder; MTG=microbial transglutaminase

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Table S3. Acidity of ayran samples

t/day	Sample							
	Ctr 1	Ctr 2	A ₅	A _{5+MTG}	A ₁₀	A _{10+MTG}	A ₁₅	A _{15+MTG}
	pH value							
1	4.28±0.05	4.27±0.04	4.34±0.09	4.40±0.01	4.40±0.04	4.42±0.06	4.39±0.10	4.42±0.10
7	4.13±0.07	4.11±0.05	4.18±0.09	4.22±0.05	4.21±0.08	4.23±0.11	4.27±0.13	4.26±0.11
15	4.12±0.08	4.08±0.04	4.15±0.06	4.17±0.00	4.16±0.01	4.16±0.00p	4.19±0.05	4.19±0.06
	Titratable acidity (as lactic acid)/%							
1	(0.48±0.01) ^a	(0.47±0.00) ^a	(0.49±0.01) ^a	(0.49±0.03) ^a	(0.53±0.05) ^b	(0.53±0.05) ^b	(0.55±0.05) ^b	(0.55±0.06) ^b
7	0.51±0.01	0.51±0.02	0.54±0.06	0.52±0.04	0.59±0.04	0.60±0.04	0.61±0.06	0.61±0.06
15	0.52±0.05	0.52±0.04	0.56±0.07	0.54±0.07	0.60±0.05	0.61±0.06	0.61±0.09	0.63±0.07

Mean value±S.E. (N=2) in the same row with different letters show significant differences among samples (p<0.05). Ctr 1 and 2=samples without RWP and MTG (1) and with MTG (2) as control; A₅, A₁₀ and A₁₅=samples with 5, 10 and 15 % RWP; A_{5+MTG}, A_{10+MTG} and A_{15+MTG}=samples with 5, 10 and 15 % RWP and 0.5 U/g MTG; RWP=reconstituted whey powder; MTG=microbial transglutaminase