

Supplementary data

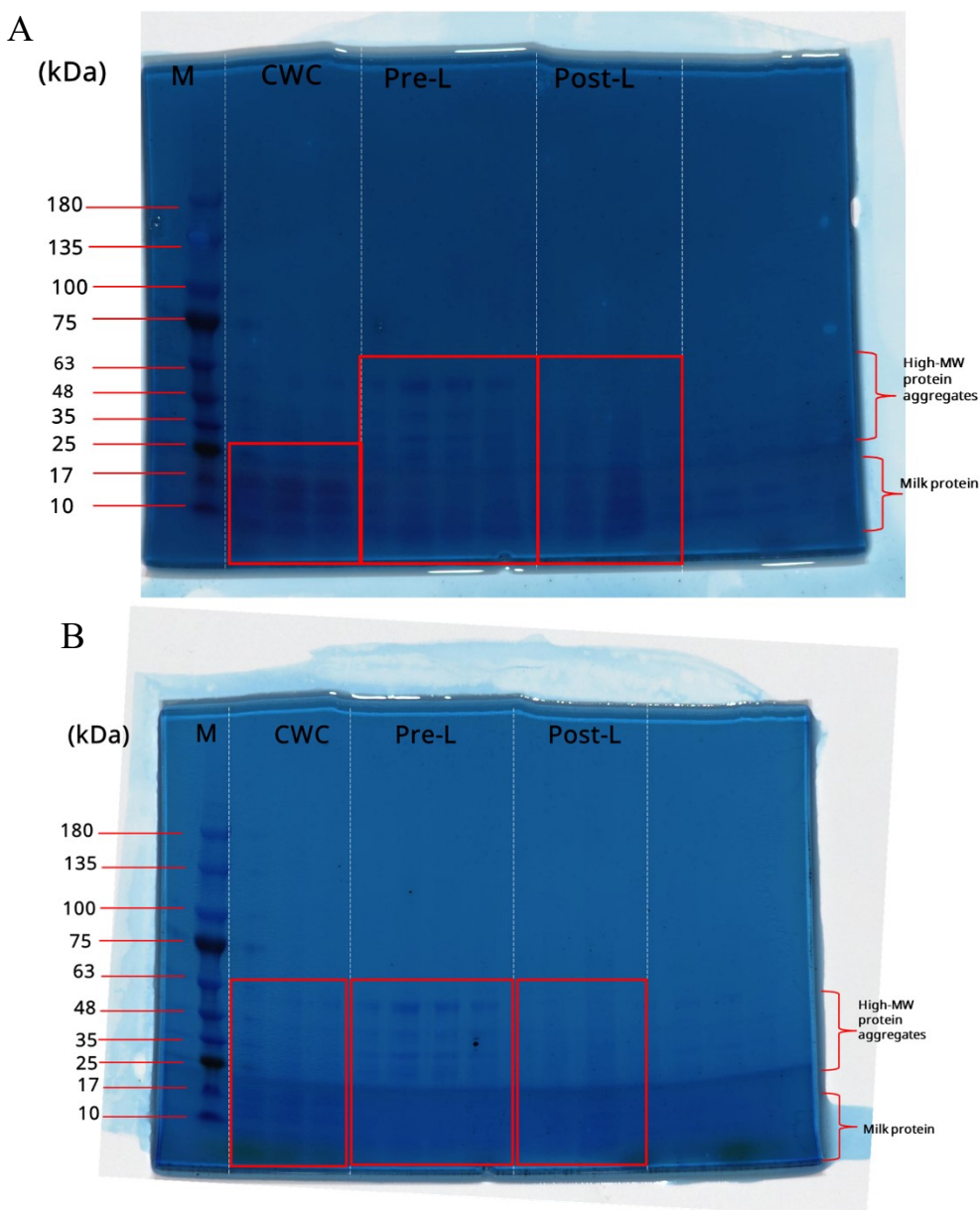


Figure S1. Full, uncropped, and unprocessed SDS-PAGE gel images corresponding to Figure 6: Oral-gastric phase digesta (A) and Intestinal phase digesta (B). Lanes: M, Protein marker; CWC: Control yogurt (0% CLE); Pre-L: yogurt with 2% CLE added pre-fermentation; Post-L: yogurt with 2% CLE added post-fermentation. Major protein bands and molecular weights are indicated. Lane boundaries are delineated with vertical white lines and bands of interest are separated with red boxes.

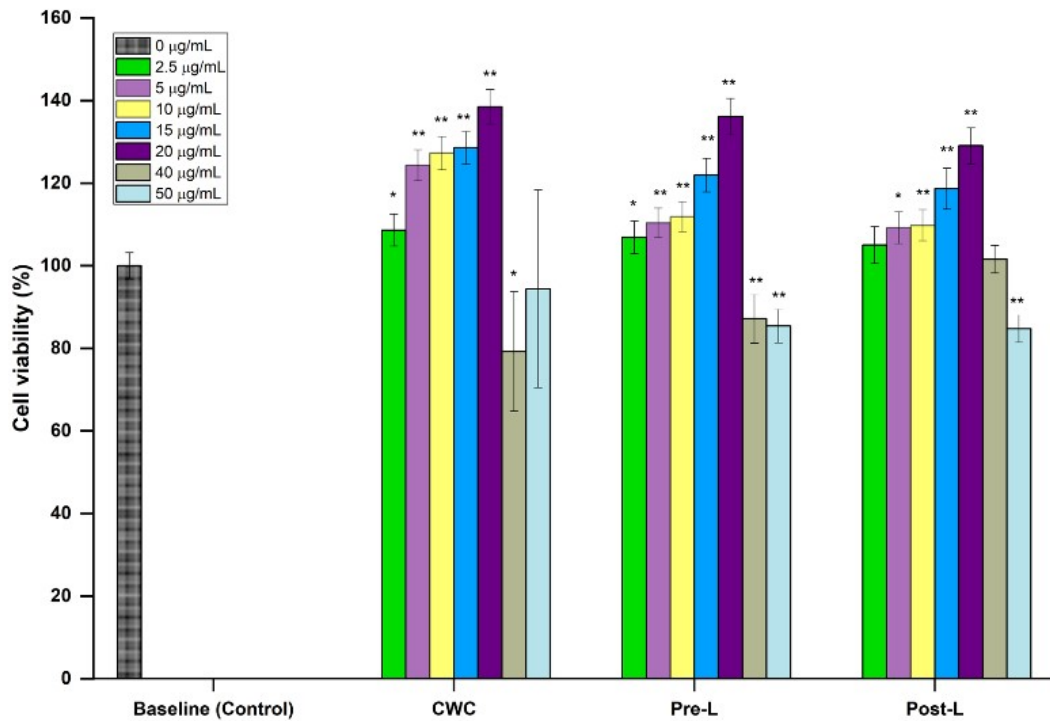


Figure S2. Cytotoxicity screening in RAW 264.7 cells to identify a non-cytotoxic concentration.

Cell viability was assessed using a CCK-8 metabolic assay following 18 h of treatment with concentrations ranging from 2.5 to 50 µg/mL. Data are presented as mean ± SD (n=3). Statistical significance was determined by Student's t-test ($*p < 0.05$, $**p < 0.01$) compared to the untreated control. The concentration of 2.5 µg/mL (green bar), which showed the least significant difference in CWC and Pre-L, but none in Post-L, and no cytotoxicity, was selected for all subsequent experiments.

Table S1. Primer sequences used for quantitative real-time PCR analysis.

Gene Symbol	Gene Name	Primer sequence (5' -> 3')	Amplicon size	GenBank Accession
Nrf2	Nuclear factor erythroid 2-related factor 2 (Nrf2)	F: TTTAGTCAGCGACAGAAGGAC R: AGGCATCTTGTTTGGGAATGT G	227	NM_010902
HO-1	Heme oxygenase 1 (HO-1)	F: AGGTACACATCCAAGCCGAGA R: CATCACCAGCTTAAAGCCTTC T	86	NM_010442
NQO1	NAD(P)H quinone dehydrogenase 1	F: AGGATGGGAGGTACTCGAATC R: TGCTAGAGATGACTCGGAAGG	127	NM_008706
GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	F: AGGTCGGTGTGAACGGATTTG R: GGGGTCGTTGATGGCAACA	95	NM_008084

Table S2. Acidity (pH and TA) of CE-treated and untreated Yoghurts during storage

Storage Days	pH		
	CWC	Pre-L	Post-L
1	4.44 ± 0.01 ^{Aa}	4.45 ± 0.01 ^{Aa}	4.54 ± 0.01 ^{Ab}
7	4.19 ± 0.03 ^{Aa}	4.21 ± 0.01 ^{Ba}	4.33 ± 0.02 ^{Ab}
14	4.22 ± 0.03 ^{Aa}	4.24 ± 0.02 ^{Bab}	4.29 ± 0.01 ^{Ab}
21	3.88 ± 0.03 ^{Ba}	4.21 ± 0.02 ^{Bb}	4.23 ± 0.03 ^{Ab}

CWC-Control yoghurt (0% CLE), Pre-L: yoghurt treated with 2% CLE pre-fermentation, and post-L: yoghurt treated with 2% CLE post-fermentation. Values are mean ± SD (n = 3). Different capital letters indicate significant differences ($p < 0.05$) within the same treatment across storage times. Different lowercase letters indicate significant differences ($p < 0.05$) between treatments at the same time point.

Table S3. Repeated-measures ANOVA results for the effect of Time and Treatment on the Degree of Hydrolysis during fermentation.

	df	F	p-value
Source			
Within-Subjects Effects (Greenhouse-Geisser Corrected)			
Time	(1,99,7.95)	391.81	< .001
Time × Treatment	(1,99,7.95)	7.52	.015
Between-Subjects Effects			
Treatment	(1, 4)	61.37	.001

Note: Mauchly's Test confirmed violation of sphericity, $W \approx 0.000$, $p < .001$.