

ABSTRACT

Synbiotic soy yoghurt and cow milk yoghurt of different formulations were prepared with addition of psyllium husk (0, 0.1%, 0.3% and 0.5%) and probiotic mixed culture, ABT7 (mixed culture: *L. bulgaricus*, *S. thermophilus*, *B. animalis*) and their comparative study was carried out. The study revealed that the synbiotic soymilk yoghurt with 0.5% psyllium husk was found to be best formulation, which exhibited high nutritional value, viability, phenolic and flavonoid content, and anti-radical activity when stored for 12 days. However, it was observed that the synbiotic yoghurts were not suitable for storage beyond 12 days, even under refrigeration.

INTRODUCTION

Soy yoghurt also known as 'soygurt' or 'yufu', popular in Asian countries, is a low-cholesterol, low-saturated fat, and lactose-free fermented food (Drake and Gerard, 2003; Sarkar, 2006). Similarly, psyllium husk, a natural fiber source, aids in reducing energy intake and supporting probiotic activity. It acts as a prebiotic in fermented cereal-based products such as soybean. Furthermore, synbiotic yoghurt combines prebiotic and probiotic properties, enhancing the beneficial gut flora by showing synergistic effects.

RESULTS

The samples with 0.5% psyllium husk incorporation was found to be best in both types of yoghurt samples so their further analysis (physico-chemical, microbiological) were done.

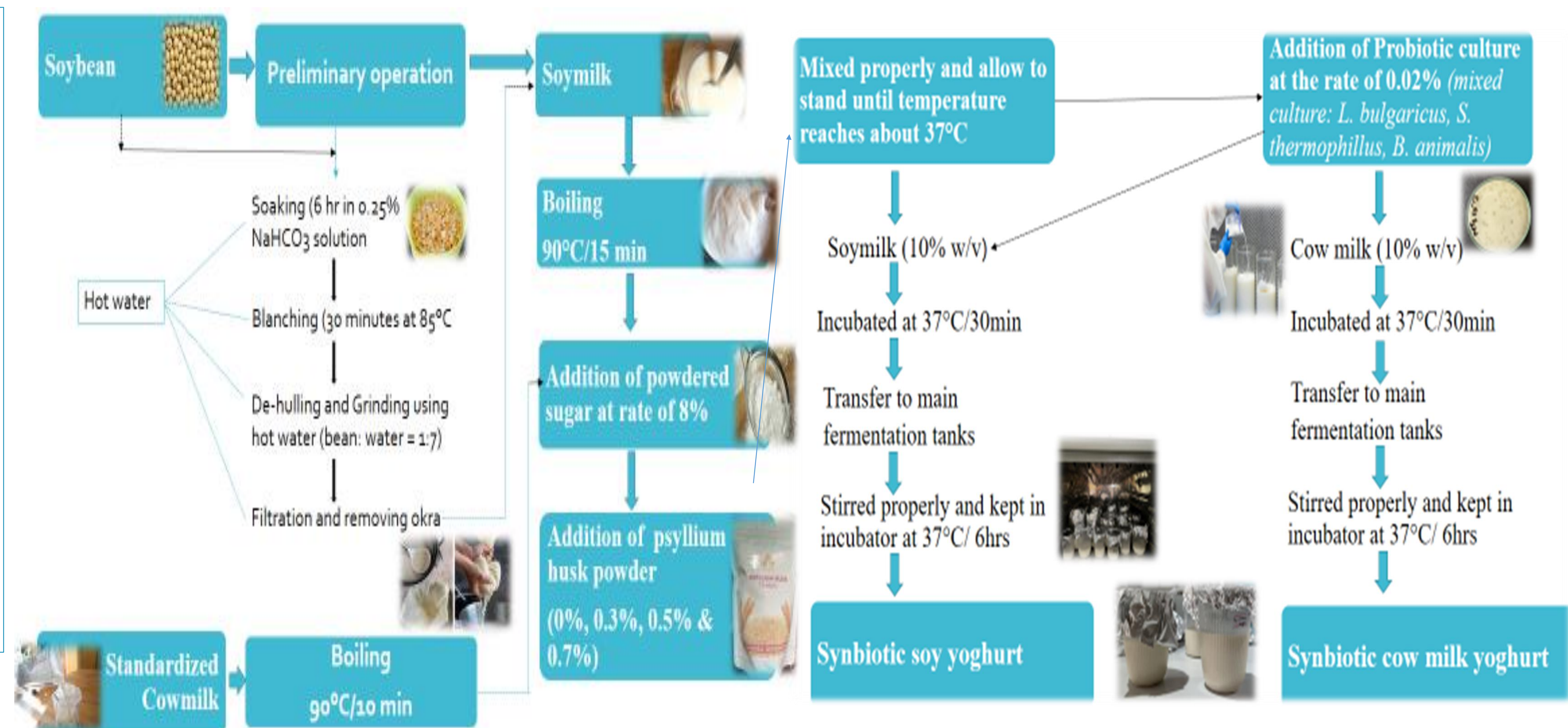


Fig: Preparation Process of synbiotic soy yoghurt and cow milk yoghurt

SENSORY EVALUATION OF DIFFERENT SOY YOGHURT AND COW YOGHURT SAMPLES

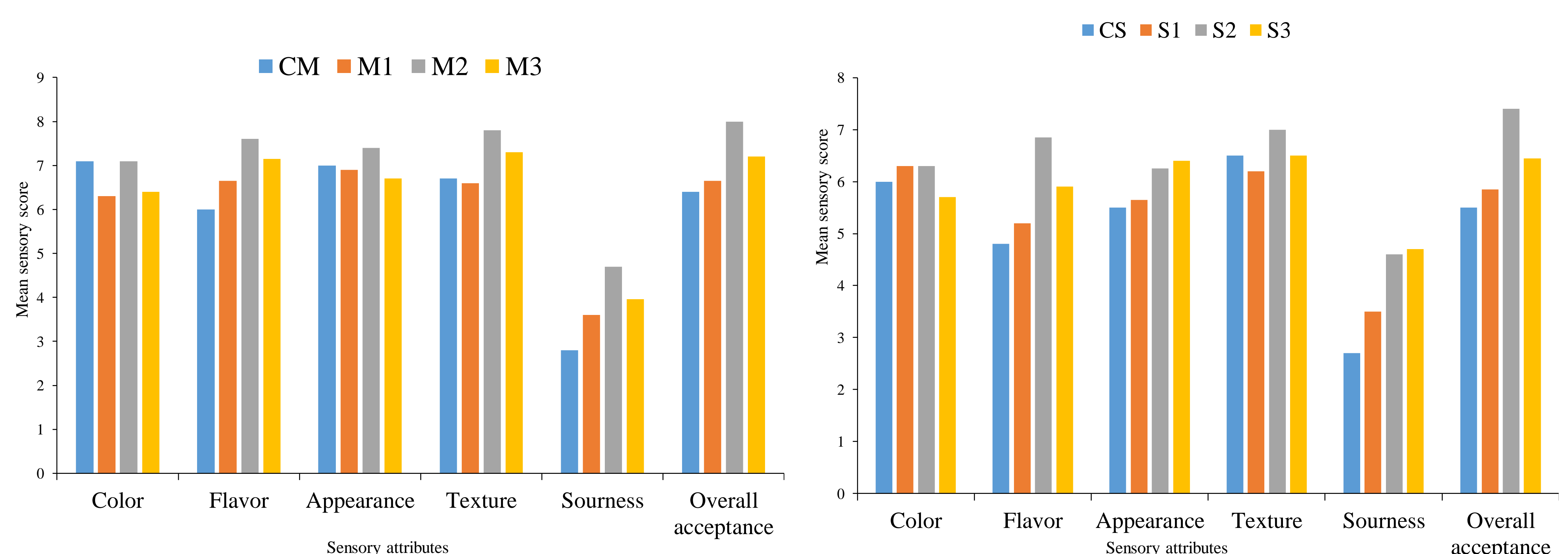


Fig: Sensory score for different attributes of soy yoghurt & cow milk yoghurts

Table 1 Chemical composition of different yoghurts

Parameters	Formulations			
	CS	S2	CM	M2
Moisture (%)	90.70±0.25 ^c	91.42±0.11 ^d	88.55±0.07 ^a	89.84±0.10 ^b
Crude protein (%db)	24.37±0.21 ^a	30.68±0.17 ^b	30.55±0.08 ^b	37.35±0.0 ^c
Crude fat (%db)	13.95±0.16 ^a	16.80±0.11 ^b	20.10±0.17 ^c	23.91±0.09 ^d
Crude fiber (%db)	0.64±0.10 ^b	1.84±0.11 ^d	0.17±0.08 ^a	1.08±0.09 ^c
Total ash (%db)	3.99±0.10 ^c	5.71±0.17 ^d	2.04±0.18 ^a	3.55±0.09 ^b
Carbohydrate (Net) (%db)	57.28±0.75 ^d	43.68±0.89 ^b	47.61±0.79 ^c	34.41±0.68 ^a

Table 2 Bioactive components of different yoghurts

Parameters	Days	Formulations				Overall
		CS	S2	CM	M2	
Antioxidant activity (%)	1	62.74±0.04 ^{aY}	64.49±0.0 ^{aX}	63.62±0.01 ^{aW}	64.5±0.01 ^{aX}	63.84±0.7
	12	57.3±0.00 ^{bY}	62.18±0.0 ^{bZ}	42.77±0.05 ^{bW}	46.06±0.04 ^{bX}	52.08±8.2
	Overall	60.02±2.97	63.33±1.2	53.19±11.4	55.28±10.09	
Total phenols (%)	1	2.52±0.02 ^{aX}	2.84±0.01 ^{aY}	2.01±0.02 ^{aW}	2.43±0.02 ^{aX}	2.45±0.31
	12	2.02±0.06 ^{bX}	2.21±0.02 ^{bY}	1.45±0.07 ^{bW}	2.12±0.02 ^{bXY}	1.95±0.31
	Overall	2.27±0.27	2.52±0.34	1.73±0.31	2.27±0.17	
Total viable count (CFU/ml)	1	8.44±0.01 ^{aW}	8.32±0.01 ^{aX}	8.83±0.02 ^{aY}	8.63±0.02 ^{aZ}	8.55±0.2
	12	7.02±0.02 ^{dW}	8.15±0.03 ^{dX}	8.03±0.03 ^{dY}	8.23±0.02 ^{dZ}	7.86±0.51
	Overall	7.85±0.54	8.33±0.33	8.37±0.33	8.54±0.29	
Total flavonoid (%)	1	19.63±0.02 ^{aX}	25.53±0.03 ^{aZ}	11.43±0.03 ^{aW}	20.24±0.03 ^{aY}	19.21±5.26
	12	4.07±0.03 ^{bX}	5.64±0.04 ^{bZ}	2.54±0.04 ^{bW}	4.33±0.03 ^{bY}	4.14±1.15
	Overall	11.85±8.51	15.58±10.89	6.98±4.87	12.28±8.7	

CONCLUSION

❖ The study found that Synbiotic soy yoghurt with 0.5% psyllium husk had the best sensory attributes, higher nutritional value, radical scavenging activity, phenolic and flavonoid content, and probiotic viability during 12 days of storage.

❖ In conclusion, synbiotic soy yoghurt is a suitable option with enhanced health benefits and stability, especially for lactose intolerant and protein-deficient individuals.

PHOTO GALLERY



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