



DEVELOPMENT OF JACKFRUIT (*Artocarpus heterophyllus*) INCORPORATED FROZEN YOGHURT

ABD 01

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Introduction

- Frozen yoghurt is a unique dairy product with physical properties related to ice cream while nutritional and sensory characteristics are similar to fermented dairy products
- Frozen yoghurt popularity has increased and it is one of the most frequently consumed desserts because it is a low fat replacement for ice cream and it has probiotic benefits
- Jackfruit is an unutilized fruit with good nutritional properties hence, incorporation of jackfruit into frozen yoghurt may further increase its nutritional and sensory properties

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Objectives

Broad objective

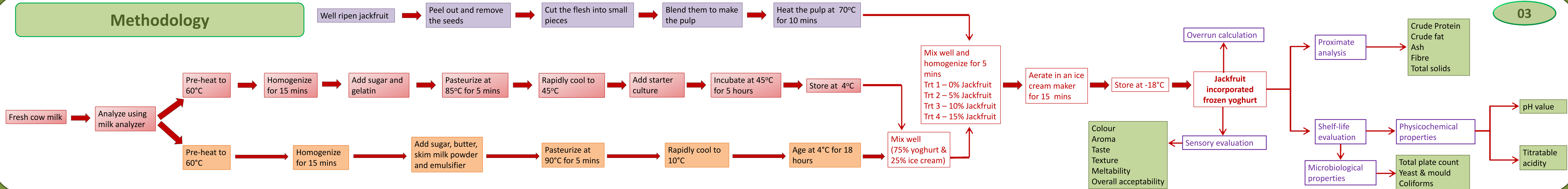
- To develop and improve the quality of frozen yoghurt by incorporating jackfruit

Specific objectives

- To evaluate the sensory properties of jackfruit incorporated frozen yoghurts
- To evaluate the nutritional and physicochemical properties of jackfruit incorporated frozen yoghurts
- To test the shelf-life of developed frozen yoghurt products

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Methodology



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Results and Discussion

Table 1: Composition of fresh cow milk

Milk composition	Value
Fat (%)	4.42±0.36
Solid nonfat (%)	3.21±0.18
Total solid (%)	7.61±0.47
Protein (%)	2.80±0.07
Lactose (%)	4.19±0.1
Specific density (gm ⁻³)	25.84±0.001
pH	6.59±0.06
Acidity %	0.15 ± 0.04

All the values reported were in line with the previous research findings Sarmini, *et al.* (2014)

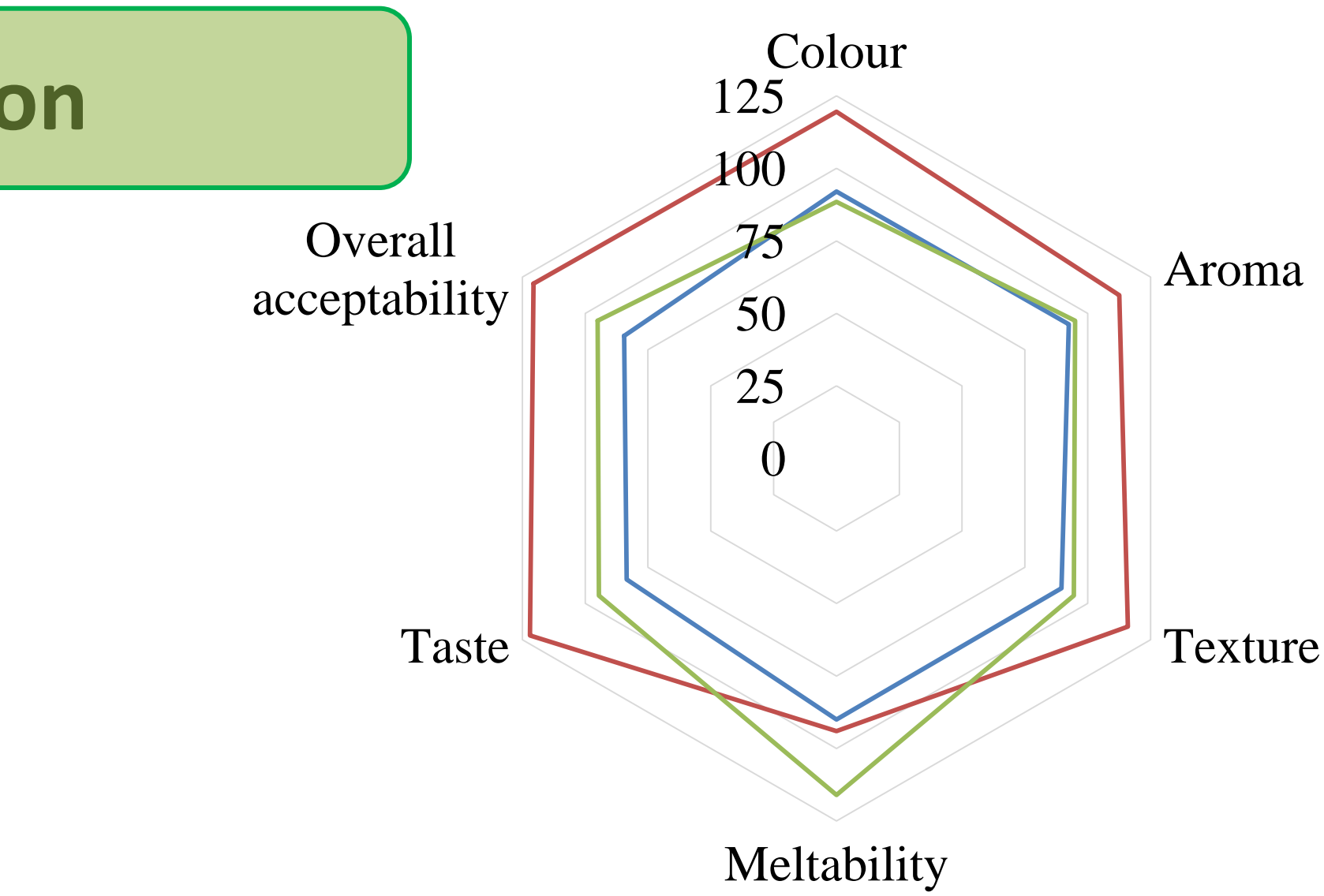


Figure 1: Sensory properties of frozen yoghurts

15% jackfruit incorporated frozen yoghurt had the highest acceptability and it scored best for all the tested sensory attributes except meltability

Table 2: Nutritional composition and overrun of frozen yoghurts

Treatment	Fat%	Protein%	Ash%	Dry matter%	Fibre%	Overrun%
Trt 1	8.47±0.50 ^a	4.85±0.35 ^b	1.40±0.41 ^b	31.21±0.11 ^a	1.99±1.36 ^b	45.36±0.44 ^b
Trt 2	5.30±0.53 ^b	5.93±0.39 ^a	2.29±0.17 ^{ab}	30.81±0.53 ^a	2.38±0.63 ^b	45.88±0.30 ^b
Trt 3	3.59±0.39 ^c	5.84±0.12 ^a	2.55±0.26 ^a	30.87±1.12 ^a	9.83±0.98 ^a	46.48±0.11 ^b
Trt 4	3.70±0.15 ^c	6.01±0.12 ^a	3.20±0.46 ^a	31.34±0.11 ^a	10.94±1.93 ^a	48.37±0.28 ^a

Data are presented as means ± SD
^{abc} means within the same column with different superscripts are significantly different ($p < 0.05$)

Protein, fibre, and ash content of the frozen yoghurt containing 15% jackfruit were significantly higher compared to the control whereas, its fat content was significantly lower compared to the control ($p < 0.05$)

Moreover, overrun percentage of 20% jackfruit incorporated frozen yoghurt was significantly higher than other treatments

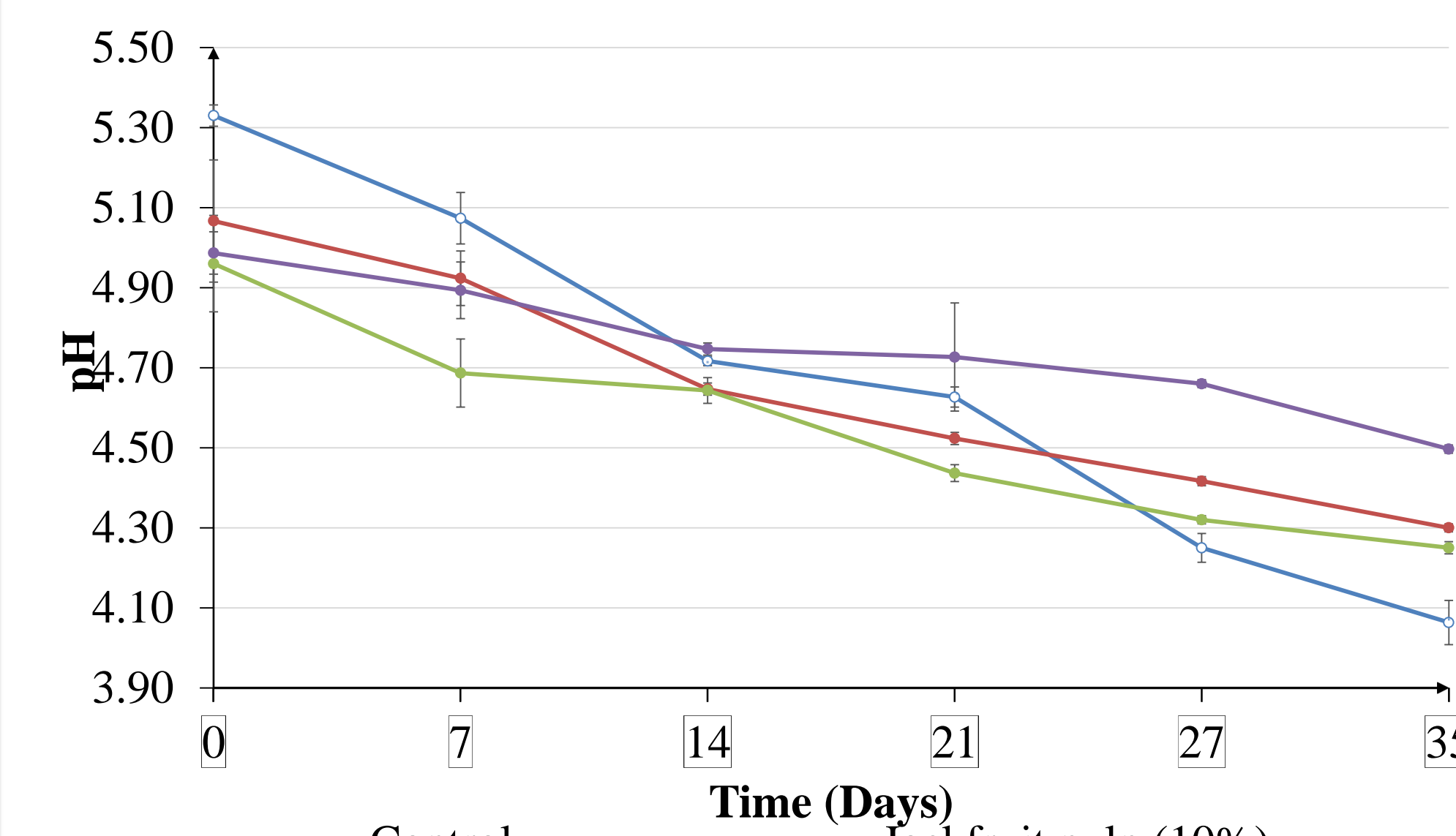


Figure 2: pH changes of frozen yoghurts during storage

pH of all frozen yoghurt samples decreased gradually during storage showing their titratable acidity increased with time upon storage

Table 3: Total plate count of frozen yoghurts during storage

Treatment	Time (Days)					
	1	7	14	21	27	35
Trt 1	8.90 ± 0.3	9.10 ± 0.2	9.50 ± 0.2	9.80 ± 0.2	10.00 ± 0.1	11.40 ± 0.1
Trt 2	8.00 ± 0.1	8.40 ± 0.1	8.70 ± 0.1	9.00 ± 0.2	9.40 ± 0.1	10.20 ± 0.1
Trt 3	7.60 ± 0.1	8.00 ± 0.3	8.40 ± 0.1	8.80 ± 0.1	9.00 ± 0.3	9.50 ± 0.3
Trt 4	7.00 ± 0.1	7.50 ± 0.1	7.80 ± 0.1	8.50 ± 0.2	8.80 ± 0.1	9.10 ± 0.2

Data are presented as means × 10⁸ ± SD

Total plate count (TPC) of all samples increased with time. But TPC of control sample increased at a higher rate compared to jackfruit incorporated frozen yoghurt samples

Yeast and mould, coliform were not detected during 35 days of storage

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Conclusion

- Addition of 15% jackfruit pulp into frozen yoghurt improved its physicochemical, microbiological and sensory properties significantly. The developed products could be stored for 35 days at -18°C with minimum alterations of microbiological and physicochemical properties. Hence, it can be introduced as a value added healthy dairy product to the market

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