A project initiative of the Victorian dairy industry proudly sponsored by the Gardiner Dairy Foundation in partnership with Monash University

Monash Industry Team Initiative (MITI) 2015-2016

Innovative Liquid Milk Beverage

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1. Project Aim and Background

"Yoghurt Drinks" are rising in popularity.

The aims of our project were:

- Development of a formulation of "Yoghurt Drink" with a pleasant yoghurt flavour and a creamy smooth texture.
- Development of targeted formulae would be determined based on taste, mouthfeel and viscosity.
- Design of a manufacturing process based on the principle of yoghurt making within current factory limitations.
- Preparation of laboratory prototypes for evaluation prior to scale up in pilot plant.

2. Approaches

Market research (including sensory evaluation)

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Lab development based on target sensory parameters

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Pilot trials of best candidate formulations

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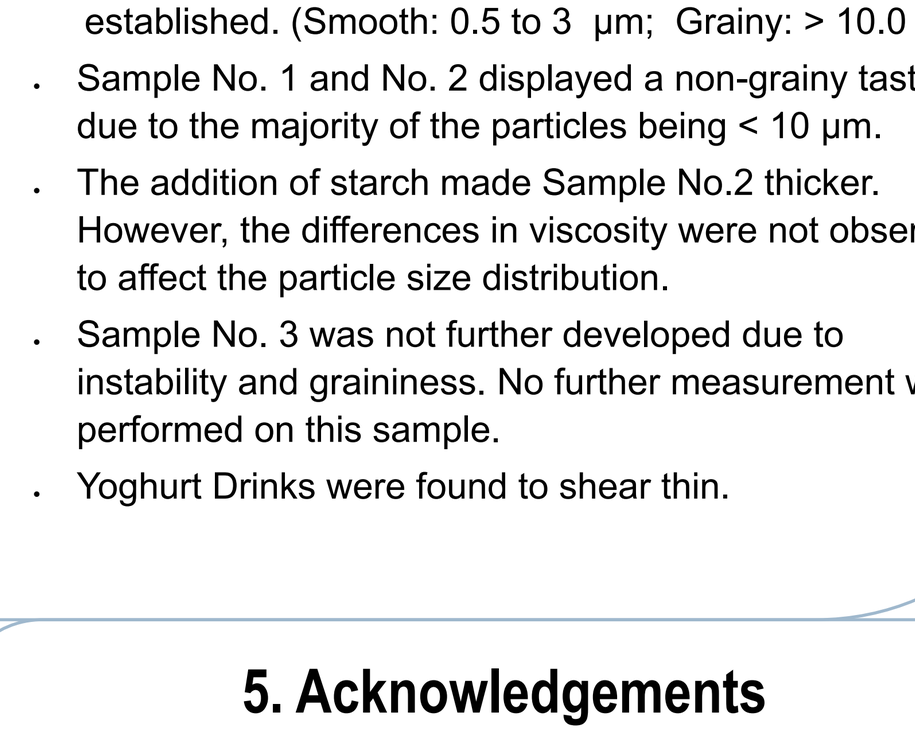
Sample analysis and evaluation

3. Experimental Methods and Results

Milk → Heat Treatment → Fermentation → Homogenisation → Packing

Sample Number	Ingredients	pH	Sensory Test	Stability
1	Pectin A +Alginate	4.3	Thin, smooth texture with typical yoghurt flavour	Stable for over 30 days, no syneresis
2	Pectin A + Alginate +Starch	4.3	Thick, smooth with slightly starch flavour	Stable for over 30 days, no syneresis
3	Pectin B +Alginate	4.4	Thin and grainy	The product split after two days



- Correlation between mouthfeel and particle size was established. (Smooth: 0.5 to 3 μm; Grainy: > 10.0 μm)
- Sample No. 1 and No. 2 displayed a non-grainy taste due to the majority of the particles being < 10 μm.
- The addition of starch made Sample No.2 thicker. However, the differences in viscosity were not observed to affect the particle size distribution.
- Sample No. 3 was not further developed due to instability and graininess. No further measurement was performed on this sample.
- Yoghurt Drinks were found to shear thin.

4. Conclusions

- Two successful Yoghurt Drink formulations were developed.
- Final Yoghurt Drink achieved the desired taste, texture and mouthfeel defined in project aims.
- The designed process worked well and could be easily adopted by the factory with minimum modifications to existing production systems.
- Not all pectins worked best in Yoghurt Drink making. The sensory evaluation and particle size analysis confirmed that the Pectin A worked well.
- Starch was a suitable thickener for Yoghurt Drinks.

5. Acknowledgements

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