

Project Summary

'Recovery and Reincorporation of Milk Solids from Acid Whey' Project

KEY POINTS

- Nature of the waste produced at Bulla from the manufacture of cottage cheese was characterised
- Membrane filtration and neutralisation were trialled to concentrate milk proteins, remove minerals and lactic acid
- Concentrated milk solids utilisation was investigated.

THE CHALLENGE

Acid whey is a by-product from the manufacture of cottage cheese and is a rich source of milk proteins, lactic acid, lactose and minerals. Acid whey is currently discarded as waste and this project was instigated to investigate alternate utilization of milk solids from acid whey.

THE OPPORTUNITY

Bulla currently produces surplus amount of acid whey from cottage cheese production, which contains significant amount of milk solids. Recovering this solid material will result in financial savings as well as production of a new raw material that can be included in current and new formulations.

OUR RESEARCH

The aim of this research is to characterise waste acid whey from cottage cheese production and develop a method to both neutralise and concentrate this acid whey to be used as an ingredient in formulations such as cheese dressing, yogurt etc.

Various membrane filtration techniques as well as neutralisation of acid whey were trialled to understand how this can be used to transform acid whey from agricultural waste into a valuable ingredient.

OUTCOMES

A number of methods to concentrate and neutralise acid were trialled, with nanofiltration and ultrafiltration proving to be ideal candidates to concentrate protein and exclude lactic acid and minerals. Neutralising agents were investigated to increase the pH to a more appropriate level for further applications.

Concentrated acid whey was used as a source of milk solids in various product applications and product evaluations, including sensory evaluation, were conducted. Trial samples when compared to control had differences in physiochemical properties which reflected in the sensory studies

IMPACT

Methods developed to both concentrate and neutralise acid whey will allow for acid whey to be reincorporated as an ingredient into food formulations as well as providing the dairy industry with a new way to recover waste from cottage cheese manufacture.

NEXT STEPS

From here, developed methods to concentrate and neutralise acid whey will be streamlined and upscaled to industrial scale. Future research should investigate the feasibility of using concentrated and neutralised acid whey as an ingredient in a wide range of dairy products whilst maintaining desirable physical and organoleptic properties.

PROJECT TEAM

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PROJECT WEBPAGE

<https://endfoodwaste.com.au/projects/recovery-and-reincorporation-of-milk-concentrate-from-acid-whey/>

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