

## **Wood apple (*Feronia limonia*) pulp incorporated whey beverage as a method to utilise whey in natural form**

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Whey is a by-product of cheese production and although it has high quality nutrients, it is not efficiently utilised in Sri Lanka. Whey contains proteins (0.8%), lactose (4.5%), fat (0.2%), minerals (Ca, Mg, P, K and Na) and vitamins (B<sub>2</sub>, B<sub>6</sub>, and C). However, utilization of cheese whey in its natural form is limited due to its peculiar flavour and taste produced as result of starter cultures and enzymes used in the process of manufacturing cheese. Therefore, the focus of this study was to develop a method for efficient utilization of cheese whey in its natural form as a value-added dairy by-product. Wood apple (*Feronia limonia*) is a tropical fruit with a high protein content (7.1%) and low levels of fats (3.7%) and carbohydrates (18.1%). It is rich in  $\beta$ -carotene, vitamins B and C, oxalic, malic, citric and tannic acids.

Wood apple pulp extract was incorporated into cheese whey to enhance the palatability and nutritional value of whey and to mask the flavour of whey. After a series of preliminary trials, three different ratios (by volume) of wood apple extracts (15%, 25% and 35%) and pasteurized whey (85%, 75% and 65%) were mixed together. Sugar and carrageenan (E-407) were used to enhance the mouth-feel and stability. Finally, physicochemical parameters (pH and titratable acidity) and microbial activity were assessed during storage under refrigeration for 10 days.

Results of sensory analyses revealed that the best ratio of wood apple extract to whey is 35% to 65%. Proximate composition analysis showed that the final product contains 18.8% total solids, 0.62% protein and 2.05% fat. The energy content of the final beverage was 331.31 Kcal/kg. Analysis of chemical parameters revealed that the pH decreased from 4.3 to 3.4 and titratable acidity increased from 0.68% to 0.76% during the storage period. Furthermore, there was a slight increase in the total plate counts during storage although there was no yeast and mould growth during this period. It may be advisable to heat treat the final mixture to increase food safety.