

NUTRITIONAL AND FUNCTIONAL PROPERTIES OF
GREEN BANANA FLOUR

By

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Thesis

Submitted in partial fulfilment of the requirements
for the degree of

MASTER OF PHILOSOPHY

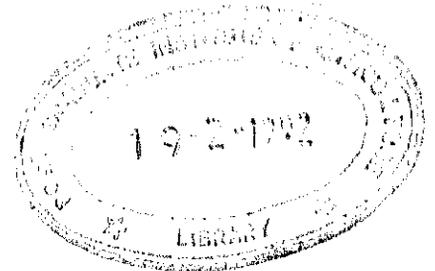
in the

POSTGRADUATE INSTITUTE OF AGRICULTURE

of the

UNIVERSITY OF PERADENIYA

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November 1990.

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ABSTRACT

Banana flour prepared from the cooking banana varieties 'Alukehel' and 'Monthan' was evaluated for its nutritive, physical and rheological characteristics. Green banana fruits, 90-95 days old maturity, were collected from market gardens in Kandy District. The average fresh weight of the fruits were 104.5 and 175.2 g for variety 'Alukehel' and 'Monthan', respectively. The corresponding pulp to peel ratios were 1.81 and 1.86, respectively. The fruits were steam peeled and sliced. The cut slices were treated by dipping in a solution of 1% (w/v) sodium metabisulfite (pH 3.5) for 5 minutes and dried at 60°C for 6 hours. The banana flour was prepared by grinding the dried slices in a laboratory mill using a 60-mesh sieve. The enzymatic browning of banana tissue caused by polyphenol oxidase was reduced by the steam blanching and by the use of sodium metabisulfite at pH 3.5.

The nutritional value of the flour was evaluated by determining the proximate composition, carbohydrate composition and the mineral contents. The oxalate content was also determined. Banana flour was found to be a good carbohydrate source. The total carbohydrate content was 89.5% for variety 'Alukehel' and 88.6% for variety 'Monthan'. Starch contributed over 68% of the total carbohydrate content. The non-starch polysaccharide values of 11.4% for variety 'Alukehel' and 12.6% of

variety 'Monthan' indicate that the fibre content of banana flour is low. Banana flour is a rich source of phosphorous and, a good source of potassium and magnesium.

Swelling and solubility patterns of the flour showed restricted two-stage swelling, suggesting the presence of two sets of bonding forces which relax at different temperatures. The Brabender amylograph indicated the flour to be slow cooking and to have a moderate thickening power. The flour also exhibited the properties of cross-linked starches.

Isolation of banana starch gave an yield of 69.8% for variety 'Alukehel' and 65% for variety 'Monthan'. The viscosity pattern of cross-linked starches as reflected by the Brabender amylographic studies suggest that the banana starch could be used as a substitute for cross-linked starches in food applications.