

**MANUFACTURE OF NOVEL PRODUCTS  
USING GREEN TEA**

**By**

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## Declaration

The work described in this thesis was carried out by me under the supervision of Prof. A. Bamunuarachchi and a report on this thesis has not been submitted in whole or in part of any University or any other institution for another degree.

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I certify that the above statement made by the candidate is true and that this thesis is suitable for submission to the University for the purpose of evaluation.

  
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## **ABSTRACT**

Green tea is fast becoming popular in the world due to its health enhancing components. Green tea beverage is available in the market as different products. All the nutrients in green tea do not dissolve into liquid, so cannot be consumed in the beverage. The full effects of the leaves could be optimized by finding methods to consume green tea leaves.

The objective of this research was to improve the quality of bottled green tea by adding flavour and developing a jelly using the bottled tea extract and to find ways to preserve green tea leaves for future leaves.

The study showed that the green tea extracts bottled without preservatives had good keeping quality and that there is a possibility of preserving green tea leaves in Brine solutions. Sensory studies showed addition of flavour improves the acceptability of green tea beverage and the sweetened Green tea jelly was more preferred. The overall study showed the possibility of manufacturing value added green tea products that could have an appeal to the average consumer.

## CHAPTER 1

### INTRODUCTION

Green tea is considered to be “the virgin of tea’s”, as it is the youngest, freshest and the least processed tea. Green tea has been receiving much attention lately due to its pharmacological effects. Substances in green tea help to maintain good health and are potentially effective in preventing cancer, heart diseases and even cure food poisoning. It also provides the human body with numerous health enhancing components such as Catechins, Polyphenols, Flavonoids, Vitamin B complex, Vitamin C, Vitamin E and Fluoride in its natural state.

Tea is fast becoming a major player in the beverage market. Nowadays, most people prefer ready to serve (RTS) drinks due to their busy schedules. There are a range of fruit flavoured black teas in the market which can be considered as soft drinks. Green tea as a soft drink has the advantage of having a healthy image, as the beverage is lower in sweetness. The green tea flavour blends well with citrus, pineapple and ginger flavours, making it more suitable for a soft drink.

However, green tea in liquid form does not optimize the full effects of the leaves, because all useful substances do not dissolve into liquid. But this problem can be solved by finding tasty ways to “eat green tea.” All the nutrition in green tea can be consumed by using tea leaves fresh or using them to manufacture many products that are available in the market.

The thesis briefly presents the small scale experiments carried out to ascertain the possibility of making an acceptable bottled green tea, fresh tea leaves and the products made from green tea extracts.



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 General

Tea is made from the young leaves and unopened buds of the tea plant *Camellia sinensis*. Tea is classified into three categories depending on the manufacturing process. They are non fermented, semi-fermented and fermented types. Non fermented tea is made by stopping the functions of flavoprotein in tea leaves. Green tea is a type of non-fermented tea. Oolong tea is a typical semi-fermented tea which allows flavoproteins to work to a certain extent. Black tea is the fermented tea that optimizes the function of flavoproteins to the fullest.

The tea infusion has little food value, containing four calories per cup (Pintauro, Nicholas, Park Riclye N.J. 1970). The fresh tea leaf is rich in vitamin C, but it would be destroyed during tea manufacture.

The younger the tea leaves, the better the tea quality. The white-haired bud and the two adjacent youngest leaves (tea flush) are plucked, but plucking of longer shoots containing three or even four to six leaves is not uncommon.

Final product characters depend on the unusual chemical composition of the fresh leaf. The group of polyphenols give tea infusion its briskness, strength and colour. They are also responsible for the characteristic taste of tea. ((Pintauro, Nicholas, Park Riclye N.J. 1970).

## 2.2 Composition of tea flush

Compounds	% dry weight
Protein	15
Amino acids	04
Polysaccharides	14
Monosaccharides	04
Lipids	02
Flavanols	25
Flavanols and Flavanol glycosides	03
Polyphenolic acids	05
Other polyphenols	03
Caffeine	03
Theobromine and Theophylline	0.2
Organic acids	0.5
Cellulose	07
Lignin	06
Chlorophyll and other pigments	0.5
Ash	05
Volatiles	< 0.1

**Table 1 : Composition of tea flush**