

**PRODUCTION OF CLEAR STAR FRUIT JUICE BY USING
ENZYMATIC DEPECTINISATION AND FILTRATION
METHOD**



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ABSTRACT

PRODUCTION OF CLEAR STAR FRUIT JUICE BY USING ENZYMATIC DEPECTINISATION AND FILTRATION METHOD

Clear star fruit juices were produced by using enzymatic depectinisation and filtration method. Fresh star fruit or known as carambola (*Carambola Averrhoa* L.) used were purchased from Selangor Fruit Valley, Malaysia. Colour index 4 (yellow) was chosen for the ripeness level of the fruit. The enzymatic depectinisation method employed was the pectinesterase enzyme to clarify the juice. There were four optimum conditions that should be considered during used of enzyme including pH, temperature, viscosity and reaction time. For the filtration method, the production of clear star fruit juice used vacuum pump with 45 micron sieve and 25 mmHg pressure. Physicochemical analyses conducted were viscosity, total soluble solid, colour, pulp content, pH value and cloudiness determination. These parameters used for comparing between the two methods of clarifications. From this study, it was found that the productions of clear star fruit juices were more superior by using enzymatic depectinisation method rather than using filtration method. Based on the results, pulp content, cloudiness, viscosity and pH were much lower by using enzymatic depectinisation method due to the disruption of cell wall on the star fruit by pectinase enzyme which gave clearer juice as compared to the filtration technique.

CHAPTER 1

INTRODUCTION

1.1 Background

Carambola (*Averrhoa carambola* L., Oxalidaceae), a fruit tree originally from tropical Asia (15 °S–23 °N latitude), is now grown in many tropical and subtropical regions of the world between latitudes 0 °N and 30 °S. The main carambola producing areas are in Taiwan, Malaysia, Indonesia, Hawaii, Florida, and India. In their natural, tropical habitat, carambola trees bloom and produce fruit nearly year-round owing to the near absence of environmental stress and continuous, growth-promoting warm temperatures (Núñez-Elisea and Crane, 2000).

The flavour is variable and ranges from light sour to sweet. Furthermore, these fruits are often relatively inexpensive. Carambola is rich in vitamins such as Vitamin A and Vitamin C with more than 25 mg per 100 g fresh fruit (Liew Abdullah *et al.*, 2006). They are usually eaten fresh and also served as fresh juices or used as flavoured ingredients in juice blends. However, to improve and widen its marketability, especially for the export, efforts have been made to produce value added products from the fruit. Among the