

THE STUDY OF PEA FLOUR IN THE PRODUCTION OF 'MURUKU'

NURUL AZLIN TOKIMAN

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ABSTRACT

THE STUDY OF PEA FLOUR IN THE PRODUCTION OF 'MURUKU'

The study of pea flour in the production of 'muruku' was conducted by incorporation of lentil flour and chickpea flour into two different formulations. The aims of this study were to produce a new, healthier 'muruku' using pea flour, to study the oil reduction in pea flour based 'muruku' compared with the commercial premix 'muruku' and to obtain the acceptability of the new 'muruku' through sensory evaluation. Four formulations of lentil flour and three formulations of chickpea flour based 'muruku' were developed and for control, the commercial premix 'muruku' flour was used with the addition of the same amount of salt and spices. All formulations have the same amount of glutinous rice flour. The amount of pea flour was highest in formulation 1 which was 80% and decreased 10% gradually from each formulation down to 60% in chickpea flour while 50% in lentil flour based 'muruku'. Besides, the amount of rice flour is zero in formulation 1 and this amount increase 10% from each formulation up to 30% in lentil based 'muruku' and 20% in chickpea based 'muruku'. Chemical analyses were carried out to determine uptake ratio and proximate composition for different formulations of pea flour based 'muruku'. Physical test were carried out to determine the texture (fracturability), and colour measurement. Meanwhile, two sensory evaluations were carried out which were QDA to obtain detailed description of 'muruku' characteristics in term of colour (brownish), crispiness, hardness, beany aftertaste, hotness, oiliness, and overall acceptability. Another sensory evaluation carried out to determine the acceptability of pea flour based 'muruku' in term of colour, taste, texture, and overall acceptability using hedonic scale. It was found that incorporation of pea flour in 'muruku' resulted in decreased of oil uptake compared to control which were in the range of 0.64 to 0.8 for lentil flour while 0.77 to 0.83 for chickpea flour. It was also found that fat, protein, fibre, and ash composition of 'muruku' increased with the incorporation of pea flour. Besides, the fracturability of 'muruku' reduced with the incorporation of pea flour compared to the control 'muruku'. While, for sensory evaluation, results showed that all pea flour based 'muruku' formulations can be accepted by the panelists. However, the score for all attributes were not significantly different ($p>0.05$) since panelists were unable to detect the difference among each formulations.

CHAPTER 1

INTRODUCTION

1.1 Background and problem statement

'Muruku' is one type of savoury snack which is well known in India as a crisp golden-brown snack that is often consumed on deepavali. It is an Indian deep-fried, oily, non-sweet biscuits made with spices. The term snack food does not only apply to some of the newer products but also traditional food items such as 'muruku'. Most Malaysians are frequent to choose savoury snacks such as potato chips, banana chips, and 'muruku' between meals compared to fruits or baked products as snack choices. This is because these crispy foods performed the role of a relish at the main meals, which are eaten not to provide nutrition but to appeal the senses of play, pleasure, and delight.

These savoury snacks are known to contain high fat and sodium because they are prepared through frying which reveals to the increasing of oil uptake to our diet. Consequently, snack foods are always received critics due to their high level of salt, sugar, and fat. Besides, they are found to be nutritionally damaging when eaten regularly in place of traditional foods. However, increasing awareness amongst public has increase the demand on healthier, more nutritious snack foods. In this study, chickpea flour and lentil flour were used as the main ingredient to produce healthier, more nutritious 'muruku' as savoury snack. This