

THE USE OF RESISTANT STARCH
IN SNACK FOODS :
EFFECT ON SENSORY PROPERTIES
AND PROXIMAL COMPOSITION

CHIN KAI SHIEN

B.Sc. (Hons.) FOOD SCIENCE & NUTRITION
FACULTY OF APPLIED SCIENCES
UCSI UNIVERSITY

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ABSTRACT

This study was carried out to investigate the feasibility of adding a commercial resistant starch into a local Chinese deep fried snack food known as 'Dan San' in order to enhance its nutritional value. The effect of partial substitution of wheat flour with resistant starch on the physicochemical properties, sensory attributes as well as the consumer acceptability of the formulated samples were studied. A control and four formulated 'Dan San' samples, in which resistant starch of 5%, 10%, 15% and 20% were used to replace wheat flour in the formulations were evaluated. The sensory attributes of the Dan San samples were studied by Quantitative Descriptive Analysis (QDA) and consumer acceptability by a Hedonic test using the nine point hedonic scale. Physicochemical properties such water activity, moisture, ash, protein, fat, carbohydrate and dietary fiber content were analysed for comparison. Results of QDA showed that there were increasing trend in the mean ratings of all sensory attributes (oiliness, roughness, crispness, hardness and colour) with increasing resistant starch substitution. 20% resistant starch substituted 'Dan San' showed significant difference with the control sample in all sensory attributes. Results of the Hedonic test showed that 'Dan San' formulation containing 15% resistant starch obtained the highest rating in terms of appearance, aroma, flavour, texture and overall acceptability and were significantly preferred ($p < 0.05$) for appearance, texture and overall acceptability in comparison to the control. Physicochemical analysis showed significant differences ($p < 0.05$) in all analysis. Water activity, moisture, protein and carbohydrate content decreased whilst fat, ash and dietary fibre content increased with resistant starch substitution. Overall, the study shows that partial substitution of wheat flour with resistant starch in deep fried 'Dan San' is feasible and the maximum substitution of 15% is optimum with enhanced sensory properties, increased dietary fibre, minerals and higher consumer acceptability. However, further studies on optimisation of processing time and temperature to lower the fat content in the snack food is recommended.