

PHYSICO-CHEMICAL PROPERTIES OF PUMPKIN
(*CUCURBITA PEPO L.*) SEEDS AND RINDS IN THE
APPLICATION IN FOOD (BREAD)

LAU MICHELLE

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

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ABSTRACT

Dietary fibre is a non-digestible constituent that make up the plant cell. Dietary fibre consists of soluble and insoluble dietary fibre which makes up total dietary fibre. Dietary fibre is widely used in the food industry to modify the texture properties of food. Dietary fibre shows functional properties which are important in the food industry. The aims of this study were to determine the proximate composition, functional properties and antioxidant activity of pumpkin seed and rind. Furthermore, formulation for bread substituted with pumpkin seed and rind were produced; bread quality and properties will be evaluated through sensory evaluation, physical and chemical analysis. Pumpkin rind showed a better hydration properties compared to pumpkin seed which provides a better oil holding and emulsifying ability. Crude fibre in both pumpkin seed and pumpkin rind were high, 31.48% and 14.83%, respectively. The total phenolic compound and DPPH radical scavenging activity for pumpkin rind were 38.60 mg GAE/ 100 g dry weight and 69.38%, respectively which were higher than pumpkin seed. Dough expansion reduced with the addition or increased in amount of fibre but loaf weight increased, crumb colour became darker and yellowish and bread texture modified by the addition of pumpkin seed or pumpkin rind flour. The texture of bread became softer and less chewy after the addition of 5% and 10% pumpkin seed and rind. 5% pumpkin rind bread gave the best overall acceptability and sensory attributes with the most preferred ranking, followed by 5% pumpkin seed bread. Total dietary fibre in end product substituted with 5% pumpkin seed and 5% pumpkin rind flour were 3.0% and 4.3%, respectively. The dietary fibre for 5% pumpkin seed and 5% pumpkin rind bread were higher than control bread (2.3%). Total carbohydrate of bread reduced with the addition of fibre. Antioxidant activity of bread with pumpkin seed and rind still remain in an acceptable level after high temperature baking at 200 °C. Total phenolic compound and DPPH radical scavenging activity for 5% pumpkin seed bread were 35.66% and 23.61 mg GAE/ 100 g dry weight, 42.34% and 36.67 mg GAE/ 100 g dry weight for 5% pumpkin rind bread. Pumpkin seed and rind has high nutritional value and functional properties which are beneficial to health and suitable to be incorporated into food product development in the future.