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## The effect of testa on SC-CO<sub>2</sub> extracted oil yield, nutrient and anti-nutrient content of palm kernel fibre

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Palm kernel cake (PKC) is the by-product of the palm oil extraction process that still has residual oil and large amounts of palm kernel shells. It has been largely used as a feed for ruminates due to its relatively low cost and availability. However, PKC application was found to be impeded in its use for non-ruminant due to anti-nutrient, toxic metals and food born pathogenic microorganisms. The main attention of the present study is to extract oil from PKC, palm kernels with testa (PKt) and without testa (PKw) to produce defatted products, dPKC, PKt, and PKw via supercritical carbon dioxide (SC-CO<sub>2</sub>). These dPKC, PKt, and PKw possess potential to be source of food fiber for human consumption. The SC-CO<sub>2</sub> extractions of oil were performed under different pressures of 27.6, 34.5 and 41.4 MPa, temperatures of 40, 60 and 80°C and running for 30, 40 and 60 min at a flow rate of 2 ml/min. Second focus of this research was to account for any differences in the chemical composition of the dPKC, dPKt and dPKw. Analysis on the nutritional composition showed dPKt having higher nutritional contents than dPKw or dPKC. Determination of the anti-nutrients in defatted dPKC revealed higher anti-nutrient composition than the dPKt or dPKw. The vitamin, amino acid, carbohydrate, heavy metal, alpha toxin determination and the presence of microorganisms in dPKt, dPKw and dPKCM were also conducted.

### Biography

Nik Norulaini Nik Ab Rahman completed an MSc degree in Biochemistry from Mississippi State University, and PhD in Forest Science (Biotechnology) in 1987 from Michigan Technological University, USA. She is a Professor at University Sains Malaysia, Penang and had been involved in research in supercritical fluid extraction using carbon dioxide for the last 20 years.

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