

Physico-chemical properties and quality of palm-based vegetable ghee.

ABSTRACT

Samples of trans-free vegetable ghee were made using palm oil/palm stearin/palm olein (PO/POs/POo) blends (set A) and using palm oil/palm stearin/palm kernel olein (PO/POs/PKOo) blends (set B). Palm stearin of iodine value (IV) 30 was used in this study. The products were evaluated for their physical and chemical properties. Changes in quality during storage were monitored during a period of 16 weeks. Most of the vegetable ghee were granular (grainy) and had a shiny appearance. Chemical analyses indicated that vegetable ghee consisting of PO/POs/POo had higher IV (47.7-52.4) than the PO/POs/PKOo vegetable ghee due to their higher content of unsaturated fatty acids, 46.0-50.0% compared to 36.6-45.0% in Set B. Decreasing the amount of palm oil while increasing palm stearin in the formulations resulted in higher slip melting point (SMP) and higher yield values. Eutectic interaction was noted in PO/POs/PKOo blends. The crystals in samples PO/POs/POo (set A) were predominant in the β' polymorphic form. One formulation in set B (B4) exhibited β crystallinity. Free fatty acids (FFA) were lowest in samples PO/POs/POo 80: 5: 15 (A4) and PO/POs:/PKOo 80:5:15 (B4) throughout storage. There was no clear trend on anisidine value (AV) while IV remained almost constant. Selected vegetable ghee, A4 was used to shallow fry roti canai and for cooking nasi minyak. Sensory evaluation on these two products revealed that there was no significant difference ($P < 0.05$) in texture, taste and overall quality between samples A4 and B4.

Keyword: Palm stearn; Vegetable ghee.