

# **Effect of Washing Red Palm Oil and Low Grade Tallow Fat with Hot Water on Oil Bleachability and Bleached Oil Colour and Odour Stability.**

IGILE, G. O, IKPEME, C. A and EGBUNG, G. E

Department of Biochemistry, Faculty of Basic Medical Sciences,  
University of Calabar, P.M.B 1115, Calabar, Nigeria.

Technical Palm Oil (TPO) and Special Palm Oil are the two grades of Palm Oil classified by the Nigerian market. SPO is a superior grade of Palm Oil to TPO. The two grades differ from one another on the basis of their free fatty acid (FFA), moisture and impurity contents. The following are the standard specifications: SPO (FFA 5% max, moisture 0.5% max, impurity 0.10% max); and TPO (FFA 15% max, moisture 1.5% max, impurity 0.25% max). SPO contains a higher Total Fatty Matter (TFM ~ 99.79%) content compared to TPO (TFM ~ 88%). SPO also contains a higher saponification value (198) than TPO (195). Both grades of oil share the same Lovibond scale (51/4 inch cell) average colour characteristics (25R, 15Y, 10B, 1N). In this study, SPO and TPO were subjected to chemical bleaching using Fuller's earth and mineral acid under vacuum and thermal conditions without pre-washing with hot water. The colour of the bleached oil was 1.5R, 10Y, 0B, 0N which reversed spontaneously within 4hr to 4.5R, 11Y, 0B, 0N. The reversed oil produced an objectionable beany odour. The soap produced with it gave poor and inconsistent colours and odours accompanied by low consumer acceptability and loss of sales. Also low grade tallow fat was bleached without washing with hot water. The bleached oil colour reversed from 1R 7Y 0B 0N within 4hr to 3R 8Y 0B 0N. The oil reversion was accompanied by animal fat odour which transferred into the finished soap product. However, when these oils or fat were pre-treated by washing with hot water at 80°C for 30 minutes, the bleaching cost was reduced by 50% and the bleached oil colours were lower (0.8R, 4Y, 0B, 0N) and stable for both palm oils and tallow fat. No extraneous odour was associated with the bleached oils.

**Key words:** Technical Palm Oil (TPO), Special Palm Oil (SPO), Tallow fat, Soap, Bleaching, Colour, Odour, Reversion, Stability.

Correspondence Email: goitech2000@yahoo.com