

Free Fatty Acid Assessment of Crude Palm Oil Using a Non-Destructive Approach

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Abstract : Near infrared (NIR) spectroscopy has always been of great interest in the food and agriculture industries. The development of prediction models has facilitated the estimation process in recent years. In this study, 110 crude palm oil (CPO) samples were used to build a free fatty acid (FFA) prediction model. 60% of the collected data were used for training purposes and the remaining 40% used for testing. The visible peaks on the NIR spectrum were at 1725 nm and 1760 nm, indicating the existence of the first overtone of C-H bands. Principal component regression (PCR) was applied to the data in order to build this mathematical prediction model. The optimal number of principal components was 10. The results showed $R^2=0.7147$ for the training set and $R^2=0.6404$ for the testing set.

Keywords : palm oil, fatty acid, NIRS, regression

Conference Title : ICABBBE 2015 : International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015