# Prediction of chemical contents of *Jatropha curcas* L. seeds IP-3P by near infrared reflectance method

**L.C.E.CH. Lengkey, D.P. Sari, I.W. Budiastra, K.B. Seminar, B.S. Purwoko**

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## Abstract

The objective of this study was to predict the chemical contents (moisture content, free fatty acid content-FFA, and fat content) of *Jatropha curcas* L. seeds IP-3P by near infrared reflectance (NIR) method. The wavelengths of near infrared reflectance, ranged from 1000 to 2500 nm were measured by NIR Flex Solids Petri Apparatus. Samples were divided into two parts, 46 samples (2/3 of total samples) for developing calibration equation and 23 samples (1/3 of total samples) for performing validation. Calibration methods applied were principal component regression (PCR) and partial least squares (PLS). Prior to calibration, data of the reflectance spectrum were treated applying normalization between 0 to 1, first derivative of Savitzky-Golay 9 points, and the combination of two. The combination of normalization between 0 to 1 with first derivative of Savitzky-Golay 9 points was then selected for further calibration process. PLS gave better calibration than PCR. The results indicated that there were almost no discrepancies between calibration and validation function for predicting the moisture content, FFA, and fat content of *Jathropa* seeds.