Fluorescence Sensing as a Tool to Estimate Palm Oil Quality and Yield

Authors : Norul Husna A. Kasim, Siva K. Balasundram

Abstract : The gap between 'actual yield' and 'potential yield' has remained a problem in the Malaysian oil palm industry. Ineffective maturity assessment and untimely harvesting have compounded this problem. Typically, the traditional method of palm oil quality and yield assessment is destructive, costly and laborious. Fluorescence-sensing offers a new means of assessing palm oil quality and yield non-destructively. This work describes the estimation of palm oil quality and yield using a multi-parametric fluorescence sensor (Multiplex®) to quantify the concentration of secondary metabolites, such as anthocyanin and flavonoid, in fresh fruit bunches across three different palm ages (6, 9, and 12 years-old). Results show that fluorescence sensing is an effective means of assessing FFB maturity, in terms of palm oil quality and yield quantifications.

Keywords : anthocyanin, flavonoid fluorescence sensor, palm oil yield and quality
Conference Title : ICASTE 2014 : International Conference on Agricultural Science, Technology and Engineering
Conference Location : Istanbul, Türkiye
Conference Dates : December 22-23, 2014