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Estimation of chlorophyll and pheophytin contents of rice (*Oryza sativa* L.) leaf in seedling bed using CIE chromaticity diagram

Tae Sung Kim¹⁾, Hyun Don Ham¹⁾, Mi Hyun Lee¹⁾, Ki Bae Park²⁾, Sung Yung Yoo²⁾ and Tae Wan Kim^{1,2)*}

¹⁾ *Department of Plant Life and Environmental Science, Hankyong National University, Anseong 17579, Korea*

²⁾ *Institute of Ecological Phytochemistry, Hankyong National University, Anseong 17579, Korea*

Abstract

Leaf colors of rice can be used to identify stress level due to its adaptation to environmental change. For most leaves green-related colors are sourced from chlorophyll a and b. For most leaves green-related colors are consisted of chlorophyll a and b. Chlorophyll concentration is normally measured using a spectrophotometer in laboratory. In some remote observation fields, it is impossible to collect the leaves, preserve them, and bring them to laboratory to measure their chlorophyll content. The measurement of chlorophyll content is observed through its color. Using CIE chromaticity diagram leaf color information in RGB is transformed into wavelength (in nm). Pheophytin contents were also analyzed in 95% ethanol extracts. In the process of leaf development of rice young seedling, both pigments were compared. Leaf samples from different rice seedling bed is taken, their colors and RGB values are recorded using Photoshop Image Analysis. SPAD-502 values were also measured. The chlorophyll and Pheophytin contents were fully estimated by λ_{avg} on CIE chromaticity diagram.

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Corresponding author*

Tae Wan Kim

Address : Department of Plant Life and Environmental Science, Hankyong National University, Anseong 17579, Korea

Tel and Fax : +82316705080

E-mail : taewkim@hknu.ac.kr