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Physical Modelling of Nikon Coolpix Camera RGB Responses

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This contribution describes computer aided leaf digital image analysis based on reflectance imagery at leaf level. It is based on a fast, non-destructive measurement technique of leaf chlorophyll content imaging based on measurements of leaf reflectance. The validity of the method is demonstrated by a direct comparison of conventional chlorophyll extraction of both leaf chlorophyll pigments a and b with chlorophyll a and b and total chlorophyll estimates based on leaf reflectance imagery. The leaves of the species selected for this paper are characterized by heterogeneous chlorophyll distributions.
The application of the software developed for image analysis at the leaf spatial level allows revealing the morphological structures at the origin of the spatial variation of leaf chlorophylls.

Keywords: Physical modelling, leaf chlorophyll imaging, spatial analysis, RGB camera.