

Laboratory phenotyping of plants

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Modern technologies can assist in the precise and rapid assessment of plant phenotypic characteristics. This study presents approaches to plant phenotyping based on photography in laboratory condition. Digital cameras were used for plant photography, capturing both visible spectrum (RGB) and hyperspectral images using the CUBERT camera. To ensure uniform shooting conditions, artificial LED-lighting with diffusing octa-boxes was used in the studio. The cameras were mounted on tripods to avoid blurred photos. The shooting was done under the control of software compatible with the corresponding cameras. This allowed for high-quality, high-resolution two-dimensional images to be obtained for subsequent analysis using computer vision and deep learning methods. This method can be used for phenotyping various biological objects, which can improve the efficiency of selection processes and accelerate the development of new varieties.

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