

Evaluation of Photosynthetic Efficiency in Photorespiratory Mutants by Chlorophyll Fluorescence Analysis

Joseph Qian¹, Nicholas Ferrari¹, Richard Garcia¹, Mary Beth L. Rollins², Paul F. South^{1,2}

¹Department of Biological Sciences, Louisiana State University ²Department of Plant Pathology and Crop Physiology, Louisiana State University AgCenter

Corresponding Author

Paul F. South

pfsouth326@gmail.com

Citation

Qian, J., Ferrari, N., Garcia, R., Rollins, M.B.L., South, P.F. Evaluation of Photosynthetic Efficiency in Photorespiratory Mutants by Chlorophyll Fluorescence Analysis. *J. Vis. Exp.* (190), e63801, doi:10.3791/63801 (2022).

Date Published

December 9, 2022

DOI

10.3791/63801

URL

jove.com/video/63801

Materials

Name	Company	Catalog Number	Comments
1.5 mL microcentrifuge tube	VWR	10810-070	container for seed sterilization
agarose	VWR	9012-36-6	chemical used to suspend seeds for ease of plating
<i>Arabidopsis thaliana</i> seeds (<i>abcb26</i>)	ABRC, ordered through TAIR www.arabidopsis.org	SALK_085232	arabidopsis seeds used as experimental group
<i>Arabidopsis thaliana</i> seeds (<i>plgg1-1</i>)	ABRC, ordered through TAIR www.arabidopsis.org	SALK_053469C	parental arabidopsis seeds
<i>Arabidopsis thaliana</i> seeds (WT)	ABRC, ordered through TAIR www.arabidopsis.org	Col-0	arabidopsis wild type seeds used as a control group
bleach	clorox	generic bleach	chemical used to sterilize seeds
Carbolime absorbent	Medline products	S232-104-001	CO ₂ absorbent
Closed FluorCam	Photon Systems Instruments	FC 800-C	Fluorescence imager
FluoroCam FC 800-C	Photon Systems Instruments	Closed FluorCam FC 800-C/1010-S	Fluorescence imager
FluoroCam7	Photon Systems Instruments	Closed FluorCam FC 800-C/1010-S	Fluorescence image analysis software
Gelzan (plant agar)	Phytotech labs	71010-52-1	chemical used to solidify MS media as plates
glass flask 1 L	Fisherbrand	FB5011000	container for making and autoclaving MS media
growth chamber	caron	7317-50-2	growth chamber used to grow plants
Murashige & Skoog Basal Medium with Vitamins & 1.0 g/L MES (MS)	Phytotech labs	M5531	growth media for arabidopsis seedlings
potassium Hydroxide (KOH)	Phytotech labs	1310-58-3	make as 1 M solution for ph adjustment
spider lights	Mean Well Enterprises	XLG-100-H-AB	lights used in the light assay
Square Petri Dish with Grid, sterile	Simport Scientific	D21016	used to hold MS media for arabidopsis seedlings
surgical tape	3M	1530-1	tape used to seal plates

tween 20	biorad	9005-64-5	surfactant used to assist seed sterilization
----------	--------	-----------	--