

Materials List for:

High-throughput Fluorometric Measurement of Potential Soil Extracellular Enzyme Activities

Colin W. Bell¹, Barbara E. Fricks¹, Jennifer D. Rocca¹, Jessica M. Steinweg², Shawna K. McMahon³, Matthew D. Wallenstein¹

¹Natural Resource Ecology Laboratory, Colorado State University

²Biosciences Division, Oak Ridge National Laboratory

³Department of Bioengineering, University of Colorado

Correspondence to: Matthew D. Wallenstein at matthew.wallenstein@colostate.edu

URL: <https://www.jove.com/video/50961>

DOI: [doi:10.3791/50961](https://doi.org/10.3791/50961)

Materials

Name	Company	Catalog Number	Comments
Reagents:			
4-Methylumbelliferyl α -D-glucopyranoside (AG)	Sigma Aldrich	M9766	Sugar degradation
4-Methylumbelliferyl β -D-glucopyranoside (BG)	Sigma Aldrich	M3633	Sugar degradation
4-Methylumbelliferyl β -D-cellobioside (CB)	Sigma Aldrich	M6018	Cellulose degradation
L-Leucine-7-amido-4-methylcoumarin hydrochloride (LAP)	Sigma Aldrich	L2145	Protein degradation
4-Methylumbelliferyl N-acetyl- β -D-glucosaminide (NAG)	Sigma Aldrich	M2133	Chitin degradation
4-Methylumbelliferyl phosphate (PHOS)	Sigma Aldrich	M8883	Phosphorus mineralization
4-Methylumbelliferyl- β -D-xylopyranoside (XYL)	Sigma Aldrich	M7008	Hemicellulose degradation
4-Methylumbelliferone (MUB)	Sigma Aldrich	M1381	
7-Amino-4-methylcoumarin (MUC)	Sigma Aldrich	A9891	
50 mM Sodium acetate anhydrous buffer	Fisher Scientific	S210-500	acidic and neutral soils
50 mM Tris base buffer	Fisher Scientific	BP154-1	basic soils
Equipment			
Bel-Art Scienceware disposable pipetting reservoirs	Fisher Scientific	14-512-65	pipetting reservoir
Electronic; Eppendorf Xplorer; 8-channel	Fisher Scientific	13-684-265	8-channel pipette, range: 50-1,200 μ l
TipOne 101-1,250 μ l extended length natural tips	USA Scientific	1112 - 1720	10 racks of 96 tips (960 tips)
Hotplate; heating surface: 10 in x 10 in.	Fisher Scientific	11-100-100SH	Lab disc magnetic stir plate
Waring blender	Fisher Scientific	14-509-7P	Two-speed; 1 L (34 oz) stainless steel container
BRAND Dispensette III bottle-top dispensers	Fisher Scientific	13-688-231	Dispenser; range: 5-50 ml
Wheaton Unispense μ P peristaltic pumps	Fisher Scientific	13-683-7	Optional dispenser
Fisherbrand magnetic stir bar	Fisher Scientific	1451363SIX	Used to stirr soil slurry afer blending

Pyrex glass bowls	World Kitchen	5304218	Pyrex 10 oz rimmed custard cup
Costar 96-well black solid plates	Fisher Scientific	07-200-590	Used for plate reader step
Costar 96-well assay blocks	Fisher Scientific	07-200-700	V-bottom; 2 ml; sterile
Thermo Scientific Nunc 96-well cap mats	Fisher Scientific	14-387-93	Sterile 96-well cap mat for square wells
Centrifuge equipped with holders for deep-well plates	Thermo Scientific	3121	Centra-GP8 (this model is no longer available)
Tecan Infinite 200 series multifunctional microplate reader	Tecan	30016058	Plate reader (this model is no longer available)