

Loess Soil-Water Medium Concentrate (Stock Solution) for use with RO/DI ONLY

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Abstract

Loess (decayed limestone) topsoil based soil and water media concentrate for use with RO/DI water. NOT for use with treated tap or spring water! Intended for use in filamentous algae, volvox and euglenoid culture.

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Guidelines

This protocol is for fabrication of a concentrated media stock. It should not be used 'straight' for growing organisms.

Note that this method utilizes locally available loess soil. Results vary with other types of soil.

This media requires an overnight cooling and settling period. It is best to start it in the afternoon, and finish it next morning.

Before start

Collect 5 to 10kg of loess soil. Break up any large lumps. Sift out roots and other large debris with a #8 sieve (0.93 in/2.362mm) USE A STAINLESS STEEL SEIVE! Copper and Brass sieves may contaminate the medium making it inhospitable to algae! Allow to air dry.

Protocol

Step 1.

Place approximately 1 liter, by volume, of the air dried, sifted soil in a 2 liter flask. (Save any extra soil, bagged, in the -20 freezer for later use.)

Step 2.

Add RO/DI water to the 2000mL mark on the flask.

Step 3.

On a hot plate in the fume hood, heat 2 liter flask until water temperature is 90C.

Step 4.

Maintain at 90C for 30 minutes. BEWARE of over boiling! it makes a potentially dangerous (burn/slip/fall hazard) mess that is difficult to clean up!

Step 5.

Remove from heat, and allow to cool and settle, covered with aluminum foil, overnight. Ensure proper labelling is used!

Step 6.

Once cooled and settled overnight, CAREFULLY decant the clear liquid from the flask into four (4) 200mL high speed centrifuge jars. Save any left over liquid for later! (Remaining soil sludge can be added to compost, returned outside, or thrown away.)

Step 7.

Centrifuge all four jars at 1000G for 30 minutes.

Step 8.

Carefully decant the yellowish, transparent liquid from the jars into a 0.80 micron Nalgene sterilization filter and vacuum filtrate. Use additional filters as needed. (Remaining sludge should be disposed of as described previously.)

Step 9.

Resulting yellowish transparent liquid (approx 500mL) is then autoclaved at 125C @ 20 PSI for 15 minutes in a 500mL media bottle.

Step 10.

Once cooled, sealed bottle may be stored, refrigerated, for 1 year shelf life. Ensure proper labeling and expiration date is on bottle.

Step 11.

Genrally speaking, 20mL of this concentrate is added to 980mL of RO/DI H2O to make 1L of Soil-Water Media.

Most suitable for filamentous algae and volvox. Addition of garden green pea concentrate allows euglenoid culture.

Step 12.

Record stock solution and expiration date in Quatzzy inventory under "Solutions". Vendor: BU Labs In House

Step 13.

Thoroughly rinse all soil particles from labware BEFORE placing in glassware washer!

Warnings

Wear your PPE! Boiling mud causes severe burns! Risk of spray and splatter! Gloves, Face shield and Lab Coat required! DO NOT leave heating mud unattended!