MSM Trace Element (TE) solution

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Abstract

Trace element solution for Mineral Salts Medium (MSM, see separate protocol "http://www.nature.com/protocolexchange/protocols/3809":http://www.nature.com/protocolexchange/protocols/3809). To be added when medium is not supplied with mineral. Add 1 ml of 100x Stock TE solution into 99 ml of MSM.

Reagents

Trace Element solution:

Ferric chloride hexahydrate, $FeCl_3$ x6H_2O

Copper sulfate pentahydrate, $CuSO_4$ x5H_2O

Boric acid, HBO_3

Manganese sulfate hydrate, $MnSO_4$ xH_2O

Sodium molybdate dihydrate, Na_2MoO_4 x2H_2O

Cobalt chloride hexahydrate, $CoCl_2$ x6H_2O

Zink sulfate heptahydrate, $ZnSO_4$ x7H_2O

Sodium selenate, Na_2SeO_4

General:

Sulfuric acid

Sodium hydroxide

Equipment

Stirring rods,

Magnetic stirrer,

Measuring colves,

pH meter

Procedure

For 100x Stock TE solution:

1100 mg/l $FeCl_3$ x6H_2O

50 mg/l $CuSO_4$ x5H_2O

200 mg/l HBO_3

200 mg/l $MnSO_4$ xH_2O

80 mg/l Na_2MoO_4 x2H_2O

60 mg/l $CoCl_2$ x6H_2O

90 mg/l $ZnSO_4$ x7H_2O

10 mg/l Na_2SeO_4

Add the constituents into a final volume of 1 liter of water (pH pre-adjusted to around 2.5), one at a time, dissolving before adding the next.
Adjust the pH to 1.5 with sulfuric acid (and/or sodium hydroxide)

-sterile filter

Timing

about 30 minutes

Troubleshooting

-TE solution should be clear and almost colorless. Strong coloration indicates too high pH.

-When encountering difficulties during dissolution of a reagent, try adding some more sulfuric acid.