Preparation of Dehydrated Culture Media

1. GENERAL PROCEDURE

1.1. Document receipt of new media containers, by selecting **Media/New Media Container(s)** from the menu in the Laboratory Information Management System (LIMS) Standard Preparation Tracker module. Fill out available fields and include Micro-QC_WS# in the comment section of Standard prep tracker. Print a label for each bottle that includes the received date and serial number. Place new containers on the storage shelf. After opening, write the open date on the container, and store it in the desiccator with the lid tightly closed. Discard any media that is past the expiration date listed on the bottle. Discard any media that is discolored, caked, or has been damaged by moisture. (Refer to Section 3 for instructions on discarding media.)

1.2. Perform all media preparations in the microbiology hood. Use sterile, clean glassware. If autoclaving, choose a flask with at least twice the volume being prepared. Use deionized water and measure with a Class A graduated cylinder. Use the Mettler MS303S balance (per SOP BB-035) located in the hood to weigh out dehydrated media. Use a magnetic stirrer and hotplate to mix and heat (if required) media before sterilization. Remove media from hot plate when foam thickness reaches approximately one inch to avoid burning or boil-over of media. Overheating can cause nutrient degradation.

1.3. Follow media container label instructions when preparing media. For more details on specific media, refer to the Difco™ & BBL™ Manual at X:\Labs\Lab5\Biology\BenchCommon\Methods & Library Files. For prepared media holding times see Table 5.1 (a summary of Table 9020: V from SM 9020). Table 5.2 summarizes media commonly used in the lab and includes typical amounts prepared.

1.4. Use autoclave tape and sterilize loosely covered media per container label instructions. Remove media from the autoclave as soon as the chamber pressure reaches zero to avoid overheating or burning the media. If using immediately (or when melting prepared agar), temper media in a water bath at 44-46 °C for a maximum of 3 hours before use. Document sterilization in **LIMS Laboratory/Technical/Laboratory Logbook** *Autoclave_Log*. Include date, items sterilized (Batch Number), sterilization time (Entry Value), thermometer's serial number (Data Source), analyst name (Entered By) and maximum pressure and sterilization temperature in the Comments box. (Choose "Maximum corrected temperature" if the temperature includes a correction factor). Record Micro-QC_WS# and total run time (use autoclave tape and select the appropriate comment) in Entry Comments.

1.5. Check the final pH of media and adjust as necessary. The media container label instructions include the required pH range. If a specific media is known to require adjustment, it can be pH adjusted before sterilization.

NOTE: The pH of media should be measured both before and after autoclaving. However, only the final pH (after autoclaving) should be recorded.

1.6. Document media preparation in LIMS **Laboratory/Technical/Standard Preparation Tracker**. Select **Group: BIO-MICRO** and then select **Media/Media Preparation** from the menu. Include container serial number, date prepared and date QC setup, prep and QC

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analyst, media name, format (agar, broth, etc.), final pH, boiled and/or autoclaved, amount of media added, total volume, balance ID, additional ingredients used (**Comments)**, Micro-QC_WS# (Comments), and serial numbers for QC bacteria. Print barcode labels for stored media and QC checks.

1.7. For membrane filtration (MF) agar, dispense the media into clean, sterile petri dishes in 4.5 mL aliquots, then allow the agar to cool and solidify. Once solidified, wrap the dishes in aluminum foil and store them in the refrigerator. For MF broth, store the media in dark amber bottles to minimize light exposure, and refrigerate. For milk dilution bottles and tubes, allow the media to cool, then securely tighten the caps and store them in the refrigerator. For EC Medium and Lauryl Tryptose Broth, dispense media into culture tubes with fermentation vials in 8mL aliquots. Attach a printed barcode label to each bag, bottle, or rack of media.

2. QUALITY CONTROL

2.1. Before each use of deionized water, calibrate meters and check pH and conductivity with the Oakton PC2700 pH and conductivity meter per SOP MB-03.5. Record in LIMS **Laboratory/Technical/Laboratory Logbook** *Lab_Water_QC_Log*.

2.2. Calibrate the Oakton PC2700 pH and conductivity meter before use per SOP MB-03.5 and document in the LIMS **Laboratory/Technical/Laboratory Logbook** *pH_Meter_Log*.

2.3. Check balance with NIST-traceable weights prior to use on each working day (per SOP BB-035). Use a high and low weight that brackets the working range. Document balance check in the *Mettler MS303S (micro lab) Daily Use Log.*

2.4. Perform QC on each new batch of media prepared per SOP MB-01.12.

3. SAFETY/HAZARDOUS WASTE MANAGEMENT

3.1. Empty media containers can be discarded in the regular trash.

3.2. Discard expired dehydrated media as hazardous waste. Refer to the Laboratory Waste Management Manual.

3.3. Always autoclave expired, unused or used prepared media for 45 minutes in a hazardous waste autoclave bag before discarding.

3.4. Refer to the Health and Safety Plan for safety equipment, use of laboratory hoods, and chemical storage policies.

3.5. Read MSDS information for reagent handling and disposal.

4. REFERENCES

4.1. SOP BB-036 Calibration, Use, and Maintenance of Mettler Toledo XA105DU Balance

4.2. SOP MB-03.5 Oakton PC2700 pH and Conductivity Meter

4.3. Standard Methods 9020B (2017) and 9050C (2017)

4.4. SOP MB-01.12, Media Quality Control

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4.5. Difco™ & BBL™ Manual X:\Labs\Lab5\Biology\BenchCommon\Methods & Library Files

4.6. Bureau Quality Manual https://floridadep.gov/dear/florida-dep-laboratory/content/dep-laboratory-quality-assurance-manual-and-sops

4.7. Laboratory Health and Safety Plan https://www.floridadep.net/resources/health-safety-manual

5. TABLES, DIAGRAMS

Table 5.1: Holding Times of prepared media

Media Type	**Holding time**
MF broth	96 hours
MF agar	2 weeks
Agar or broth in loose-cap tubes	2 weeks
Agar or broth in screw-cap tubes	3 months
Agar in milk dilution bottles	3 months

Table 5.2: Summary of commonly used media

Media Name	Media Abbrev	Difco Ref#	Total volume (mL)	Media Amount (g)	Boil?	Autoclave?	Autoclave in	Additional Ingredients	pH range
EC medium	EC	231420	350	12.95	N	Y	Culture tubes w/vial	-	6.9 ± 0.2
Plate Count Agar	PCA	247930	1000	23.5	Y	Y	Milk dilution bottle	-	7.0±0.2
Lauryl Tryptose Broth	LTB	224140	350	12.46	N	Y	Culture tubes w/vial	-	6.8 ± 0.2
mEndo broth MF	mEndo	274920	500	24	Y	N	Flask	10 mL of 190 proof Ethanol	7.2 ± 0.1
mEndo Agar	mEndoA	274920	1000	48	Y	N	Flask	20 mL of 190 proof Ethanol and 15 g of Agar (214010)	7.2 ± 0.1
mFC broth base	mFC	288330	500	18.5	Y	N	Flask	5mL of 1% solution of *Rosolic Acid in 0.2N NaOH	7.4 ± 0.2
mFC agar	mFCA	288320	1000	37	Y	N	Flask	15 g of Agar (214010) 10mL of 1% solution of *Rosolic Acid in 0.2N NaOH	7.4 ± 0.2
Tryptic Soy Agar	TSA	236940	1000	40	Y	Y	Milk dilution bottle	-	7.3 ± 0.2
Tryptic Soy Broth	TSB	211825	1000	30	N	Y	Milk dilution bottle	-	7.3 ± 0.2
double strength Tryptic Soy Broth	TSB 2X	211825	1000	60	N	Y	Milk dilution bottle	-	7.3 ± 0.2

*Dissolve 1 g of Rosolic acid in 100 mL of 0.2 N NaOH to prepare a 1% solution.

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Measure 100 mL of 0.2 N NaOH with a Class-A TD graduated cylinder. Take a small aliquot out of the cylinder and pour it into a small cup before transferring the remaining volume to an amber flask. Open a vial of Rosolic Acid (located in the Micro refrigerator) and carefully pour the solid powder into the amber flask. Place a stir bar and swirl gently to homogenize the rosolic acid solution. Using a plastic transfer pipette, rinse the small vial thoroughly with the NaOH that was set aside and empty it into the amber flask. Stir for at least 10 mins, or when the powder has fully dissolved before adding it to the mFC media. Do not add the Rosolic Acid when the mFC has already boiled. Shelf life for 1% Rosolic acid is 7 days from the day it's been made. Do not use Rosolic Acid for mFC media after it has exceeded its shelf life.

APPENDIX OF CHANGES

08/13/2010	Updated to new version of Health and Safety Plan
05/30/2012	Updated hyperlink to lab quality manual.
05/14/2013	Updated to reflect new balance model.
05/13/2014	Removed SOP for pH meter no longer in use. Updated SOP reference for balance MS303S
01/28/2015	Formatted for 508 compliance.
10/13/2017	Updated links and Prep Worksheet Manager instructions
04/26/2019	Edited Table 5.2 to reflect media currently in use.
04/23/2020	Edited Table 5.2 to include new media currently in use
02/02/2021	Edited Table 5.2 to reflect media currently in use. Included steps on how to prepare 1% Rosolic Acid. Updated to reflect Micro-QC_WS as well as taking the final pH.
01/28/2022	Corrected links to the Difco™ & BBL™ Manuals in BenchCommon/Methods. Updated link to Bureau Quality Manual.
02/17/2022	Updated pH and conductivity meter to the Oakton PC2700. Removed references to the old pH and conductivity meters. Updated the SOP numbers.
03/15/2022	Edited section 2.4 to remove calibration of media dispensing pipette, updated link to the Difco™ & BBL™ Manual, updated section 1.4 to reflect current procedures and updated table 5.2.
03/10/2023	Edited any reference to a 6-month expiration date to instead use the date listed on the bottle. Updated reference links.
02/28/2024	Edited Table 5.2 to reflect media currently in use. Updated Section 3 to better express current hazardous waste management practices. Updated references section to most up-to-date versions and clarified the procedure to make Rosolic Acid.
03/21/2025	Revised Section 1.7 to exclude agar tubes, as they are not part of the current lab procedures, and improved clarity throughout the SOP to ensure the procedures are consistent with the current laboratory practices.

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03/26/2026 Removed outdated Difco Ref# from Table 5.2; Edited section 1.7 to update mFC and include dispensing instructions for EC and TSB media. Specified in section 1.2 when to remove media from hot plate. Updated section 4 to include the current balance SOP.

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