XANTHINE AGAR

INTENDED USE
Remel Xanthine Agar is a solid medium recommended for use in qualitative procedures to differentiate aerobic actinomycetes on the basis of xanthine hydrolysis.

SUMMARY AND EXPLANATION
The aerobic actinomycetes are a heterogeneous group of genera and include species of *Nocardia* and *Streptomyces*. As a group, the organisms are gram-positive, catalase-positive, and may be presumptively identified by staining properties, microscopic morphology, and substrate degradation. Mishra et al. developed a taxonomic scheme for these genera on the basis of biochemical characteristics. A simplified scheme for identification of the most commonly isolated actinomycetes was developed by McGinnis et al. and includes the following tests: xanthine, hypoxanthine, casein, and tyrosine.

PRINCIPLE
Beef extract, when combined with peptone, supplies carbohydrates, vitamins, nitrogen compounds, and salts necessary for growth of aerobic actinomycetes. Peptone also provides nutrients in the form of amino acids and peptides. This medium detects the presence of a hydrolytic enzyme that degrades xanthine, resulting in a clearing of the medium surrounding and beneath areas of growth.

REAGENTS (CLASSICAL FORMULA)*

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptone</td>
<td>5.0 g</td>
</tr>
<tr>
<td>Xanthine</td>
<td>4.0 g</td>
</tr>
<tr>
<td>Beef Extract</td>
<td>3.0 g</td>
</tr>
<tr>
<td>Agar</td>
<td>15.0 g</td>
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<tr>
<td>Demineralized Water</td>
<td>1000.0 ml</td>
</tr>
</tbody>
</table>

pH 7.0 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PROCEDURE
1. Melt the pour tube in a boiling water bath and cool to 45-50°C.
2. Mix and dispense into a sterile petri dish. Allow the agar to harden and cool.
3. Heavily inoculate a 10 mm area of the Xanthine Agar surface with a pure culture of the test isolate.
4. Seal plate with cellophane tape, Shrink-Seals (REF R522600), or gas permeable strip.
5. Incubate aerobically at 25-30°C for up to 3 weeks.
6. Evaluate plate weekly for clearing (hydrolysis) around or directly beneath the colony indicating a positive reaction. Plate should be incubated for a full 3 weeks before concluding the reaction is negative.
7. A duplicate set of media may be inoculated and incubated at 35-37°C. Occasionally test results become positive more rapidly at 35-37°C.

INTERPRETATION OF THE TEST
Positive Test - Clearing of xanthine around and/or under growth (hydrolysis)
Negative Test - Growth with no clearing of the medium

QUALITY CONTROL
All lot numbers of Xanthine Agar have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

CONTROL
- *Streptomyces albus* ATCC® 17900
- *Nocardia asteroides* ATCC® 19247
- *Nocardia brasiliensis* ATCC® 19297

INCUBATION
- Aerobic, 2 weeks @ 25-30°C

RESULTS
- Positive
- Negative

BIBLIOGRAPHY

Refer to the front of Remel Technical Manual of Microbiological Media for General Information regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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