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Do aerobes and anaerobes really thrive in the same container?

Yes — although obligate aerobes generally require air to grow well while anaerobes (such as clostridia and Bacteroides) find air toxic and are unable to multiply in its presence, both types have been shown to thrive in the same culture bottle if the "total environment" is favorable.

A study revealed that Clostridium perfringens or Bacteroides spp., which failed to grow in thoglycolate medium in an atmosphere of CO₂ and air, grew in Tryptic Soy Broth (TSB) under the same conditions. It was obvious that TSB plus the combination of a favorable surface-volume ratio and unrelieved vacuum provided an agreeable environment for the recovery of anaerobes in the first 24 hours. The study demonstrated that aerobes and anaerobes can really thrive in the same container. The LIQUIOD M. BCB-Roche (containing Tryptic Soy Broth with 0.05 per cent sodium polyanethol sulfonate — SPS) provides this ideal "total environment."

What is the history of SPS?

The usefulness of SPS (Hoffmann-La Roche's LIQUIOD) was first recognized as an adjuvant to blood culturing in 1938. At that time, von Haebler and Miles observed its superiority as a heat-stable, nontoxic anticoagulant. This was later confirmed in a study which demonstrated that both aerobic and anaerobic bacteria survived longer when LIQUIOD (SPS) was added to the blood culture. In 1968, investigators compared the effects of various anticoagulants on bacterial growth in blood cultures. LIQUIOD was shown to be the most effective agent for inhibiting bactericidal activity of blood and the least toxic to the organisms involved.

Current experiences continue to substantiate these observations. The LIQUIOD BCB-Roche permits microorganisms to grow faster and, therefore, a high percentage of positive cultures are seen sooner. Good results are obtainable using only 5 ml of the patient's blood.
Does a concentration of 0.05 per cent LIQUOID offer better anticoagulation and antiphagocytic action than do lower concentrations?

In vitro studies on Enterobacteriaceae revealed that fresh serum, even at concentrations as low as 10 and 20 per cent, was so rapidly bactericidal that it killed an impressive number of serum-susceptible pathogens in minutes. Because of this, the speed with which an anticoagulant/bactericidal antagonist works is of greatest importance in blood culturing — particularly when few organisms are present. LIQUOID, while generally effective at a concentration of 0.025 per cent, at the higher concentration of 0.05 per cent was found to provide the more rapid neutralizing action needed to assure more positive cultures. At this strength, LIQUOID provided immediate inhibition of phagocytosis as well as neutralization of the bactericidal effects of serum. In the same study, LIQUOID at 0.05 per cent ensured prompt recovery of serum-sensitive coliform pathogens even when present in small numbers.

Is TSB the medium of choice?

TSB is widely recognized as the "universal" culture medium for many organisms. Composed of pancreatic digest of casein and soybean peptone, it is excellent for the rapid growth of even fastidious bacteria without the need for further enrichment.

When LIQUOID is added to TSB, it provides a choice environment for promoting better and faster bacterial growth — and yields more positives sooner. When blood is present, the combination is remarkably effective in enhancing bacterial growth by virtue of its nutritive, anticomplementary and antiphagocytic properties.

Can you really isolate 80 per cent of the gram-positive organisms?

In an extensive study where there was little problem in recovering gram-negative bacilli from various test systems, the recovery of gram-positive cocci proved difficult. However, upon the addition of LIQUOID to the culture medium, 80 per cent of gram-positive organisms were detected in the first 24 hours as compared to 50 per cent for the citrated or plain thioglycolate media. In a similar study, LIQUOID not only enhanced the recovery of such gram-negatives as E. coli and S. typhi, but also prevented the delay in growth of gram-positive pathogens, such as Strep. mitis, Strep. pyogenes and Staph. aureus.

Is incubation time shortened by 7 days?

Speed is essential in life-threatening bacteremias. However, isolation of the offending organism may be delayed or prevented if an anticoagulant/bactericidal antagonist is not used or if the one that is used is toxic to many pathogens. Thus it becomes urgent that natural bacterial inhibitors, such as antibiotics, complement, β-lactam and phagocytes, as well as antibiotics, are overcome quickly and bacterial growth is promoted. LIQUOID in TSB does this.

Use of the LIQUOID BCB-Roche permits the clinical bacteriologist to pick up more positives sooner, thus avoiding the usual 14 to 21 days of incubation. LIQUOID can actually shorten incubation time by as much as 7 days by promoting better and more rapid growth. One study reported that the incubation time for Proteus mirabilis was shortened by 9 days when compared to a similar medium without LIQUOID.

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<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amber Laboratories</td>
<td>12</td>
</tr>
<tr>
<td>*American Optical Co.</td>
<td>1</td>
</tr>
<tr>
<td>*Analytab Products, Inc.</td>
<td>Cover 3</td>
</tr>
<tr>
<td>*BioQuest, Division of Becton, Dickinson &amp; Co.</td>
<td>6, 7</td>
</tr>
<tr>
<td>CalBiochem Corp.</td>
<td>13</td>
</tr>
<tr>
<td>Clinical Sciences, Inc.</td>
<td>22</td>
</tr>
<tr>
<td>*Coulter Electronics, Inc.</td>
<td>15</td>
</tr>
<tr>
<td>*Difco Laboratories</td>
<td>Cover 4</td>
</tr>
<tr>
<td>*Lederle Laboratories</td>
<td>17, 18</td>
</tr>
<tr>
<td>*E. Leitz, Inc.</td>
<td>20</td>
</tr>
<tr>
<td>*North American Biological Products, Inc.</td>
<td>Cover 2</td>
</tr>
<tr>
<td>*Roche Diagnostics</td>
<td>10, 11</td>
</tr>
<tr>
<td>C. C. Thomas, Publisher</td>
<td>14</td>
</tr>
<tr>
<td>Traders Protein Division of Traders Oil Mill Company</td>
<td>8</td>
</tr>
<tr>
<td>*Weaco, Inc.</td>
<td>19</td>
</tr>
<tr>
<td>*Sustaining Member, American Society for Microbiology.</td>
<td></td>
</tr>
</tbody>
</table>
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<thead>
<tr>
<th>Constituent</th>
<th>Concentration</th>
<th>Product No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Package</th>
<th>Price** Per Package</th>
</tr>
</thead>
<tbody>
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<td>NZ-Amine Type A (Sheffield)</td>
<td>2.0%</td>
<td>2424-75</td>
<td>Blood Culture Bottle-SPS</td>
<td>one</td>
<td>12-50 ml.</td>
<td>18.00</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>0.2%</td>
<td></td>
<td></td>
<td>three</td>
<td>12-50 ml.</td>
<td>15.00</td>
</tr>
<tr>
<td>Dextrose</td>
<td>0.1%</td>
<td></td>
<td></td>
<td>six</td>
<td>12-50 ml.</td>
<td>12.00</td>
</tr>
<tr>
<td>Para-aminobenzoic acid</td>
<td>0.005%</td>
<td></td>
<td></td>
<td>twelve</td>
<td>12-50 ml.</td>
<td>11.40</td>
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<tr>
<td>Dibasic sodium phosphate</td>
<td>0.2%</td>
<td></td>
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<td></td>
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<tr>
<td>Sodium polyanethol sulfonate (SPS)</td>
<td>0.03%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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