With the decrease in reported MRSA prevalence, the need for highly specific MRSA detection methods that are rapid, reliable and cost-effective is therefore important to clinical laboratories.

Products such as Oxoid Brilliance™ MRSA 2 Agar are invaluable tools for detecting MRSA from clinical samples in less than 24 hr. Rapid identification of MRSA from Brilliance MRSA 2 Agar allows infection control procedures to be adopted earlier, thus improving treatment outcomes and the effectiveness of infection control measures.

The Study

Two thousand, one hundred and ninety nine (2199) samples taken from a wide range of patient sites (including nasal, axilla and wound swabs, sputum and urine) were incorporated in the study. All swab samples were emulsified in sterile saline prior to inoculation; sputum and urine samples were directly inoculated. All samples were streaked onto Brilliance MRSA 2 Agar, chromID MRSA Agar and MRSA Select Agar using a 10µL loop. All plates were incubated in ambient air at 37±1˚C for 18–24 hr. Presumptive MRSA colonies on any of the three agar plates were confirmed using routine laboratory tests. Brilliance MRSA 2 Agar outperformed both chromID MRSA Agar and MRSASelect Agar.

Table 1. Performance of three chromogenic MRSA agars

<table>
<thead>
<tr>
<th>Performance measure</th>
<th>Brilliance MRSA 2 Agar</th>
<th>chromID MRSA Agar</th>
<th>MRSASelect Agar</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP</td>
<td>44</td>
<td>35</td>
<td>39</td>
</tr>
<tr>
<td>TN</td>
<td>2149</td>
<td>2145</td>
<td>2148</td>
</tr>
<tr>
<td>FP</td>
<td>0</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>FN</td>
<td>6</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Sensitivity (%)</td>
<td>88 (95% CI 86.6-84.4)</td>
<td>74.5 (95% CI 72.7-78.3)</td>
<td>76.6 (95% CI 77.0-81.3)</td>
</tr>
<tr>
<td>Specificity (%)</td>
<td>99.7 (95% CI 99.5-99.9)</td>
<td>99.9 (95% CI 99.8-100)</td>
<td>99.1</td>
</tr>
<tr>
<td>PPV (%)</td>
<td>100</td>
<td>83.3</td>
<td>95.1</td>
</tr>
<tr>
<td>NPV (%)</td>
<td>99.7 (95% CI 99.5-99.9)</td>
<td>99.4 (95% CI 99.1-99.7)</td>
<td>99.5 (95% CI 99.2-99.8)</td>
</tr>
</tbody>
</table>

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Brillance MRSA 2 Agar isolated a greater number of MRSA than the two other media. Brillance MRSA 2 Agar was the only plate that generated no false-positive results. The number of false-negative results (i.e. MRSA isolates that were not detected by the chromogenic agar) on Brillance MRSA 2 Agar was also lower than on chromID MRSA Agar and MRSASelect Agar.

Conclusion

The reduction in reported MRSA prevalence highlights the need for a reliable negative screening method with a high specificity and NPV. Brillance MRSA 2 Agar showed excellent specificity and NPV while retaining the highest sensitivity of all the products tested.

The Microbiology department at Princess Royal Hospital found Brillance MRSA 2 Agar outperformed both chromID MRSA Agar and MRSASelect Agar. Brillance MRSA 2 Agar proved to be a highly sensitive and specific agar plate for isolation and detection of MRSA from clinical samples, detecting more MRSA and giving fewer false-positive results than any of the other products. The distinctive, blue MRSA colonies observed in under 24 hr. (figure 2) on Brillance MRSA 2 Agar made the plate straightforward to interpret and facilitated isolation of colonies for further confirmatory tests.

References


Oxoid and Remel are specialty microbiology brands of Thermo Fisher Scientific. Our products are available worldwide.

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