COMPASS SALMONELLA AGAR

INTENDED USE

COMPASS Salmonella Agar is a selective medium used for the isolation, differentiation and enumeration of all Salmonella. COMPASS Salmonella Agar is also used in the context of the rapid alternative method for the detection of Salmonella (SESAME Salmonella Test), in human and animal food products as well as environmental samples (with the exception of animal production): it is officially certified by NF VALIDATION, under the reference number BKR 23/04-12/07, of which the validity runs until December 4th, 2015.

HISTORY

At the beginning of the 1990’s, several authors demonstrated that the majority of Salmonella strains of all species and serotypes were capable of cleaving esters of 7 to 10 carbon atom fatty acids. The esterase, particularly active on caprylate derivatives, was detected through the use of synthetic fluorogenic and chromogenic substrates. However, their hydrophobic nature prevented incorporation into agar media. As a result, droplet testing for fluorescence was applied to colonies on isolation media: Hektoen, SS, XLD, etc. In 1997, a new culture medium formulation was devised to incorporate hydrophobic chromogenic substrates into aqueous media in such a way as to obtain homogeneous and stable agar media, therefore enabling direct detection of Salmonella esterase on culture media. Other bacteria lacking esterase and/or possessing a β-glucosidase enzyme were detected with a second chromogenic substrate are thus distinguishable from Salmonella.

PRINCIPLES

- COMPASS Salmonella Agar combines two chromogenic substrates in order to detect two enzyme activities:
  - 5-bromo-6-chloro-3-indolyl-caprylate (Magenta-caprylate) allows the revelation of the esterase enzyme. Produced by Salmonella, this enzyme leads to the formation of a red-magenta precipitate within the colony.
  - 5-bromo-4-chloro-3-indolyl-β-D-glucopyranoside (X-glucoside) is also used for which the cleavage product is a blue precipitate.

- Simultaneous detection of both activities allows for a coloration of Salmonella in distinct contrast to that of other bacteria. Studies have demonstrated the enhanced specificity for Salmonella detection using this method, including atypical serotypes which can cause confusion on other media. The detection of Salmonella Typhi and Paratyphi, lactose positive Salmonella (S. Seftenberg and sub-species arizonae and diariizoenae), sucrose positive and non-motile serotypes (S. Pullorum and Gallinarum) is assured with this medium.
- Selective agents inhibit Gram-positive and several Gram-negative species.
- The nutrient base favors the recovery and growth of Salmonella.
INSTRUCTIONS FOR USE
- Surface inoculate by streaking from a selective enrichment medium used for the detection of *Salmonella*.
- Incubate at (37 ± 1)°C for (24 ± 3) hours.

In the context of the validated SESAME *Salmonella* Test method, with a loop inoculate by streaking a fraction of the culture in the outer periphery of the migration zone obtained on SESAME *Salmonella* Detection onto the surface of COMPASS *Salmonella* Agar. Incubate at (37 ± 1)°C for (24 ± 3) hours.

RESULTS / INTERPRETATION

The colonies have the following appearance:

<table>
<thead>
<tr>
<th>Microorganisms</th>
<th>Colony characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salmonella</em> spp. (including S. Typhi, Paratyphi, lactose-positive, sucrose-positive)</td>
<td>magenta</td>
</tr>
<tr>
<td><em>Escherichia coli</em></td>
<td>uncolored</td>
</tr>
<tr>
<td><em>Enterobacter</em> spp., <em>Klebsiella</em> spp.</td>
<td>blue-green</td>
</tr>
<tr>
<td><em>Proteus</em> spp.</td>
<td>uncolored to brownish</td>
</tr>
<tr>
<td><em>Pseudomonas</em> spp. and other Gram positive bacteria</td>
<td>inhibited</td>
</tr>
</tbody>
</table>

NOTE:

Rare strains of *Enterobacter* can express an esterase activity and produce magenta colonies. Rare strains of *Pseudomonas* are also capable of growth, producing similar magenta colonies to *Salmonella*. These former colonies can be easily differentiated from *Salmonella* using an oxidase test. Certain strains of servovars Dublin & Atento, as well as some from the subspecies *S. houtenae*, *S. bongori* & *S. diarizonae*, can present a weak to nil magenta pigmentation, resulting from the weak esterase activity that characterizes these strains.

TYPICAL COMPOSITION
(can be adjusted to obtain optimal performance)

For 1 liter of medium:
- Peptone .............................................................................................................. 10.00 g
- Sodium chloride ........................................................... 5.00 g
- Phosphate buffer ......................................................................................... 7.00 g
- Inhibitory agents ......................................................................................... 9.00 g
- Chromogenic mixture ............................................................................... 1.40 g
- Bacteriological agar .................................................................................. 15.00 g

pH of the ready-to-use medium at 25°C : 7.0 ± 0.2.
QUALITY CONTROL

- Prepared medium in plates (complete) : amber agar.
- Typical culture response after 24 hours of incubation at 37°C :

<table>
<thead>
<tr>
<th>Microorganisms</th>
<th>Growth</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salmonella Typhimurium</em></td>
<td>good, score 2</td>
<td>magenta</td>
</tr>
<tr>
<td>ATCC® 14028</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Salmonella Enteritidis</em></td>
<td>good, score 2</td>
<td>magenta</td>
</tr>
<tr>
<td>CIP 82.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Enterobacter aerogenes</em></td>
<td>good, score 2</td>
<td>blue</td>
</tr>
<tr>
<td>ATCC 13048</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Escherichia coli</em></td>
<td>good, score 2</td>
<td>colorless</td>
</tr>
<tr>
<td>ATCC 25922</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Pseudomonas aeruginosa</em></td>
<td>inhibited, score 0</td>
<td>colorless</td>
</tr>
<tr>
<td>ATCC 10145</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em></td>
<td>inhibited, score 0</td>
<td>colorless</td>
</tr>
<tr>
<td>ATCC 25923</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STORAGE / SHELF LIFE

Complete media in ready-to-use Petri dishes :
- Store between 2 - 8°C, shielded from light.
- The expiration date is indicated on the label.

PACKAGING

Complete media in Petri dishes (Ø 90 mm) :
- 20 plates BM06608
PHOTO SUPPORT :

Product reference : BM06608

Media used for : Isolation and differentiation of *Salmonella*.

**COMPASS Salmonella Agar**

Ref : BM06608

Incubation 24 hours at 37°C (surface)

Characteristic *Salmonella* : magenta colony (C8-esterase positive)
Other bacteria : blue or uncoloured colonies (C8-esterase negative)
BIBLIOGRAPHY


The information provided on the package take precedence over the formulations or instructions described in this document.

The information and specifications contained in this technical data sheet date from 2011-10-13.

They are susceptible to modification at any time, without warning.


BKR 23/04-12/07
ALTERNATIVE ANALYTICAL METHODS FOR AGRBUSINESS
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