



## 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 4<sup>th</sup>, 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  $\beta$ -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- $\beta$ -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 *diarizonae*), 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  $(37 \pm 1)^\circ\text{C}$  for  $(24 \pm 3)$  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  $(37 \pm 1)^\circ\text{C}$  for  $(24 \pm 3)$  hours.

## **RESULTS / INTERPRETATION**

The colonies have the following appearance :

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

### **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  $25^\circ\text{C}$  :  $7.0 \pm 0.2$ .

## QUALITY CONTROL

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

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

## 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

Code

### **Complete media in Petri dishes (Ø 90 mm) :**

- 20 plates

BM06608

**PHOTO SUPPORT :**

**Product reference :** BM06608



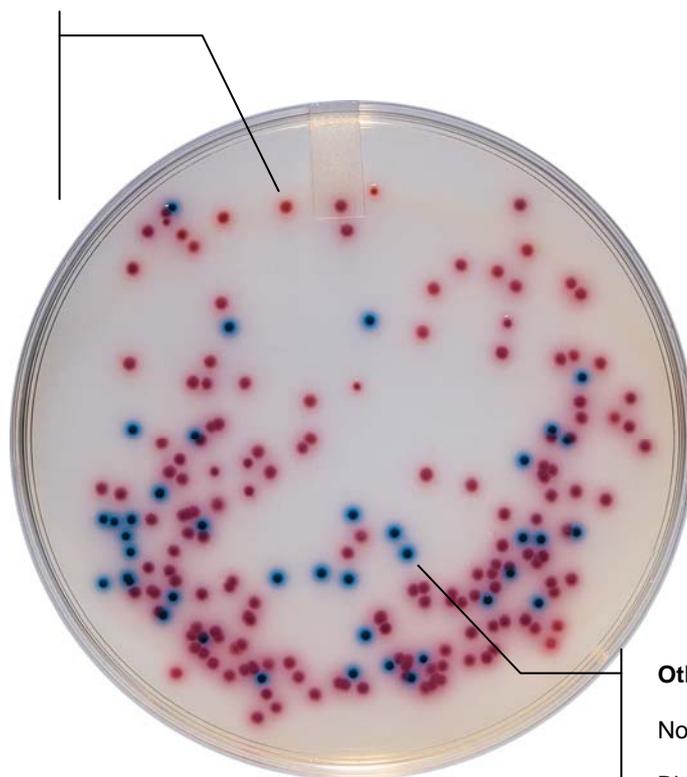
**Media used for :** Isolation and differentiation of *Salmonella*.

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***Salmonella***

Characteristic colony

Magenta colour



**Other bacteria**

Non-characteristic colony

Blue colour

**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)

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Code document : BM066/A/2003-03 : 8.