

## 07410 Carbohydrate Consumption Broth

Carbohydrate consumption broth is recommended for cultivation and differentiation of *Listeria* species.

### Composition:

Ingredients	Grams/Litre
Proteose peptone	10.0
Sodium chloride	5.0
Beef extract	1.0
Bromo cresol purpur	0.1
Final pH 6.8 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Greenish yellow coloured, homogeneous, free flowing powder.  
 Colour and Clarity: Purple coloured, clear solution without any precipitate.

### Directions:

Suspend 16.1 g in 990 ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 121°C for 15 min. After cooling to 45-50°C aseptically add to 9 part base medium 1 part sterilized 5% carbohydrate solution to give a final concentration of 0.5 %. Mix well and dispense in sterile test tubes with inverted Durham tubes.

### Principle and Interpretation:

Carbohydrate Consumption Broth is used for the cultivation and differentiation of *Listeria* species (1). It has slightly different concentration of Bromo Cresol Purple than recommended by FDA (2) and ISO Committee (3). Differentiation is based on fermentation of glucose, mannitol, D-xylose, ribose, methyl  $\alpha$ -D-mannopyranoside (MMP) and L-rhamnose. Further biochemical determinations can be made with the haemolysis ability of erythrocytes on the Blood Agar (70133, 39212). In the CAMP-Test some *Listeria* species shows the ability to enhance the haemolysis of *Staphylococcus aureus*. Proteose peptone and beef extract act as sources of nitrogen and other essential growth nutrients. Sodium chloride maintains the osmotic balance of the media. When the carbohydrate can be fermented by the organism the pH indicator bromocresol purple change the colour from purple to yellow, due to the acid production.

Cultural characteristics after 18-48 hours at 35-37°C.

Organisms (ATCC)	Growth	0.5 % L-Rhamnose		0.5% D-Xylose	0.5% Mannitol	0.5% MMP
		Acid	Gas			
<i>Listeria monocytogenes</i> (19118)	+++	+	-	-	-	+
<i>Listeria seeligeri</i> (35967)	+++	-	-	+	-	-
<i>Listeria innocua</i> (33090)	+++	variable	-	-	+	+
<i>Listeria ivanovii</i> (19119)	+++	-	-	+	-	-
<i>Listeria welshimeri</i> (35897)	+++	variable	-	+	-	+
<i>Escherichia coli</i> (25922)	+++	+	+	+	+	-
<i>Staphylococcus aureus</i> (25923)	+++	-	-	-	+	-



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## References:

1. R.M. Atlas, Handbook of Microbiological Media, 3<sup>rd</sup> Edition, CRC Press (2004)
2. Bacteriological Analytical Manual, 8<sup>th</sup> Edition, FDA, Published by AOAC International, USA (1995)
3. International Organisation for the Standardisation (ISO), Microbiology of the food chain -- Horizontal method for the detection and enumeration of *Listeria monocytogenes* and of *Listeria* spp. -- Part 1: Detection method, ISO 11290-1:2017
4. International Organisation for the Standardisation (ISO), Microbiology of the food chain -- Horizontal method for the detection and enumeration of *Listeria monocytogenes* and of *Listeria* spp. -- Part 2: Enumeration method, ISO 11290-2:2017

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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