



Gassner Lactose Agar

M1022

Gassner Lactose Agar is used for detection and isolation of pathogenic *Enterobacteriaceae* from foodstuffs and other materials.

Composition**

Ingredients	Gms / Litre
Meat peptone	7.000
Sodium chloride	5.000
Lactose	50.000
Metachrome yellow	1.250
Water blue	0.625
Agar	13.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 76.87 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Gram-negative bacilli belonging to *Enterobacteriaceae* are widely dispersed in nature and have been frequently isolated from clinical specimens. The genera in *Enterobacteriaceae* include pathogens such as *Salmonella*, *Shigella*, *Yersinia*, diarrheogenic *E.coli* and others. Definitive identification of members of *Enterobacteriaceae* may require a battery of biochemical tests. Differentiation of the *Enterobacteriaceae* however is based primarily on the presence or absence of different enzymes coded by the genetic material possessed. These enzymes direct the metabolism of bacteria along one of several pathways that can be detected in vitro. Substrates on which these enzymes can react are incorporated into the culture medium together with an indicator that can detect either utilization of the substrate or the formation of specific metabolic products.

Gassner Lactose Agar was originally developed by Gassner for the detection and isolation of pathogenic *Enterobacteriaceae* from food and other materials (1). This medium has been prescribed in the regulations for the execution of the German Meat Inspection Law (Deutsches Fleischbeschaugesetz) (2).

This medium is also known as Water-blue Metachrome-Yellow Lactose Agar. Metachrome-yellow primarily inhibits gram-positive microorganisms present in the food materials. Lactose fermenters produce acid, indicated by the water blue indicator, which turns blue in acidic range and colourless in the alkaline range. Original colour of the prepared medium is green, but in the acidic pH it becomes blue-green to blue while in the alkaline conditions the yellow colour of metachrome yellow becomes increasingly apparent. Medium ingredients like meat peptone provide essential nutrients and sodium chloride maintains osmotic balance respectively.

Quality Control

Appearance

Light yellow to green homogeneous free flowing powder

Gelling

Firm, comparable with 1.3% Agar gel.

Colour and Clarity of prepared medium

Dark green coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 7.69% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

M1022: Cultural characteristics observed after an incubation at 35-37°C for 18 - 48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony	Colour change of medium
Cultural Response					
<i>Enterococcus faecalis</i> ATCC 29212	>=10 ³	inhibited	0%		
<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	>=50%	dark green	blue
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	good-luxuriant	>=50%	mucoïd green	blue
<i>Proteus mirabilis</i> ATCC 25933	50-100	good-luxuriant	>=50%	yellowish green	yellow
<i>Salmonella Typhi</i> ATCC 6539	50-100	good-luxuriant	>=50%	yellow	yellow
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	>=50%	yellow	yellow
<i>Salmonella Enteritidis</i> ATCC 13076	50-100	good-luxuriant	>=50%	yellow	yellow
<i>Shigella flexneri</i> ATCC 12022	50-100	good-luxuriant	>=50%	yellow	yellow
<i>Staphylococcus aureus</i> ATCC 25923	>=10 ³	inhibited	0%		

Storage and Shelf Life

Store below 30°C in tightly closed container and prepared medium at 2-8°C. Use before expiry period on the label.

Reference

1.Gassner G., 1918, Centralbl. F. Bakt. I. Orig., 80:219-222. 2.Deutsches Fleischbeschaugesetz: Anlage 1 zu § 20 Abs. 4: Vorschriften über die bakteriologische Fleischuntersuchung.

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