Gassner Lactose Agar

M1022

Intended Use:

Recommended for detection and isolation of pathogenic *Enterobacteriaceae* from food stuffs and other materials.

Composition**

Ingredients	Gms / Litre
HM 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
Equivalent to Meat peptone

Directions

Suspend 76.87 grams in 1000 ml purified / 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.

Type of specimen

Food samples; Water samples

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,7,8).
For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(2)
After use, contaminated materials must be sterilized by autoclaving before discarding.

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
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
Enterococcus faecalis ATCC 29212	>=10^4	inhibited	0%		
Escherichia coli ATCC 25922	50-100	good-luxuriant	>=50%	dark green	blue
Klebsiella pneumoniae ATCC 13883	50-100	good-luxuriant	>=50%	mucoid green	blue
Proteus mirabilis ATCC 25933	50-100	good-luxuriant	>=50%	yellowish green	yellow
Salmonella Typhi ATCC 6539	50-100	good-luxuriant	>=50%	yellow	yellow
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	>=50%	yellow	yellow
Salmonella Enteritidis ATCC 13076	50-100	good-luxuriant	>=50%	yellow	yellow
Shigella flexneri ATCC 12022	50-100	good-luxuriant	>=50%	yellow	yellow
Staphylococcus aureus ATCC 25923	>=10^4	inhibited	0%		

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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