

48716 Gassner Agar NutriSelect® Basic

Selective agar for the detection and isolation of pathogenic Enterobacteriaceae in food and other material according to Gassner.

Composition:

Ingredients	Grams/Litre
Peptone	14.0
Sodium chloride	5.0
Lactose	43.0
Water blue	0.62
Metachrome yellow	1.25
Agar	13.0

Final pH 7.2 +/- 0.2 at 25°C

Store dehydrated powder between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Protect from moisture and light by keeping container in a low humidity environment. Use before expiry date on the label.

Appearance(color): Faint yellow and faint beige and faint brown, free flowing powder
 Gelling: Firm, comparable with 1.3% Agar gel.
 Color and Clarity: Dark green coloured, clear to slightly opalescent gel forms in Petri plates.

Directions:

Dissolve 76.87 g in 1 litre distilled water. Autoclave at 121°C for 15 minutes.

Principle and Interpretation:

Gram-negative bacilli belonging to Enterobacteriaceae are widely dispersed in nature and have been frequently isolated from clinical specimens. Enterobacteriaceae are a large family of Gram-negative bacteria that includes several pathogens such as *Klebsiella*, *Enterobacter*, *Citrobacter*, *Salmonella*, *Escherichia coli*, *Shigella*, *Proteus*, *Serratia* and other species. Definitive identification of members of Enterobacteriaceae may require a series 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 which inhibits the Gram-positive accompanying flora present in the food materials. Lactose-digesting microorganisms such as *Escherichia coli* or *Klebsiella* species produce acid, indicated by the water blue indicator, which turns blue in acidic range and colorless in the alkaline range. Original color of the prepared medium is green, but in the acidic pH it becomes blue-green to blue while in the alkaline



conditions the yellow color of metachrome yellow becomes increasingly apparent. Medium ingredients like peptone provide essential nutrients and sodium chloride maintains osmotic balance respectively.

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

Organisms (ATCC/WDCM)	Inoculum (CFU)	Growth	Recovery	Color of Colony	Colour change of medium
<i>Enterococcus faecalis</i> (29212/00087)	$\geq 10^4$	-	0%		
<i>Escherichia coli</i> (25922/00013)	50-100	++/+++	$\geq 50\%$	dark green	blue
<i>Klebsiella pneumoniae</i> (13883/00097)	50-100	++/+++	$\geq 50\%$	mucoid green	blue
<i>Proteus mirabilis</i> (25933/-)	50-100	++/+++	$\geq 50\%$	yellowish green	yellow
<i>Salmonella Typhi</i> (6539/-)	50-100	++/+++	$\geq 50\%$	yellow	yellow
<i>Salmonella Typhimurium</i> (14028/00031)	50-100	++/+++	$\geq 50\%$	yellow	yellow
<i>Salmonella Enteritidis</i> (13076/00030)	50-100	++/+++	$\geq 50\%$	yellow	yellow
<i>Shigella flexneri</i> (12022/00126)	50-100	++/+++	$\geq 50\%$	yellow	yellow
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> (25923/-)	$\geq 10^4$	-	0%		

References:

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

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.

