Technical Information

OF Basal MiVeg Medium

Product Code :VM1395

Application:- OF (Oxidation Fermentation) Basal MiVeg Medium is recommended for differentiation of gram negative bacteria on the basis of fermentative and oxidative metabolisms of carbohydrates.

Composition

Ingredients	Gms / Litre
MiVeg hydrolysate	2.0
Sodium chloride	5.0
Dipotassium phosphate	0.3
Bromo thymol blue	0.08
Agar	2.0
Final pH (at 25°C)	6.8±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

OF Basal MiVeg Medium is prepared by using MiVeg hydrolysate in place of casein enzymic hydrolysate thus the medium becomes free from BSE/TSE risks. This Medium is the modification of OF Basal Medium that is prepared as per the formula of Hugh and Leifson (1). Bromothymol blue serve as a pH indicator. Medium turns yellow after addition of carbohydrate under acidic conditions. Dextrose is the most important carbohydrate for use in this medium; however, other carbohydrate can used for certain organisms which are unable to utilize dextrose. It helps in identification of aerobic or facultative anaerobic bacteria. This medium was primarily used to differentiate enteric and non enteric, gram negative, aerobic tofacultative anaerobic bacilli, from *Enterobacteriaceae* which are all fermenters.

Basically fermentation is an anaerobic process and bacteria capable of fermenting a carbohydrate are usually classified as facultative anaerobes. Oxidation is an aerobic process and bacteria that oxidize carbohydrates are usually obligate (strict) aerobes. In either case, on utilization of carbohydrate, the end product pyruvic acid is produced by either fermentative or oxidative metabolism. Fermentation produces higher acidity than oxidation (2).

Hugh and Leifson studied that the gram negative organisms show different reactions in carbohydrate containing media when overlayed (covered) with mineral oil-Medium A, and not overlayed with mineral oil-Medium B. This provided different degree of anaerobiosis to organism under study.

Fermentative organism produced acid in both Medium A and B. While Oxidative organisms produced only slight growth without change in Medium A but produced acid in Medium B. Organisms not classified either as oxidative or fermentative showed no colour change in Medium A and an alkaline reaction in Medium B.

If there is no acid production in any tube, it shows carbohydrate is not utilized by either method.

For test:

Use two tubes for each organism to be tested to study each carbohydrate. inoculate by stabing in medium with the culture in log phase in both the tubes. Of this overlay one inoculated tube with 2 ml sterile mineral oil while keep the other tube as it is (Do not overlay with mineral oil). Incubate at 35-37°C for 48 hours or longer. After incubation record the results as either no change in colour, acid production, acid or gas production.

Methodology

Suspend 9.4 grams of powder media in 1000 ml distilled water. Mix thoroughly. Heat to boiling to dissolve the medium completely. Dispense in 100 ml amounts and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. To first 100 ml of sterile basal medium aseptically add 10 ml of sterile 10% Dextrose solution. To second 100 ml add 10 ml sterile 10% Lactose solution. To third 100 ml add 10 ml sterile 10% Saccharose solution. Mix and dispense in 5 ml amounts in sterile tubes in duplicate for aerobic and anaerobic fermentation.

Quality Control

Physical Appearance

Light yellow to greenish yellow coloured, homogeneous, free flowing powder.

Gelling

Semisolid, comparable with 0.2% Agar gel.

Colour and Clarity of prepared medium

Green coloured, clear to slightly opalescent semi solid gel forms in tubes as butt.

Reaction

Reaction of 0.94 % w/v aqueous solution pH: 6.8 ±0.2 at 25°C

pH range

6.6-7.0

Cultural Response/Characteristics

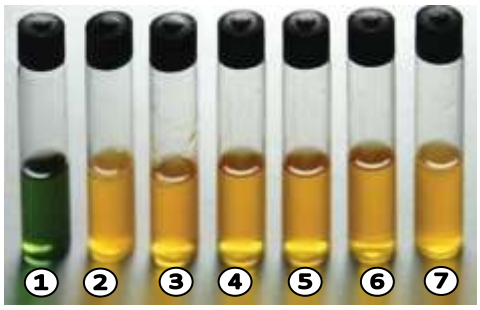
Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours . Tubes were inoculated in duplicate by stabbing, with one set overlaid by mineral oil.

Organisms (ATCC)	Inoculum (CFU)	Only Basal Medium#	Recovery	Only Basal Medium	w/Dextrose#	w/Dextrose*
Acinetobacter calcoaceticus (23055)	10^2-10^3	K	>70%	K	A	K
Alcaligenes faecalis (8750)	10^2-10^3	K	>70%	K	K	K
Enterobacter aerogenes (13048)	10^2-10^3	K	>70%	K	AG	AG
Escherichia coli (25922)	10^2-10^3	K	>70%	K	AG	AG
Pseudomonas aeruginosa (9027)	10^2-10^3	K	>70%	K	A	K
Salmonella serotype Enteritidis(13076)	10^2-10^3	K	>70%	K	AG	AG
Shigella flexneri (12022)	10^2-10^3	K	>70%	K	A	A
Vibrio cholera(15748)	10^2-10^3	K	>70%	K	A	A

Key : K = alkaline medium, green (no change) A = acidic medium, yellow
A= acidic medium yellow
G = gas (occasionally observed)
* = medium covered with mineral oil to exclude oxygen.
# = uncovered

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.



MV1395 OF Basal MiVeg Medium
(w/ Dextrose, uncovered)

1. Control 2. *Enterobacter aerogenes*
3. *Escherichia coli* 4. *Salmonella* serotype Enteritidis
5. *Shigella flexneri* 6. *Vibrio cholerae*
7. *Pseudomonas aeruginosa*

Further Reading

1. Hugh R. and Leifson E., 1953, J. Bact., 66:24.

2. MacFaddin J., 2000, Media for the Isolation-Cultivation-Identification Maintenance of Medical Bacteria, 3rd edition, Williams and Wilkins,Baltimore.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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