Technical Information

Reddy's Differential MiVeg Agar, Modified (Lactic Streak MiVeg Agar)

Product Code : VM1926

Application:- Reddy 's Differential MiVeg Agar, Modified is recommended for quantitative differentiation of lactic *Streptococci.*

Composition

Ingredients	Gms / Litre
MiVeg peptone	5.0
Papaic digest of soyabean meal	5.0
Yeast extract	5.0
MiVeg extract	5.0
Lactose	1.5
L-Arginine hydrochloride	1.5
Bromo cresol purple	0.002
Sodium carboxymethyl cellulose	10.0
Calcium citrate	10.0
Agar	15.0
Final pH (at 25°C)	6.0 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Reddy 's Differential MiVeg Agar, Modified is prepared by adding Miveg peptone and Miveg extract instead of peptic digest of animal tissue and beef extract respectively thereby making the medium free from BSE/TSE risks. This medium is the modification of Reddy 's Differential Agar, Modified which was originally described by Reddy et al (1) and further modified by Mullan and Walker (2) and recommended by APHA (3) for the differentiation of lactic *Streptococci*. Rapid results can be obtained using this medium and also there is no need of incubating plates under CO_2 enriched environment. *Lactococcus lactis* and its subspecies *cremoris* and *diacetylactis* are used as starter cultures in dairy products which can be differentiated based on arginine hydrolysis and citrate utilization. Lactose fermenters produce acid and observed as yellow colonies. Acid production from lactose causes yellow bacterial colonies of *Lactococcus lactis* subspecies *cremoris*. *Lactococcus lactis* initially produce acid but later on it gives violet-purple colouration due to liberated ammonia from arginine. *Lactococcus lactis* subspecies *diacetylactis* produces a more intense purple colour than *Lactococcus lactis*. Citrate utilization observed as clear zone around the colony.

Decimal dilutions are prepared and spreaded onto agar plates for quantitative studies. After incubation at 32°C for 36 -40 hours, yellow colonies of subspecies *cremoris* are counted. The plates are further incubated for upto 4 days and then total count is taken as well as colonies with clear zones of subspecies *diacetylactis* are counted and subtracted from total count to get *Lactococcus lactis* population in the mixture.

Methodology

Suspend 58.0 grams of powder media in 1000 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 10 lbs pressure (115°C) for 10 minutes.

Quality Control

Physical Appearance

Yellow coloured, may have slightly greenish tinge,homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Light yellow coloured, opalescent gel forms with greenish tinge in petri plates.

Reaction

Reaction of 5.8% w/v aqueous solution is pH 6.0 ± 0.2 at 25°C.

pH Range

5.8-6.2

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 32°C upto 4 days.

Organisms (ATCC)	Inoculum (CFU)	Growth	Recovery	Citrate utilisation	Colour of colony
Lactococcus lactis (8000)	10^2-10^3	Good-luxuriant	>70%	–	yellow
Lactococcus subsp. *cremoris* (19527)	10^2-10^3	Good-luxuriant	>70%	–	purple
Lactococcus subsp. *diacetylactis*	10^2-10^3	Good-luxuriant	>70%	+	purple

Key : + = positive, clear zone around the colony
- = negative, no clear zone around the colony.

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 day.

Further Reading

1. Reddy M.S., Vedamuthu E.R., and Reinbold G.W., 1971, Agar medium fordifferential enumeration of lactic streptococci. Appl. Microbiol., 24 : 947.
2. Mullan M.A., and Walker A. L., 1979, Dairy Ind. International, 44:16.
3. Downes F.P. and Ito K (Eds.), 2001, Compendium of Methods For The Microbiological Examination of Foods, 4th ed., APHA, Washington, D.C.

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