Gluconate Test HiVeg™ Medium MV483

Gluconate Test HiVeg Medium is used to check the ability of bacteria to oxidize gluconates to alpha keto-gluconate.

Composition** :

Ingredients	Grams/Litre
HiVeg peptone	1.50
Yeast extract	1.00
Dipotassium hydrogen phosphate	1.00
Potassium gluconate	40.00

Final pH (at 25°C) 7.0 ± 0.2
** Formula adjusted, standardized to suit performance parameters

Directions :

Suspend 43.5 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Distribute in 10 ml quantities in screw capped bottles and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

For Gluconate test :

After cultivating test organism for 48 hours (to be studied for detection of gluconate oxidizing ability) transfer 1 ml aliquots in clean sterile test tube. Add 1 ml of Benedicts qualitative reagent (R003). Mix well and place in boiling water bath (100°C) for 10 minutes.

Principle and Interpretation :

Gluconate Test HiVeg Medium is a modification of Gluconate Test Medium prepared by replacing Peptic digest of animal tissue with HiVeg peptone. Therefore this medium is free of TSE/BSE risk. Besides HiVeg peptone, yeast extract in the medium also serves as supplier of nitrogen, vitamins and other essential growth nutrients. Dipotassium hydrogen phosphate helps in buffering the medium. Potassium salt of gluconate in media serves as a readily available sole carbon source for the organism to be tested for gluconate metabolism.

This medium is used to check the ability of an organism to oxidize gluconates to alpha keto-gluconate which subsequently accumulates in the medium(1). *Pseudomonas aeruginosa* is known to accumulate atleast 50% of ketogluconate after 48 hrs of incubation (2). The basis of the Gluconate test is the change from gluconate, a non-reducing compound to alpha keto-gluconate which is a reducing compound (1, 3). The alpha keto-gluconate formed when tested with a suitable reagent like Benedicts reagent, reduces copper sulphate (blue colour) to an insoluble cuprous oxide which is precipitated out. A yellow to orange to orange red precipitate is formed. The colour depends on the amount of reducing substance accumulated. Greater the amount of alpha keto-gluconate in the medium more orange to orange – red colour develops. However colours ranging from slight green to deep orange indicates oxidation. If the medium remains blue or bluish green after addition of Bendicts solution , it is considered as negative reaction which means no reducing substance is present or formed and potassium gluconate from the media is not metabolized.

Product Profile :

Vegetable based (Code MV)◉	Animal based (Code M)
MV483 HiVeg peptone	**M483** Peptic digest of animal tissue

Recommended for	:	To check the ability of bacteria to oxidize gluconates to alpha keto-gluconate.
Reconstitution	:	43.5 g/l
Quantity on preparation (500g)	:	11.49 L
pH (25°C)	:	7.0 ± 0.2
Supplement	:	None
Sterilization	:	121°C / 15 minutes.

Storage : Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.

Quality Control :

Appearance of Powder

Cream to yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Colour and Clarity

Light straw coloured, clear solution without any precipitate.

Reaction

Reaction of 4.35% w/v aqueous solution is pH 7.0 ± 0.2 at 25°C.

Cultural Response

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

Organisms (ATCC)	Inoculum	Growth	Gluconate Test
Citrobacter freundii (8090)	10^2-10^3	poor-good	-
Escherichia coli (25922)	10^2-10^3	poor-good	-
Klebsiella pneumoniae (23357)	10^2-10^3	luxuriant	+
Pseudomonas aeruginosa (10145)	10^2-10^3	luxuraint	+

Key : + = positive reaction, slight green to deep orange precipitate
- = negative reaction, no change in colour or blue

References :

1. Collee, J.G.; Marmin, B.P., Fraser, A.G and Simmons A (eds) Mackie and McCartney, Practical Medical Microbiology, (1996) 14th ed., Churchill Livingstone, New York.
2. Haynes, W.C. 1951, J. Gen. Microbiology; 5(5):939.
3. MacFaddin, J.F. (2000) (ed.) Biochemical Tests for identification of Medical Bacteria, 3rd edition, Lippincott Willimas and Wilkins, New York.

◉ Prepared from GMO free Vegetable proteins replacing Animal based peptones. Freedom from BSE/TSE worries.