B787	TRIPLE SUGAR IRON AGAR (AS PER U.S.P)

Formula

Ingredients :	**gms/lit.**
Peptone	10.00
Tryptone	10.00
Lactose	10.00
Sucrose	10.00
Dextrose	1.00
Ferrous ammonium sulphate	0.20
Sodium chloride	5.00
Sodium thiosulphate	0.20
Phenol red	0.025
Agar	13.00

Final pH (at 25°C) : 7.3 ± 0.2

Directions :

Suspend 59.42 grams in 1000 ml purified/ distilled water. Heat to boiling to dissolve the medium completely. Mix well and distribute into test tubes. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Allow the medium to set in form of a slope with a butt about 1 inch long.

Principle :

Tryptone and peptone provide nitrogenous compounds, sulphur, trace elements and vitamin B complex etc. Sodium chloride maintains osmotic equilibrium. Lactose, sucrose and dextrose are the fermentable carbohydrates. Sodium thiosulphate helps in reactivation of sulphur containing compounds and prevents the desiccation of these compounds during storage. It also forms the substrate for enzyme thiosulphate reductase, which breaks it to form H2S. Sodium thiosulphate and ferric or ferrous ions make H2S indicator system. Sodium thiosulphates are also inactivators of halogens and can minimize its toxicity in the testing sample, if any during microbial limit tests. Phenol red is the pH indicator.

QC Tests – (I)Dehydrated Medium		
	Colour :	Light yellow to pink
	Appearance :	Homogeneous Free Flowing powder
(II)Rehydrated medium		
	PH (post autoclaving/heating) :	7.3 ± 0.2
	Colour (post autoclaving/heating) :	Pinkish red
	Clarity (post autoclaving/heating) :	Clear to slightly opalescent
(III)Q.C. Test Microbiological		
	Cultural characteristics observed after an incubation at 30-35°C for 24-48 hours.	

	MICROORGANISM (ATCC)	GROWTH	SLANT	BUTT	GAS	H_2S
	Citrobacter freundii (8090)	Luxuriant	A	A	+	+
	Enterobacter aerogenes (13048)	Luxuriant	A	A	+	-
	Escherichia coli (25922)	Luxuriant	A	A	+	-
	Klebsiella pneumoniae (13883)	Luxuriant	A	A	+	-
	Klebsiella pneumoniae (10031)	Luxuriant	A	A	+	-
	Proteus vulgaris (13315)	Luxuriant	K	A	-	+
	Salmonella paratyphi A	Luxuriant	K	A	+	-
	Salmonella typhi (6539)	Luxuriant	K	A	-	+
	Salmonella abony (NCTC 6017)	Luxuriant	K	A	+	+
	Salmonella typhimurium (14028)	Luxuriant	K	A	+	+
	Shigella flexneri (12022)	Luxuriant	K	A	-	-
	Key : A = acidic, yellow K = alkaline, no change + = blackening (H_2S), positive reaction - = no reaction.					

Refer disclaimer Overleaf

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Precautions :	1. For Laboratory Use.				
	2. Follow proper, established laboratory procedures in handling and disposing of infectious materials.				
Limitations :	1. Since the nutritional requirements of organisms vary, some strains may be encountered that fail to grow or grow poorly on this medium.				
	2. Hydrogen sulfide production may be evident on Kligler Iron Agar but negative on Triple Sugar Iron Agar. Studies by Bulmash and Fulton showed that the utilization of sucrose could suppress the enzymatic mechanisms responsible for H_2S production. Padron and Dockstader found that not all H_2S – positive Salmonella are positive on TSI.				
	3. Sucrose is added to TSI to eliminate some sucrose – fermenting non – lactose fermenters such as Proteus and Citrobacter spp.				
	4. Further biochemical tests and serological typing must be performed for definite identification and confirmation of organisms.				
	5. Do not use an inoculating loop to inoculate a tube of Triple Sugar Iron Agar. While stabbing the butt, mechanical splitting of the medium occurs, causing a false positive result for gas production.				
	6. A pure culture is essential when inoculating Triple Sugar Iron Agar. If inoculated with a mixed culture, irregular observations may occur.				
	7. Tubes should be incubated with caps loosened. This allows a free exchange of air, which is necessary to enhance the alkaline condition on the slant.				
Use :	For the identification of gram-negative enteric bacilli on the basis of dextrose, lactose and sucrose fermentation and hydrogen sulphide production and is in accordance to United States Pharmacopoeia.				
Storage :	Dehydrated medium- below 30°C Prepared medium– Between 2 to 8°C.				
Packing :	500 gm. bottle				
Product profile:	Reconstitution	Quantity on Preparation (500g)	pH (25°C)	Supplement	Sterilization
B787	59.42 g/l	8.414 L	7.3 ± 0.2	NIL	121^0C /15 min.