



S.S. Agar

(*Salmonella Shigella* Agar)

LAB 52

Description

This medium is a modification of Leifson's DCA Medium first described in 1941 by Mayfield and Goeber shortly before Hynes described his modification of DCA. The selectivity of the medium was increased by the addition of extra bile salts, sodium citrate and the addition of brilliant green dye. There is also the extra thiosulphate giving good H₂S production which reduces the ferrous ammonium sulphide giving black centred colonies with H₂S positive organisms.

The selectivity of this medium can be such that it was suggested by Taylor *et al* in 1965 to be unsuitable for the isolation of *Shigella* species. Greater understanding of the selection mechanisms involved enable us to adjust the reaction and allow the more delicate *Shigella* to grow without unduly impairing the medium's selective properties.

Formula	g/litre
Beef Extract	5.0
Balanced Peptone No. 1	5.0
Lactose	10.0
Bile Salts No. 3	8.5
Sodium citrate	8.5
Sodium thiosulphate	8.5
Ferric citrate	1.0
Brilliant Green	0.00033
Neutral Red	0.025
Agar No. 2	13.5

Method for reconstitution

Weigh 60 grams of powder, disperse in 1 litre of deionised water, and allow to soak for 10 minutes. Swirl to mix, then bring to the boil, and allow to cool to 47°C. Mix well then pour plates. Dry the surface before incubation. DO NOT AUTOCLAVE THIS MEDIUM.

Appearance: Pale Pink, clear.

pH: 7.0 ± 0.2

Minimum Q.C. organisms: *Salmonella* sp. NCIMB 50076
E. coli (inhibition) NCIMB 50034

Storage of Prepared Medium: Plates – up to 7 days at 4°C in the dark.

Inoculation method: Surface plating, streaking for single colonies.

Incubation: 37°C aerobically for 18-24 hours.

Growth Characteristics				
organism	colony size (mm)	shape & surface	colour	other
<i>E. coli</i>	0.1-2.0	CV.E.D.	Red	Red ppt around colonies (No growth)
<i>K. aerogenes</i>	0.1-3.0	CV.E.G.	Pink-Red	(No growth)
<i>Proteus</i> spp.	1.0-2.0	CV.E.G.	Yellow	(grey centre) (fishy odour)
<i>Ps. aeruginosa</i>	0.1-1.0	CV.CR.D.	Pink Yellow	(Green pigment)
<i>Salmonella</i> spp.	2.0-3.0	CV.E.G.	Yellow	(black centre)
<i>Shigella</i> spp.	0.5-2.0	CV.E.G.	Pink-Yellow	
Gram positive organisms – no growth.				

References

Isenberg, H.D., Kominos, S., and Siegel, M. (1969). Isolation of salmonellae and shigellae from an artificial mixture of fecal bacteria. *Appl. Microbiol.*, 18: 4, 656-659.

Leifson, E. (1935). New culture media based on sodium desoxycholate for the isolation of intestinal pathogens and for the enumeration of colon bacilli in milk and water. *J. Pathol. Bacteriol.*, 40: 581-589.

Taylor, W.I., Harris, B. (1965) Isolation of shigellae. II. Comparison of plating media and enrichment broths. *Am. J. Clin. Pathol.* 44: 4, 476-479.