WILSON BLAIR AGAR BASE TM 489

For isolation and cultivation of *Salmonella typhi* with addition of selective reagent

Composition

Ingredients	Gms/Ltr.
Agar	30.00
Peptone, special	10.00
Dextrose	10.00
Beef extract	5.00
Sodium chloride	5.00

***** Dehydrated powder, hygroscopic in nature, store in a dry place in tightly- sealed containers 25°C and protected from direct Sunlight.

Instructions for use

Dissolve 60gms in 1000ml distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. Sterilize by autoclaving at 15 psi (at 121°C) for 15 minutes. Cool to 45- 50^{0}C and aseptically add 4ml of 1% brilliant green solution with 70ml of selective agent.

Selective agents: as follows

Solution 1: 40gm sodium sulphite in 100ml distilled water.

Solution 2: 21gm dibasic sodium phosphate in 100ml distilled water.

Solution 3: 12.5gm bismuth ammonium citrate in 100ml distilled water.

Solution 4: 0.96gm ferrous sulphate in 20ml distilled water with 2 drops of HCl.

[Prepare each solution separately and then combine. Boil the combined solution until a slate grey colour develops.]

Appearance: Light yellow colour, clear to slightly opalescent gel. After addition of the selective reagent and 1% Brilliant green, greenish yellow colour, opaque gel
pH (at 25°C): 7.3 ± 0.2

Principle

WILSON BLAIR AGAR BASE is used for isolation and cultivation of *Salmonella typhi* with addition of selective reagent. The genus *Salmonella* contains over 2,000 sero-species and is one of the most important pathogens in the family Enterobacteriaceae. Taxonomically, all strains of *Salmonella* fall within one species, *S. enterica* but this nomenclature has not caught on and the genus continues to be recognised by the popular species names, many named on the basis of serotyping and outbreaks. *Salmonellae* are Gram-negative , facultatively anaerobic bacteria of the family Enterobacteriaceae, made up of nonspore-forming rods, usually motile with peritrichous flagella. They utilise citrate as a sole carbon source and generally ferment glucose but not sucrose or lactose. *Salmonella enterica serovar Typhimurium* is the among the most common Salmonella serovars causing Salmonellosis infections in the US. In humans, Salmonellosis causes diarrhea, fever, and abdominal cramps 12 to 72 hours after infection and may last for up to 7 days. Some cases result in hospitalisation. *Salmonella* is readily transmitted through the faeces of people or animals. The incidence of non-typhoid salmonellosis (which is caused by *Salmonella enterica typhi*) is increasing worldwide, causing millions of infections and many deaths in the human population each year. This medium contains Peptone special

and Beef extract which provides nitrogen, carbon compounds and other growth nutrients. Brilliant green dye inhibits all gram-positive bacteria. Dextrose is the fermentable carbohydrate. Ferrous sulphate aids in H_2S production. Bismuth is a heavy metal, which is inhibitory to most gram-negative enteric bacilli other than *Salmonella*. Ferrous sulphate is reduced by *Salmonella* species in presence of bismuth sulphite and dextrose to form iron sulphide, indicated by black colour colonies. Disodium hydrogen phosphate buffers the medium well. Sodium chloride balances the osmotic equilibrium.

Interpretation

Cultural characteristics observed after inoculating (10^3CFU / ml), on incubation at 35 - 37°C for 24 - 48 hours.

Microorganisms	ATCC	Inoculum (CFU/ml)	Growth
Salmonella typhi	6539	10^3	Good, black with sheen
Proteus mirabilis	25933	10^3	Good, green colour colonies
Escherichia coli	25922	10^3	Partial inhibited

References

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C. (2003).
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3. Falkow, Stanley, Monack, Denise M., Mueller, Anne. "PERSISTENT BACTERIAL INFECTIONS: THE INTERFACE OF THE PATHOGEN AND THE HOST IMMUNE SYSTEM". Nature Review of Micribiology. Volume 2. p. 747-765. (2004).
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