

89747 Tinsdale Agar Base

Tinsdale Agar is used for the primary isolation and identification of *Corynebacterium diphtheriae*. The medium differentiates between *C. diphtheriae* and the diphtheroids found in the upper respiratory tract and sometimes on the skin. This differentiation was based on the ability of *C. diphtheriae* to produce greyish-black colonies, surrounded by a brown/black halo. Diphtheroids do not have this ability.

Composition:

Ingredients	Grams/Litre
Peptic digest of animal tissue	20.0
Sodium chloride 5.0g/l	5.0
L-Cystine	0.24
Sodium thiosulfate	0.43
Agar	15.0

Store prepared media below 8 °C, protected from direct light. Store dehydrated powder in a dry place in tightly-sealed containers at 2-25 °C.

Directions:

Suspend 40.7g of agar base in 1000ml of distilled water. Bring to the boil and dissolve completely. DO NOT AUTOCLAVE. Allow to cool to 50°C and add aseptically the contents of 1 unit (part A+B) of Tinsdale Supplement (Prod No 73831). Mix thoroughly and pour into sterile dishes.

Principle and Interpretation:

Tinsdale original formulated an agar containing cystine, serum, tellurite and formolised blood.¹ Later it was modified by Billings to a medium with improved differential qualities.^{2,3}

Peptic digest of animal tissue serves as nitrogen, carbon, vitamin and amino acid source. The serum, present in the supplement, contains essential growth factors and sodium chloride maintains the osmotic balance of the medium. Cystine and sodium thiosulfate are substrates for the production of H₂S. Due to the production of H₂S the potassium tellurite (present in the supplement) is reduced to a metallic tellurite and forms a dark (black to brown) halo surrounding the colony. Additionally, potassium tellurite inhibits the gram negative bacteria and most of the upper respiratory tract normal flora. Do not incubate the plates in 5-10% CO₂ as it retards the development of characteristic halos.⁴ Diphtheroids (*C. pseudodiphtheriticum*), *Haemophilus*, *Klebsiella*, *Neisseria*, *Staphylococcus* and *Streptococcus* species build dark, brown colonies without halos. The colonies are tiny and show no discoloration of the medium.

Cultural characteristics after 40-48 hours at 35°C.

Organisms (ATCC)	Growth	Colony characteristics
<i>C. diphtheriae</i> type <i>gravis</i> (19409)	+++	small, shiny black, brown to black with halo
<i>C. diphtheriae</i> type <i>mitis</i> (11051)	+++	convex colonies, brown to black with halo
<i>C. diphtheriae</i> type <i>intermedius</i> (51279)	+++	brown to black with halo
<i>C. ulcerans</i> (51799)	+++	convex colonies, brown to black with halo
<i>Proteus mirabilis</i> (12453)	+++	brown to black colonies, characteristic odour and morphology.
<i>Streptococcus pyrogenes</i> (19615)	++	Black pin point, without halo
<i>Klebsiella pneumoniae</i> (13883)	-	-



References:

1. G.F. Tinsdale, J. Path. and Bacteriol., 59, 461 (1955)
2. E. Billings, An Investigation of Tinsdale's Tellurite Medium, its Usefulness and Mechanism of Halo Formation, Thesis Univ. Michigan (1956)
3. M.S. Moore, E.I. Parsons, J. Infect. Dis., 102, 88 (1958)
4. Lennette and others (Eds.), Manual of Clinical Microbiology, 4th ed. ASM (1985)
5. H.D. Isenberg, Clinical microbiology procedures handbook, American Society for Microbiology, Washington D.C. (1992)

Precautions and Disclaimer

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