Mannitol Salt Phenol-red Agar

A modified version of the selective agar proposed by CHAPMAN (1945) for detecting pathogenic staphylococci in food-stuffs and other materials.

General Information

The medium complies with the recommendations of the harmonised Method in the Ph.Eur. 5.6 and the USP 29.

Mode of Action

Only salt-tolerant microorganisms, including staphylococci, can grow on this medium, because of its high salt concentration. Degradation of mannitol to acid correlates, more or less, with the pathogenicity of Staph. aureus and thus serves as an indicator for this species.

Typical Composition (g/litre)

Peptone from casein 5.0; enzymatic digest of animal tissue 5.0; meat extract 1.0; sodium chloride 75.0; D(-)-mannitol 10.0; phenol red 0.025; agar-agar 12.0.

Preparation

Suspend 108 g/litre, autoclave (15 min at 121°C), pour plates.

pH: 7.4 ± 0.2 at 25°C.

The plates are clear and red.

Experimental Procedure

Inoculate by spreading the sample on the surface of the medium. Inoculation should be massive on account of the strong inhibitory effect of the medium.

Incubation: up to 3 days at 35°C aerobically.

Further tests should be performed to confirm the diagnosis.

Appearance of Colonies	Microorganisms
Surrounded by bright yellow zones, abundant growth	Mannitol-positive: Staphylococcus aureus
No colour change, growth is usually poorer	Mannitol-negative: Staphylococcus epidermis and others

Literature

CHAPMAN, G.H.: The significance of sodium chloride in studies of staphylococci. - **J. Bact., 50**; 201-203 (1945).

United States Pharmacopeia 29 - NF24 (2006), Chapter 62 "Microbial examination of nonsterile products: Tests for specified microorganisms"

European Pharmacopeia 5.6, Chapter 2.6.13 B (Harmonized Method) (2006).

Application

Ordering Information

Product	Ordering No.	Pack size
Mannitol Salt Phenol-red Agar	1.05404 .0500	500 g

Quality control (spiral plating method)

Test strains	Inoculum [CFU]	Recovery %	Colour change to yellow
Staphylococcus aureus ATCC 25923	10 - 100	≥ 30	
Staphylococcus aureus ATCC 6538	10 - 100	≥ 30	
Staphylococcus epidermidis ATCC 12228	10 - 100	-	-
Staphylococcus epidermidis ATCC 14990	10 - 100	-	-
Proteus mirabilis ATCC 12453	10 - 100	-	-
Escherichia coli ATCC 8739	> 10^4	< 0.01	