

Product Information

63286 Malonate Phenylalanine Broth

Test medium to detect the utilization of malonate and phenylalanine deamination acc. to Shaw and Clarke.

Composition:

Ingredients	Grams/Litre
Yeast extract	1
Ammonium sulfate	2
Dipotassium hydrogen phosphate	0.6
Potassium dihydrogen phosphate	0.4
Sodium chloride	2
Sodium malonate	3
L-Phenylalanine	1
Bromothymol blue	0.025
Final pH 6.6 +/- 0.2 at 37°C	

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:

Dissolve 10 g in 1 litre distilled water. Fill into tubes to approx. 5 cm. Sterilize by autoclaving at 115°C for 15 minutes.

Principle and Interpretation:

This medium is prepared according to the formulation developed by Shaw and Clarke [1] for differentiating gram-negative enteric bacteria on the basis of their ability to utilize malonate and produce pyruvic acid from phenylalanine. Yeast extract supplies nutrients to the organisms while two phosphates buffer the medium. Bromothymol blue is the pH indicator. Sodium chloride maintains osmotic balance.

Organisms like *Klebsiella* and *Salmonella arizonae* being capable of utilizing malonate, produce an alkaline reaction and thus change the colour of the medium from light green to dark blue. The colour of the medium remains light green if the organisms are malonate negative. Members of the group *Proteus* and *Providencia* are capable of forming pyruvic acid from phenylalanine. This can be determined by the addition of few drops of 10% iron(II) chloride (Cat. No. 44944) dissolved in acidified distilled water to a freshly grown culture. Deep green colour is formed due to production of pyruvic acid from phenylalanine.

Cultural Characteristics after 18 - 24 hours at 35°C

Organisms (ATCC)	Growth	Malonate	Phenylalanine
<i>Escherichia coli</i> (25922)	+++	-	-
<i>Klebsiella pneumoniae</i> (13883)	+++	+	-
<i>Proteus mirabilis</i> (25933)	+++	-	+
<i>Providencia alcalifaciens</i> (9886)	+++	-	+
<i>Salmonella typhimurium</i> (14028)	+++	-	-
<i>Salmonella arizonae</i> (13314)	+++	+	-

Key : Malonate + = dark blue colour of medium
Phenylalanine + = dark green colour of medium

References:

1. C. Shaw and Clarke, J Gen Microbiol, 13, 155 (1955)