22310 Cereus Selective Agar

(Bacillus Cereus Selective Agar, Mannitol-Egg- yolk-polymyxine-Agar, M.Y.P-agar, PREP agar, Bacillus cereus Egg yolk Polymyxin Agar Base; Cereus Selective Agar Base acc. to Mossel)

For enumeration, identification and isolation of *Bacillus cereus* in food acc. to Mossel.

Composition:

Ingredients	Grams/Litre
Meat peptone	10.0
Meat extract	1.0
D(-)-Mannitol	10.0
Sodium chloride	10.0
Phenol red	0.025
Agar	12.0
Final pH 7.1 +/- 0.2 at 25°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 43 g in 900 ml water. Sterilize by autoclaving at 121°C for 15 minutes and let cool to 45-50°C. Add 100 ml egg-yolk suspension (Cat. No. 17148) and additionally 10 mg polymyxin B (Cat. No. P4932) or 2 vials of Polymyxin B Selective Supplement (Cat. No. P9602) to the autoclaved solution.

Principle and Interpretation:
This culture medium is highly selective to *Bacillus cereus*, which is not able to ferment mannitol. So, it's possible to differentiate from the accompanying mannitol-positive microbial flora, which are identified by a change in colour of the indicator phenol red to yellow.
Bacillus cereus is not inhibited by polymyxin B contrary to the accompanying microbial flora (Donvan 1958). Addition of polymyxin B is necessary, if high numbers of accompanying microorganisms is expected. If moulds are expected in the inoculum, 40 mg/L of Cycloheximide (Cat. No. 01810) can be added.
Bacillus cereus produces lecithinase, which degrade the lecithin containing in the egg-yolk suspension. The hydrolysed lecithin gives a white precipitate around the Cereus colonies. A lecithinase reaction appears very early in many strains, Cereus colonies can often be identified before accompanying polymyxin B resistant microorganisms have grown significantly.
Colonies of *Bacillus cereus* are rough and dry with a pink to purple color surrounded by a ring of dense white precipitate. Colonies surrounded by a yellow or a clear zone are not *Bacillus cereus*. Further tests should be performed to confirm the identity of *Bacillus cereus.* For example, the staining method developed by Holbrook and Anderson, the anaerobic degradation of Dextrose, degradation of gelatin, positive nitrate reduction (described by Brown et al. 1958).

Cultural characteristics after 18-40 hours at 32°C.

Organisms (ATCC)	Growth	Color of Colony	Egg Yolk Reaction
Bacillus cereus (11778)	+++	red	precipitation
Bacillus subtilis (6051)	+++	yellow/pink	precipitation
Escherichia coli (25922)	-	-	-
Pseudomonas aeruginosa (25668)	-	-	-
Proteus mirabilis (29906)	+++	red	-
Staphylococcus aureus (25923)	+++	yellow	clearing

References:

1. M.B. Skirrow, Campylobacter enteritis: a "new" disease, Brit. Med., 2, 9 (1977)
2. E.R. Brown, M.D. Moody, E.L. Treece, C.W. Smith, Differenzial diagnosis of Bacillus cereus, Bacillus anthracis and Bacillus cereus var. mycoides, J. Bact., 75, 499 (1958)
3. K.O. Donovan, A selective medium for Bacillus cereus in milk, J. Appl. Bact., 21, 100 (1958)
4. R. Holbrook, J.M. Anderson, Can. J. Microbiol., 26, 753 (1980)
5. D.A.A. Mossel, M.J. Koopman, E. Jongerius, J. Appl. Microbiol., 15, 650 (1967)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.