Product :
Clostridium perfringens SELECTIVE AGAR (SPS Agar)

Also known as

Sulfite Polymyxin Sulfadiazine Agar; SPS Agar; Perfringens Selective Agar

Specification

Solid medium for the detection of *Clostridium perfringens* in food.

Formula * in g/L

Sodium sulfite	0,50
Polymixin (B) sulfate	0,01
Sodium sulfadiazine	0,12
Casein peptone	15,00
Yeast extract	10,00
Ferric citrate	0,50
Sodium thioglycolate	0,10
Polysorbate 80	0,05
Agar	15,00

Final pH 7,0 ±0,2 at 25 ºC

* Adjusted and /or supplemented as required to meet performance criteria

Directions

Suspend 41,3 g of powder in 1 L of distilled water and bring to the boil. Distribute into tubes or screw-cap containers and sterilize in the autoclave at 121ºC for 15 minutes. Cool the sterilized medium quickly by placing it in the refrigerator or in cold water.

Description

SPS Agar (Sulfite Polymyxin Sulfadiazine) is a modification of the original Wilson & Blair medium for the detection of clostridia. The present medium betters the formulation of Mossel and also the later modification of Angelotti *et al.*. It achieves a higher selectivity for *C. perfringens* with the addition of Sulfadiazine and Polymyxin.

The nutritional substrates constituted by the tryptone and the yeast extract are complemented by the polysorbate, which also allows the recovery of the most delicate cells. The anaerobic conditions are improved by the thioglycolate, which permits the use of the medium on the plates without the Miller-Prichett tubes, used by Mossel and Wilson-Blair.

The differential system consists of sodium sulfite and ferric citrate which allows the detection of sulfite reducing organisms, which form black colonies due to ferrous sulfide precipitate.

Technique

The usual technique for the use of this medium is as follows:

The samples to be examined are ground or homogenized with a vortex in a stomacher and then a decimal dilution bank is prepared. A sample aliquot from each one of the dilutions is placed in a Petri dish. The medium, molten and cooled to 50ºC, is now poured in the dishes and allowed to solidify. The dishes are incubated in an anaerobic system at 35ºC for 24-36 hours.

90% of the black colonies which are formed can usually be attributed to Clostridium perfringens.

Since the medium is not extremely selective, it is advisable to verify black colonies by checking that they are Gram positive sporulated non-motile organisms incapable of reducing nitrates to nitrites.

Most clostridia are sulfite reducers. Among them are C. perfringens and C. botulinum which along with C. bifermentans are the species most frequently involved in food poisoning.

Note: temperatures or times may vary according to normatives adopted by the laboratory. If the medium is used in plates, this detection is accelerated if the double layer method is applied with the same culture medium.

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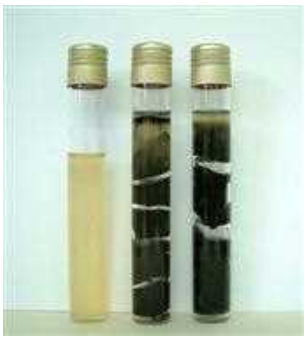
Quality control

Incubation temperature: 35°C ±2,0 **Incubation time:** 24-48 h

Inoculum: Practical range 100 ± 20 CFU. Min. 50 CFU (Productivity) / 104-106 CFU (Selectivity) according to ISO 11133:2014/Amd 1:2018. Anaerobiosi.

Microorganism	Growth	Remarks
Clostridium perfringens ATCC® 13124	Good - very good	Black colonies
Clostridium perfringens ATCC® 10543	Good - very good	Black colonies
Bacillus subtilis ATCC® 6633	Inhibited	-
Escherichia coli ATCC® 8739	Inhibited	-



Left: Uninoculated tube(Control)
Center: *Clostridium perfringens* ATCC 13124
Right: *Clostridium perfringens* ATCC 10543

References

· ANGELOTTI, HALL, FOSTER & LEWIS (1962) Quantisation of Clostridium perfringens in foods. Appl. Microbiol., 10:193.
· DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Foods. 4th ed., APHA. Washington.
· F.D.A. (1998) Bacteriological Analytical Manual. 8th ed. Rev. A., AOAC International. Gaithersburg. MD.
. ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.
· MOSSEL, D.A.A. (1959) Enumeration of sulfite-reducing bacteria occurring in foods. J. Sci. Food Agric. 19:662.

Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 ºC to 30 ºC).