Specification

Enrichment medium for *Salmonella spp.* from clinical and foodstuffs samples according to ISO & DIN standards.

Formula * in g/L

Casein peptone..... 5,00
Lactose.....4,00
Sodium biselenite.....4,00
Disodium hydrogenphosphate..... 10,00
L-Cystine..... 0.01

Final pH 7,0±0,2 at 25 ºC
* Adjusted and /or supplemented as required to meet performance criteria

Directions

Add 23 g of powder to 1 liter of purified water and heated to boiling. Distribute in tubes. DO Not overheating. Do not autoclave.
Note:Selenite vapours are hazardous due to their carcinogen capacity; therefore it is very advisable to avoid inhalation.

Description

It is essentially an enrichment medium for Salmonella found in food or pathological materials, such as faeces or urine. It is used as an initial step prior to isolation on selective media such as SS Agar or Hektoen Agar.
Selenite Cystine Broth has been developed according to Leifson's formulation, adding cystine to comply with FDA specifications, since it was proved that the medium performs better in reduced CO2 tensions.
Essentially, it is an enrichment medium for Salmonella coming from food or pathologic materials, such as faeces or urine, in a previous step to isolation in selective media plates, such as Agar SS (Ref. 01-555) or Hektoen Agar(Ref. 01-216).

Technique

For normal assays it is advisable an incubation à 37°C for a period never superior to 18 hours, since within that period a good nutrition of coliforms and an enhancement of pathogens is reached, but after 24 hours that effect seems to disappear and the growth of companion flora may hide salmonella.
Red precipitate apparition before inoculation means the medium has been overheated, in which case the selective properties are worse. Presence of copious sample residuum may also inactivate the selective power of the medium, overall if sample is faeces and egg powder. In this case, it is better to make a dilution 1:10 and let it settle to separate the biggest particles, then inoculate Selenite cystine broth with an aliquot portion of it, maintaining the proportion 1:10 between sample and medium.
It has been demonstrated that when it is desired to isolate Salmonella from faeces, results are better if enrichment medium incubation is performed à 41,5°C±1. This procedure only seems to fail with Salmonella typhi.
When starting material is urine, the best procedure is to use Selenite cystine broth in double concentration, and to inoculate it in an equal volume of urine. Anyway, subculture must always be done after 6 hours of incubation and before 24 hours. Most authors recommend the simultaneous use of another enrichment broth, such as Tetrathionate broth.

Quality control

Incubation temperature: 37ºC ±1,0 **Incubation time:** 24 h

Inoculum: Inoculation with mixed cultures. Practical range 100±20 CFU. Min. 50 CFU (Productivity) / 10^4-10^6 CFU (Selectivity) according to ISO 11133:2014

Microorganism	Growth	Remarks
Enterococcus faecalis ATCC® 29212	Total inhibition	Recovery in XLD
Escherichia coli ATCC® 25922	Partial Inhibition	Recovery in XLD
S. typhimurium ATCC® 14028 + (1) + (2)	Good	Recovery in XLD (Mixed cultures)
Salmonella enteritidis ATCC® 13076+25922+27853		Good Recovery in XLD (Mixed cultures)
Escherichia coli ATCC® 8739 (1)	Partial Inhibition	Recovery in XLD (Mixed cultures)
Pseudomonas aeruginosa ATCC® 27853 (2)	Inhibited to poor	Recovery in XLD (Mixed cultures)

References

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·US PHARMACOPOEIA (2008) 31th ed. §<61> Microbial Limit Tests. The US Pharmacopoeial Convention. Rockville MD. USA
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Storage

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