Selenite-Cystine/Broth

355-5744
356-4074

DEFINITION
Enrichment medium for the detection of *Salmonella* in food products and in stools.

PRINCIPLE
The principle of the medium relies on the ability of *Salmonella* to develop in the presence of selenite, which inhibits most other bacteria.

PRESENTATION
- **Ready-to-use**
  20 ml x 25 tubes **code 355-5744**

- **Dehydrated base (without biselenite)**
  500 g **code 356-4074**

STORAGE
- Ready-to-use: + 2℃ to 8℃.
- Dehydrated (base and sodium biselenite): 15℃ to 25℃, in carefully-sealed bottles in a cool, dry place.
- Expiration date and batch number are shown on the package.

THEORETICAL FORMULA

Tryptone	5 g
Lactose	4 g
Na_2HPO_4, $12H_2O$	10 g
L-cystine	10 mg
Sodium biselenite	4 g
Distilled water	1,000 ml

Final pH (25℃) = 7.0 ± 0.1

OTHER PRODUCTS REQUIRED (NOT SUPPLIED)
- Distilled water
- **Sodium biselenite**
  100 g **code 356-4075**

(See corresponding Technical sheet(s))

EQUIPMENT REQUIRED (NOT SUPPLIED) (non-exhaustive)
- Scales
- Sterile weighing bags
- Grinder
- Hotplate
- Mixer-homogenizer
- Vortex-type shaker
- Test tubes (20 x 200 mm) with autoclave-proof stoppers
- 125 ml Pyrex bottles with autoclave-proof stoppers
- Sterile Pasteur pipettes **(code 355-0751)** or inoculating loop
- Sterile pipettes (0.1 ml, 10 ml, etc)
- Water-bath precise to ± 1℃
- Thermostatically-controlled incubator or incubation room, precise to ± 1℃
- Autoclave
- All usual laboratory equipment

PREPARATION OF DEHYDRATED MEDIUM
Always shake well before use
Dissolve 19 g of powder in 1 liter of distilled water, mix until a homogenous suspension is obtained.
Heat gently, swirling frequently, then bring to the boil until completely dissolved.
Maintain at boiling point for 5 minutes. Cool, and add 4 g of biselenite.
Under sterile conditions, dispense 20 ml per tube (NF V 08-052 - May 1997)) or 100 ml per bottle (NF EN 12824 - February 1998).

Reconstitution ratio: 19 g/l.
500 g of powder makes 26 liters of medium.

PROTOCOL
Detection of *Salmonella* in food products
Preparation of samples
According to the standards applicable to the product concerned.

Inoculation and incubation
Transfer 2 ml or 10 ml of pre-enrichment broth to 20 ml or 100 ml respectively of complete Selenite-Cystine Broth.
Incubate at 37℃ ± 1℃ for 18-24 hours.

Reading
The appearance of orangey-red coloration indicates a bacterial culture. It is necessary, however, to carry out isolations on appropriate selective media.

Detection of *Salmonella* in stools
Inoculation
Introduce 1 or 2 ml of stools into 20 ml of Selenite-Cystine Broth.

Incubation

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Selenite-Cystine/Broth

At 37℃ ± 1℃ for 18-24 hours (incubation at 42℃ is conducive to the culture of *S. paratyphi B*, but not that of *S. typhi*).

Sub-culture
Carry out a sub-culture on a selective medium for the isolation of *Salmonella*:

- SS (Salmonella-Shigella) Agar **(codes 356-3814, 356-2717 or 356-4514)**
- Hektoen Agar **(codes 356-4284, 355-4386 or 356-3894),**
- DCL (Desoxycholate-Citrate-Lactose) Agar **(code 356-4414)**
- or XLD (Xylose-Lysine-Deoxycholate) Agar **(codes 356-9124 or 354-1751)**

All these media are appropriate.

PRECAUTIONS

- Biselenite is highly toxic. Gloves, mask and safety glasses should be worn when handling it.

  R23/25: Toxic through inhalation and ingestion.

  R 33: Danger of cumulative effects.

  S 1/2: Keep locked up and out of the reach of children.

  S 20/21: Do not eat, drink or smoke when using it.

  S 28: If it comes into contact with the skin, wash immediately and abundantly with water.

  S 45: In the event of accident or faintness, consult a doctor immediately (with the product label, if possible).

- Biselenite should not be added to the base medium at temperatures exceeding 30℃.
- Comply with Good Laboratory Practice.

PERFORMANCES / QUALITY CONTROL OF THE TEST

The growth performances of the media are verified with the following strains:

STRAINS	Result after 24h culture at 37℃
Salmonella Typhimurium ATCC 14028	Enrichment
Salmonella Enteritidis ATCC 13076	Enrichment
Escherichia coli ATCC 25922	Inhibition
Enterococcus faecalis ATCC 19433	Inhibition

QUALITY CONTROL OF MANUFACTURER

Every product manufactured and marketed by Bio-Rad is subject to a quality-assurance procedure at all stages, from the reception of raw materials to the marketing of the end-product. Each batch of finished product undergoes quality control and is marketed only if it satisfies the acceptability criteria.

Documentation relative to the production and control of each batch is kept on file.

KEY WORDS

Selenite-Cystine / *Salmonella* / Food products / Stools / Detection / Enrichment medium.

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