

TM 1984 – B.C.P. - D.C.L.S. Agar

INTENDED USE

For the selective isolation of *Salmonella* and *Shigella* species.

PRODUCT SUMMARY AND EXPLANATION

Salmonella and *Shigella* are gram-negative, facultatively anaerobic, non-sporulating rods in the family *Enterobacteriaceae*. They are widely distributed in animals affecting mainly the stomach and the intestines. *Shigella* is the causative agent of bacterial diarrhoea and the faecal-oral route usually transmits the disease. Human *Salmonella* infections are most commonly caused by ingestion of food, water or milk contaminated by human or animal excreta. Arizona group was originally named *Salmonella* Arizonae. It has been found mainly in reptiles and birds and occasionally in human patients with diarrhoea or septicemia. These organisms are difficult to differentiate biochemically from *Escherichia coli*, one of the most commonly recovered bacteria in clinical laboratory.

B.C.P.-D.C.L.S Agar (Bromo Cresol Purple - Deoxycholate - Citrate - Lactose-Sucrose Agar) is the modification of the original formulation of Leifson, which was later, modified by Hajna and Damon. It allows easy isolation of *Salmonella*, *Shigella* and Arizona organisms from a mixed culture by differentiating between lactose-negative, sucrosepositive coliforms. It also inhibits all gram-positive bacteria and most of the *Proteus* species along with some strains of *S. dysenteriae*.

Larger amount of the material can be inoculated into an enrichment medium followed by inoculation onto an agar plate, thereby, facilitating the isolation of *Salmonella*, when present only in small numbers. On incubation, *Salmonella* multiply rapidly, while *E.coli* and most other bacteria are inhibited. After enrichment, the enriched culture is plated onto a differential agar medium. B.C.P.-D.C.L.S. is a useful modification of D.C.A. (Deoxycholate Citrate Agar) that contains both lactose and sucrose. Some coliforms ferment sucrose more readily than lactose. Sucrose fermenting and lactose non-fermenting strains, e.g. some strains of *Proteus* and *E.coli*, form colonies distinguishable from the pale colonies of *Salmonella* and *Shigella*, which do not ferment sucrose, on this medium. Hence the number of false positive cultures requiring biochemical testing is reduced and the efficiency of isolation of *Salmonella* and *Shigella* is increased.

B.C.P.-D.C.L.S. Medium is unsuitable for the isolation of *Yersinia* species, which are sucrose positive. Non-selective media should be inoculated along with this media. The medium can be directly inoculated with the test specimens. Alternatively, the sample can be enriched in GN Broth, Hajna, Tetrathionate Broth, or Selenite Broth, and subsequently isolated on B.C.P.-D.C.L.S. Agar. A less inhibitory medium should be run in parallel to B.C.P.-D.C.L.S.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	5.000
Tryptone	5.000
Yeast extract	3.000
Beef extract	3.000
Lactose	7.500
Sucrose	7.500
Sodium citrate	10.000
Sodium chloride	5.000
Sodium thiosulphate	5.000
Sodium deoxycholate	2.500
Bromocresol purple	0.020
Agar	14.000

PRINCIPLE

Peptone, Tryptone, yeast extract and beef extract in the medium provide nitrogen, vitamins and minerals necessary to support bacterial growth. Lactose and sucrose are the fermentable carbohydrates and therefore inclusion of these two sugars permits the formation of yellow colonies by organisms that ferment lactose, sucrose or both. Sodium thiosulphate is the indicator of H₂S production. Sodium citrate and sodium deoxycholate inhibit all gram-positive bacteria and coliforms but allow the gram-negative bacilli to grow. Sodium chloride provides essential ions. Bromo cresol purple is the pH indicator.

INSTRUCTION FOR USE

- Dissolve 67.52 grams in 1000 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- DO NOT AUTOCLAVE or OVERHEAT. Cool to 45-50°C.
- Mix well and pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

- Appearance of Powder** : Light yellow to beige homogeneous free flowing powder.
- Appearance of prepared medium** : Purple coloured, clear to slightly opalescent gel forms in Petri plates.
- pH (at 25°C)** : 7.2±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Color of colony	Incubation Temperature	Incubation Period
<i>Salmonella</i> Typhimurium	14028	50-100	Good-luxuriant	≥50%	Colourless, may show faint bluish coloured colonies	35-37°C	18-24 Hours
<i>Salmonella</i> Enteritidis	13076	50-100	Good-luxuriant	≥50%	Colourless, may show faint bluish coloured colonies	35-37°C	18-24 Hours
<i>Shigella dysenteriae</i>	13313	50-100	Good	40-50%	Colourless, may show faint bluish coloured colonies	35-37°C	18-24 Hours
<i>Shigella flexneri</i>	12022	50-100	Good-luxuriant	≥50%	Colourless, may show faint bluish coloured colonies	35-37°C	18-24 Hours
<i>Shigella sonnei</i>	25931	50-100	Good-luxuriant	≥50%	Colourless, may show faint bluish coloured colonies	35-37°C	18-24 Hours
<i>Escherichia coli</i>	25922	50-100	None-poor	0-10%	Yellow	35-37°C	18-24 Hours

<i>Proteus mirabilis</i>	25933	50-100	None-poor	0-10%	Colourless	35-37°C	18-24 Hours
<i>Proteus vulgaris</i>	13315	50-100	None-poor	0-10%	Colourless	35-37°C	18-24 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.













Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

- Hajna A. A. and Damon S. R., 1956, Appl. Microbiol., 4, 341
- Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed., J. B. Lippincott Company.
- Leifson E., 1935, J. Pathol. Bacteriol. 40, 581
- MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.

 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative <small>MedNet GmbH Birkstrasse 10, 48163 Münster, Germany</small>	 European Conformity	 QR Code	 Consults Instructions for Use	 Best Before

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**
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