CM 20203 – 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. dysentriae.

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 H_2S 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

Culturalcharacteristics observed after incubation.

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

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

PACKAGING:

Inpacksizeof500 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.

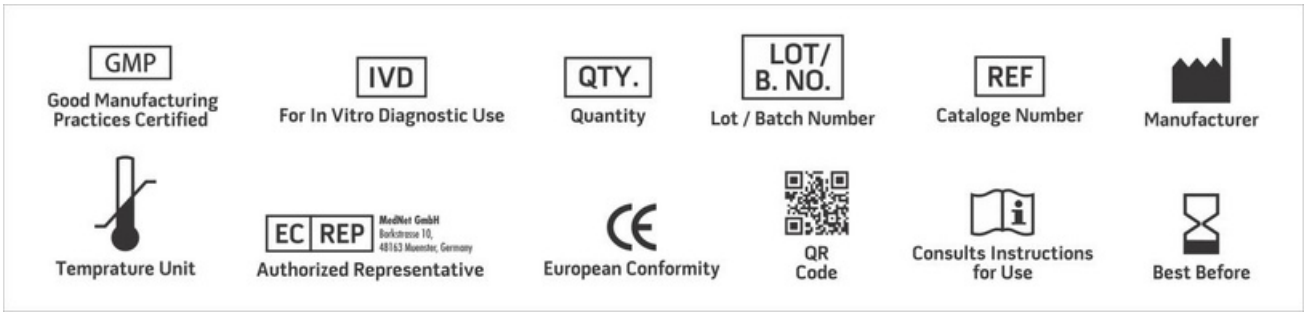
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

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

REFERENCES

1. HajnaA. A. and Damon S. R., 1956, Appl. Microbiol., 4, 341
2. 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.
3. Leifson E., 1935, J. Pathol. Bacteriol. 40, 581
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.



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

*For LabUse Only