Hektoen Enteric Agar Plate (M910)

Recommended for differential and selective isolation of Salmonella and Shigella species from enteric pathological specimens.

Composition

Ingredients	g/ L
Proteose peptone	12.000
Yeast extract	3.000
Lactose	12.000
Sucrose	12.000
Salicin	2.000
Bile salts mixture	9.000
Sodium chloride	5.000
Sodium thiosulphate	5.000
Ferric ammonium citrate	1.500
Acid fuchsin	0.100
Bromothymol blue	0.065
Agar	15.000

Description

Hektoen Enteric Agar is a differential and selective medium used for isolating and differentiating enteric pathogens such as Salmonella and Shigella, both of which cause a variety of serious human Gastrointestinal diseases; and other Gram-negative Enterobacteriaceae.
It is used particularly in foods where multi-steps are followed to isolate the pathogens of gastroenteritis. The nutrients for growth are provided by the Meat Peptone and Yeast extract. The increased content of the Peptone and the three fermentable carbohydrates (Lactose, Sucrose, Salicin) as sources of carbon and energy reduce the inhibitory action of the Bile salts on Salmonella and Shigella spp. The lactose concentration in this medium is higher than in many other media used for enterics since this helps the visualization of enteric pathogens and minimizes the problem of delayed lactose fermentation. Bromothymol blue and Acid fuchsin are pH indicators. Sodium thiosulfate provides Sulphur, and Ferric ammonium citrate is the indicator for H2S production. H2S positive colonies are black-centered. Sodium chloride maintains the osmotic balance.
Although suppressed, partially inhibited E. coli and other organisms which use lactose, sucrose, and/or salicin with the production of acid, give colonies whose tones vary from yellow to orange to salmon. The Salmonella and Shigella are green or green-blue. Proteus is not inhibited but produces a green-yellow colony when it grows. The colonies of Proteus and Salmonella may present a black center and clear edges if they form iron sulfide as a result of H2S production.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines. After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. For professional use only. Follow good microbiological lab practices while handling specimens and culture.

Limitations

1. Further incubation will improve differentiation between Salmonella and Shigella. Proteus species may resemble Salmonella or Shigella; hence further testing must be carried out for confirmation.
2. Since the medium is selective it must be used in conjunction with other media.

3. Individual organisms differ in their growth requirement and may show variable growth patterns.
4. Each lot of the medium has been tested for the organisms specified on the COA.
5. The surface of the medium should be dry when inoculated.

Performance and Evaluation
Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality control
Physical/Chemical control
Color : Green pH: 7.30-7.70

Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Microbiological activity

Organisms	Inoculum CFU/ml	Growth
Salmonella Typhimurium ATCC 14028	50-100	Blue-green with black center colonies
Salmonella Typhi ATCC 6539	50-100	Blue-green with black center colonies
Shigella flexneri ATCC 12022	50-100	Greenish blue
Escherichia coli ATCC 25922	50-100	Partial inhibited, Red-salmon colonies

Storage and Shelf Life
Store between 2-8°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal
User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques.

Reference
1. King S. and Metzger W. I., 1967, Abstr. M99, p. 77. Bacteriol. Proc. Am. Soc. Microbiol.
2. King S. and Metzger W. I., 1968, Appl. Microbiol., 16:577.
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4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I. Williams & Wilkins, Baltimore, Md.
5. Murray P. R., Baron E. J., Jorgensen J. H., Pfaller M. A., Yolken R.H., (Eds.), 8th Ed., 2003, Manual of Clinical Microbiology, ASM, Washington, D.C.