

HEKTOEN ENTERIC AGAR

Hektoen Enteric Agar is a differential selective medium used for the isolation of Shigella and Salmonella species from enteric pathological specimens.

REF: BS.1/HE01.100.0100	100 Gram	REF: BS.1/HE01.250.0250	250 Gram
REF: BS.1/HE01.500.0500	500 Gram		

CLINICAL SIGNIFICANCE ⁽¹⁾

Hektoen Enteric (HE) Agar is a moderately selective differential medium used for the isolation and culture of gram-negative enteric microorganisms, particularly for the isolation of Shigella and Salmonella species from fecal (mixed flora) samples.

METHOD PRINCIPLE

The increased concentration of carbohydrate and proteose peptone helps to reduce the inhibitory effect of bile salts and indicators and allows good growth of Salmonella and Shigella species while inhibiting the normal intestinal flora. The medium contains three carbohydrates i.e lactose, sucrose and salicin for differentiation of enteric pathogens. The higher lactose concentration aids in the visualization of enteric pathogens and minimizes the problem of delayed lactose fermentation. Salicin is fermented by many coliforms including those that do not ferment lactose and sucrose. Combination of ferric ammonium citrate and sodium thiosulphate in the medium enables the detection of hydrogen sulfide production, thereby aiding in the differentiation process due to the formation of black centered colonies. The indicator system, consisting of acid fuchsin and bromothymol blue, has lower toxicity as compared to other enteric media, resulting in improved recovery of enteric pathogens. Hoben et al further enhanced the selectivity of the medium by addition of novobiocin at a concentration of 15 mg/litre, which inhibits Citrobacter and Proteus species. Taylor and Schelhaul found the medium valuable for differentiating pathogenic enteric organisms and for better growth of Shigellae.

MEDIA COMPOSITION

Ingredients	gm / Liter
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

Final pH (at 25°C) 7.5±0.2

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves,

- glasses.).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.
- **S56:** dispose of this material and its container at hazardous or Special waste collection point.
- **S57:** use appropriate container to avoid environmental contamination.
- **S61:** avoid release in environment.

For further information, refer to the Hektoen Enteric agar material safety data sheet.

MEDIA PREPARATION, STORAGE AND STABILITY ⁽²⁾

BioScien Hektoen Enteric agar dehydrated media are stable until expiration date stated on label when properly stored 10-30°C. Hydrated Hektoen Enteric agar media is prepared by suspend 76.67 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Mix well and pour into sterile Petri plates. Store the prepared medium at 20-30°C Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use.

Deterioration

The color of **BioScien** Hektoen Enteric Agar medium is cream to yellow with tancast homogeneous free flowing powder, dehydrated medium is green coloured to slightly opalescent gel. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

SPECIMEN COLLECTION AND PRESERVATION

Clinical samples : Blood, urine, faeces ; Foods , water samples

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile cups
- Sterile petri-dishes
- Incubator
- Autoclave

CHARACTERISTICS OF THE COLONIES

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

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Escherichia coli ATCC 25922	50-100	fair	20-30%	orange (may have bile precipitate)
#Klebsiella aerogenes ATCC 13048	50-100	fair-good	30-40%	salmon-orange
Enterococcus faecalis ATCC 29212	>=10 ³	inhibited	0%	None
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	>=50%	greenish blue may have black centres(H ₂ S production)
Salmonella Typhi ATCC 6539	50-100	luxuriant	>=50%	greenish blue may have black centres(H ₂ S production)
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%	greenish blue may have black centres(H ₂ S production)
Shigella flexneri ATCC 12022	50-100	luxuriant	>=50%	greenish blue
Escherichia coli ATCC 8739	50-100	Fair	20-30%	orange (may have bile precipitate)

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact **BioScien** technical support.

PERFORMANCE CHARACTERISTICS ⁽⁴⁾

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

REFERENCES

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SYMBOLS IN PRODUCT LABELLING	
 For in-vitro diagnostic use	 Number of <n> test in the pack
 Batch Code/Lot number	 Caution
 Catalogue Number	 Do not use if package is damaged
 Temperature Limitation	 Consult Instruction for use
 Expiration Date	
 Manufactured by	