51490 Hektoen Enteric Agar

Selective agar for the detection and isolation of pathogenic intestinal bacteria including *Shigella* and *Salmonella*, from various sources such as food, stool etc.

Composition:

Ingredients	Grams/Litre
Mixed peptone	12.0
Yeast extract	3.0
Sucrose	12.0
Lactose	12.0
Salicin	2.0
Bile salts	9.0
Sodium chloride	5.0
Sodium thiosulfate	5.0
Ammonium ferric citrate	1.5
Acid fuchsin	0.1
Bromothymol blue	0.065
Agar	15.0

Final pH 7.5 +/- 0.2 (at 25°C)

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.
Appearance: Faintly greenish-beige coloured, homogeneous, free flowing powder.
Gelling: Firm
Color and Clarity: Green coloured clear to slightly opalescent gel forms in petri plates.

Directions:
Suspend 76.67 g in 1 litre distilled water and let it soak. Heat up by constant stirring until boiling. Cool to 55 - 60°C and pour into sterile plates. Do not autoclave. The Medium is very thermolabile and thus overheating should be avoided.

Principle and Interpretation:
Hektoen Enteric Agar was originally developed by King and Metzger [1, 2]. It improved the detection of *Salmonella* and *Shigella* organisms compared to other enteric differentiating media. The high content of carbohydrate and peptone in the medium neutralise the inhibitory effects of the bile salts and indicators but the adequate inhibition of gram-positive microorganisms was still ensured. *Salmonella* contamination is the second leading cause of food-borne illness worldwide. Most outbreaks of *Salmonella* are traced back to dairy, poultry and meat products, but Salmonella can grow on nearly any food. Chicken, eggs and their derivative products are particularly high risk.
Mixed peptone and yeast extract are reach sources for nitrogenous compounds, vitamins, carbon, sulphur and amino acids. The carbohydrates sucrose, lactose and salicin are the fermentable substrates while bile salts, acid fuchsin and bromothymol blue inhibits gram-positive organisms. Sodium chloride is for the osmotic balance. Ammonium ferric citrate is a source of iron, which is used as indicator for the production of hydrogen sulfide (H_2S). Sodium thiosulfate is used as the substrate for building hydrogen sulphide which gives together with iron a black precipitate (Iron(II) sulphide; FeS). H_2S-positive colonies have black centers. The indicator bromothymol blue changes its colour to yellow and acid fuchsin would changes color from yellow to pink when acid is formed. *Proteus* species may resemble *salmonellae* or *shigellae*. Further testing must be carried out to confirm the presumptive identification of organisms isolated on this medium.

Cultural characteristics after 18-24 hours at 35°C.

Organisms (ATCC)	Growth	H_2S production	Appearance of Colony
Enterococcus faecalis (29212)	-	-	-
Escherichia coli (11775)	-/+	-	salmon-orange, may with bile ppt.
Sallmonella typhimurium (14028)	+++	+	greenish blue with black centers
Shigella flexneri (12022)	+++	-	greenish blue

References:

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Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.