Technical Data

HiCombi™ Dual Performance Selective Medium - HEA LQ035A

Intended use

Recommended as a qualitative test for rapid growth and confirmation of *Salmonella*. Combination of solid (20 ml) and liquid (40 ml) media in single bottle.

Composition**

Ingredients	g / L
Solid	20.000 ml
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
Liquid	40.000 ml

Same as solid media without Agar

**Formula adjusted, standardized to suit performance parameters

Directions

Label the ready to use LQ035A bottle. Remove the top seal of the cap. Disinfect the part of the rubber stopper which is now exposed. Transfer the sample immediately into the culture bottle by puncturing the rubber stopper with the needle. Venting: Use sterile venting needle (LA038). Keep the bottle in an upright position preferably in a biological safety cabinet, place an alcohol swab over the rubber stopper and insert the venting needle with filter through it. Insertion and withdrawal of the needle should be done in a straight line. Discard the needle and mix the contents by gently inverting the bottle 2-3 times. Do not vent the bottle for anaerobic cultures. Incubate at 35-37°C for 18-24 hours. Recommended volume of blood to be tested in LQ035A: 8-10 ml (For Adult use).

Principle And Interpretation

Hektoen Enteric Agar was developed in 1967 by King and Metzger of the Hektoen Institute in order to increase the frequencies of isolation of *Shigella* and *Salmonella* organisms when compared with their recovery on other media frequently utilized in clinical laboratories at that time (1-3). Sodium deoxycholate has been replaced by bile salts in reduced concentration. This allows growth of *Shigella* as well as the *Salmonellae*. The peptone concentrations have been increased in order to offset the inhibitory effects of the bile salts (4). Hektoen Enteric Agar is currently recommended as one of several plating media for the culture of *Enterobacteriaceae* from stool specimens (5). Foods containing poultry, eggs or dairy products are the most frequent vehicles for foodborne Salmonellosis, and a variety of procedures have been developed using Hektoen Enteric Agar as part of the multi-step procedure to isolate *Salmonella* (6-9).

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 (10) 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 Schelhaut (11) found the medium valuable for differentiating pathogenic enteric organisms and for better growth of *Shigellae.*

Type of specimen

Clinical samples : Urine, faeces; Foods, water samples

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (12,13).
For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (7,8). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use. For professional use only. Read the label before opening the container. Wear protective gloves/ protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Further biochemical identification is required for confirmation of species.

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

Appearance
In a sterile glass bottle combination of broth and one agar coated surface.

Colour of Agar medium
Green coloured medium

Colour of liquid medium
Green coloured medium

Quantity of medium
20ml of solid medium in glass bottle

40ml of liquid medium in glass bottle

pH of Agar medium
7.30-7.70

pH of liquid medium
7.30-7.70

Sterility Check
Passes release criteria

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

Organism	Inoculum (CFU)	Growth on agar medium	Growth on liquid medium	Colour of colony
Escherichia coli ATCC 25922 (00013*)	50-100	fair	Luxuriant	orange (may have bile precipitate)
# *Klebsiella aerogenes* ATCC 13048 (00175*)	50-100	fair-good	Luxuriant	salmon-orange
Salmonella Enteritidis ATCC 13076 (00030*)	50-100	Luxuriant	Luxuriant	greenish blue may have black centres(H_2S production)
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	Luxuriant	Luxuriant	greenish blue may have black centres(H_2S production)
Shigella flexneri ATCC 12022 (00126*)	50-100	Luxuriant	Luxuriant	Greenish blue

Key : *Corresponding WDCM numbers #Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

On receipt 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (12,13).

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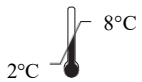
IVD *In vitro* diagnostic medical device



Storage temperature

EC REP CEpartner4U, Esdoornlaan 13,
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www.cepartner4u.eu

CE CE Marking

Do not use if package is damaged

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