

HiWater™ Test Kit

K015

HiWater™ Test Kit is devised for rapid and simultaneous detection of *Salmonella* species, *E. coli*, *Citrobacter* species and *Vibrio* species.

Composition

Medium A : (for detection of *Salmonella* species, *E. coli*, *Citrobacter* species)

Ingredients	Gms/pack
Peptone, special	2.0
Lactose	0.5
Dipotassium hydrogen phosphate	0.15
Ferric ammonium citrate	0.075
Sodium thiosulphate	0.1
Sodium lauryl sulphate	0.01
Bromo cresol purple	0.0005

Medium B : (for detection of *Vibrio* species)

Ingredients	Gms/pack
Peptone, special	1.2
Sucrose	2.0
Sodium thiosulphate	0.65
Sodium citrate	1.0
Bile salt	0.6
Sodium chloride	1.0
Indicator mix	0.06

Direction :

Collect 100 ml water in each sterile disposable bottles. Transfer 100 ml each to two separate sterile disposable bottles. Add entire quantity of medium A powder slowly to one bottle with 100 ml water. Swirl to dissolve the powder completely. Similarly add entire quantity of medium B powder to another bottle with 100 ml water. Repeat the same procedure for dissolution of powder as specified for medium A. After dissolution, incubate both the bottles for 24-48 hours at 35-37°C.

Principle and interpretation :

Medium A : For *Salmonella*, *E. coli*, *Citrobacter* species :

HiWater test kit which is a modification of Manja *et al.* (1), allows the simultaneous detection of *Salmonella*, *E. coli* and *Citrobacter* species. Differentiation is based on production of H₂S whereas *E. coli* is identified on the basis of colour change in the medium.

The medium contains peptone as a source of nitrogen. Ferric ammonium citrate and sodium thiosulphate are reduced by certain species of enteric organisms to produce H₂S. Dipotassium hydrogen phosphate provides buffering action and sodium lauryl sulphate inhibits the growth of accompanying microflora. Bromo cresol purple indicates change in the pH of the medium by colour change from reddish-purple to yellow. Lactose fermentors induce acid production leading to lowering of pH and hence the colour change.

Medium B : For *Vibrio* species :

Vibrio broth is a selective medium for *Vibrio cholerae*, *V. parahaemolyticus* and other *Vibrios*.

Peptone, special provides nitrogen, carbon, sulphur, vitamin B complex and other essential nutrients.

Sodium citrate, bile salt inhibit gram positive organisms and coliforms. Sucrose is the fermentable carbohydrate. Thiosulphate acts as a source of sulphur. The alkaline pH of the medium aids in the recovery of *Vibrio cholerae*.

Quality Control :

Appearance:

Medium A and B : Light yellow coloured, homogeneous, free flowing powder.

Colour and Clarity :

Medium A : Light purple coloured, clear solution.

Medium B : Purple coloured, clear solution.

Cultural Response :

Cultural characteristics observed after an incubation of 18 – 48 hours at 35 - 37°C.

Medium A - for *Salmonella*, *E. coli*, *Citrobacter* species

Organism (ATCC)	Colour change	H ₂ S production
<i>E. coli</i> (25922)	Yellow	—
<i>S. Typhimurium</i> (23564)	Black	+
<i>C. Freundii</i> (8090)	Black	+
<i>S. Enteritidis</i> (13076)	Black	+

Key : no colour change (purple colour)

Medium B - For *Vibrio* species

Organism (ATCC)

V. cholerae (15748)

V. parahaemolyticus (17802)

Colour change

dark burgundy

red

References :

- 1) Manja, K.S., Maurya M.S. and Rao, K.M. 1982, *Bulletin of World Health Organization*. 60(5):797-801.

Storage and Shelf-life :

Store below 30°C. It has shelf-life of 3 years.