



Selective and enriching kit for identification of *E. coli* and Coliforms

Approved by the Standards Organization, the Food and Drug Organization, the Veterinary Organization, the Water and waste water Organization.

Coliform bacteria are a common indicator for checking the health and safety of water. *Serratia*, *Enterobacter*, *Citrobacter*, *Hafnia*, *Yersinia* and *Klebsiella* are among coliform bacteria. Coliforms are usually found in our environment and are one of the main sources of acute diseases caused by water contamination. Every year, millions of cases of bacterial diseases, including fatal cases, occur due to water contamination. In milder cases, diarrhea, vomiting and various gastrointestinal symptoms can be mentioned.

Due to the fact that contaminated water may not have a bad taste or smell, most water contamination cannot be identified without proper methods. The presence of coliform and *E. coli* bacteria in drinking water shows that it is necessary to purify water. If contamination is observed in the water being purified, it means that sufficient purification has not been done to remove all living microbes. If water purification is not done completely, this water can potentially be toxic and cause illness.

In addition to natural things that contaminate water, such as animal waste, floods, the presence of all kinds of insects, etc., contamination can also occur in tanks and even undesirable plumbing. For this reason, the necessity of investigating contamination in other sources should also be considered.

Colizist™ kit is a simple method to check the presence/absence of coliform bacteria at the same time as *E. coli*. Colizist™ helps laboratories ensure that water is clean and safe. Colizist™ is a test based on recovery and enrichment and then enzyme assay to identify coliforms and *E. coli* in water samples.

Nutrients in this culture medium enable the rapid growth of coliforms. Inhibitors also inhibit gram-positive bacteria. The chromogenic substrate in the kit is seen as an insoluble blue color after being digested by coliforms. Also, the used fluorogenic substrate has high specificity for *E. coli*. As a result, it enables simultaneous identification of coliforms and *E. coli*.

Colizist™ kit is produced in two different packages based on customer needs. A package includes 100 ml bottles containing culture medium powder, which is enough to add 50 ml to 100 ml of the desired water sample to the bottle. The second packaging is in the form of small vials containing the culture medium powder. It is necessary to add the powder to the sampling container of the laboratory.



Vial

Bottle



Advantages of the *Colizist™* Kit

Easy to use in 1 minute

Very high detection accuracy (identification of one target bacterium in 1 million heterotrophic bacteria in 100 ml of water sample)

Based on EPA approved methods

Affordable

Suitable for drinking water contamination test

On-site sampling (for industrial sites or home testing)

Flexible reading time from 16 to 48 hours

No need for specialized equipment

When Using the *ColiZist™* Kit, It Is Necessary to Pay Attention to These Points

If the water sample has a colored background, the inoculated sample should be compared with a control sample from the same water source.

ColiZist™ is one of the main water tests and is not suitable for rich or concentrated samples and should not be used.

When adding samples with a lot of chlorine to *ColiZist™*, blue radiation may be observed, if this happens, the result is not valid and the test should be stopped.

If possible, it is better to perform the test in sterile conditions and according to GLP.

Sampling

Preparation

Open the *ColiZist™* bottle and add 50 ml to 100 ml of the water sample to be tested. If you are using *ColiZist™* vials, it is necessary to add the culture medium powder to the glass containing 50 ml to 100 ml of water sample.

- * Note that if the tested water is chlorinated, a false positive result for the presence of *E. coli* will be observed. To prevent this from happening, it is necessary to add 100 microliters of sodium thiosulfate with a concentration of 3% to the sample and shake well for about 15 seconds.

Shake the bottle a little until the culture medium powder dissolves well and a clear and yellow solution is formed.

Incubation

Incubate the bottle at 35 ± 2 °C for 18-24 hours and then check the results. If the bottles are placed at a temperature of 20-25 °C, you should increase the incubating time to 48 hours.



Interpretation

Negative Result: no color change is observed in the culture medium and the color of the medium remains yellow.

- * Sometimes the bacteria in the original sample may be under stress conditions and undergo genetic mutations. In this case, some specific enzymes of the bacteria may be deactivated for the hydrolysis reaction of the substrates used, and the color change or fluorescence may not be observed, and a false negative result may be obtained. In this case, the yellowness of the culture medium after 24 hours does not definitely indicate the absence of bacteria. To ensure the correctness of the results, after 24 hours, the indole test should be performed on the yellow media using KOVAC's reagent.



Stable color change at the top of the bottle.

Total Coliforms: Any change in the color of the culture medium from yellow to green-blue that is stable and does not disappear by shaking the kit, indicates the presence of *coliforms* in the sample.

- * Color change even if it is only on the top of the bottle also indicates the presence of *coliforms*.
- * Note that regardless of the presence of *E. coli*, if the presence of *coliform* bacteria is confirmed, it is necessary to disinfect the water and not use it in any way.

***E. coli*:** Observation of fluorescence against UV light for bottles with color change indicates the presence of *E. coli*. For this, it is necessary to place the bottle in a dark environment in front of a six-watt UV lamp with a wavelength of 366 nm at a distance of a few centimeters.

- * If fluorescent is observed in against UV light and a red ring is formed after adding KOVAC's reagent, the presence of *E. coli* can be confirmed with 99% certainty. In this case, there is no need for other confirmation steps.
- * **Warning: Avoid direct exposure of UV light to the eyes.**

Prepared culture medium before incubation
Yellow and transparent

Color change to blue-green
coliforms

Fluorescence observation
E. coli



Quality Control of the Colizist™ Test Kit

To confirm the quality and performance of the Colizist™ kit, the specified strains can be cultured and the specified reaction patterns can be checked. Incubate the bottle at 35 ± 2 °C for 18-24 hours and then check the results. If the bottles are placed at a temperature of 20-25 °C, you should increase the incubation time to 48 hours.

Organism (ATCC)	Growth	Color Change to Blue-Green	Fluorescence	Indole Reaction
<i>Escherichia coli</i> (25922)	+	+	+	+
<i>Shigella flexneri</i> (12022)	+	-	-	-
<i>Enterobacter aerogenes</i> (13048)	+	+	-	-
<i>Salmonella typhimurium</i> (14028)	+	-	-	-
<i>Citrobacter freundii</i> (8090)	+	+	-	-

Best time to Use

Store at a temperature of 20-25 °C and away from light. Keeping the bottles (or vials) containing the culture medium powder at a higher temperature or in a humid environment causes the powders to clump. Keeping at a lower temperature will make the product last longer.

Disposal

Autoclave bottles containing contaminated media at 121 °C for 15 minutes. If an autoclave is not available, place the bottles in boiling water for 30 minutes. You can also use a suitable disinfectant.

