

SOPs for Water Testing



**RAHBAR COLLEGE
OF DENTISTRY**

PRINCIPAL

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Introduction

- a. Bacteriological examinations of water are routinely conducted to monitor the quality of drinking water. The contaminated water harbors several pathogenic bacteria capable of causing typhoid, dysentery, diarrhea and cholera.
- b. The presence of other indicator bacteria such as coliform are routinely monitored for the presence of pathogenic organisms.

Sampling

1. Use pre-sterilized, paper-wrapped glass bottles for sampling.
2. Add 0.2 ml of 3% sodium thiosulfate solution to water with residual chlorine before sterilization.
3. For reservoir sampling:
 - Lower the stoppered bottle to a depth of 15-30 cm.
 - Remove the stopper and cover, keeping them in hand.
 - Fill the bottle, leaving a 3 cm air space, then replace the stopper and pull up the bottle.
4. For tap sampling:
 - Remove external fittings and sterilize the tap with flame and methylated spirit.
 - Let water flow for 2 minutes.
 - Open the bottle near the tap to collect water and immediately close it, avoiding contamination.

Transport preservation and storage:

Samples after collection should be immediately taken to the laboratory for examination. If the processing is not possible within one hour, the samples should be transported in ice. In laboratory, if immediate analysis is not possible, the samples can be preserved at 4°C up to 6 hours, but in one case more than 24hrs.

Sop-water collection & transport:

Take a 500 ml transparent glass bottle with screw cap.



Open the bottle and keep in boiling water for 20 minutes (for sterilization).



Show flame to the mouth of the tap and mouth of the bottle for a minute



Keep the tap open for two minutes.



Fill the bottle and empty it.



Re-fill the bottle, up to the brim & throw some water, leaving little space at the top.



Close the bottle, write time and site of collection. Label & Sign it.



Bottle to reach lab within 6-8 hour of collection.



If delay up to 20 hours is suspected, send in ice jar/cooler. For sealed water bottles, four bottles of each batch are required (with intact seal.)

Standards:

The classification of drinking water according to bacteriological tests is given in the following table

Table: Classification of drinking water.

Class	Grade	Presumptive coliform count (per 100 ml)	E. coli count (per 100 ml)
I	Excellent	0	0
II	Satisfactory	1-3	0
III	Suspicious	4-10	0
IV	Unsatisfactory	>10	≥1

Reporting of Result:

- Mention the presumptive coliform count and Escherichia coli count per 100 ml of water.
- Report it as 'Fit/unfit for human consumption'
- Give an advice, if a repeat specimen is required.
- Make appropriate referral in case of any outbreak of jaundice, cholera, typhoid fever etc.

Quality Assurance:

- Due emphasis should be given on proper collection and prompt transportation of the specimen.
- Refrigerate the water specimen for a maximum of 48 hours if not immediately processed.
- Ensure the reliability of media and instruments.
- Interpret the results properly.
- Discard all the tubes showing negative test. It is however advisable to examine the tubes first at the completion of 24hrs. subject the tubes showing positive test immediately to confirmatory test. Incubate negative tubes to further 24 hrs.