



## Smt. J.A. Patel Mahila Science College



Guided By: Prof. Nirali A. Jethaloja

### “Microbial Analysis of Drinking Water Sample Collected From Different Areas of Morbi District”

Prepared By : kasundra Himanshi

#### ABSTRACT

A study will conducted to evaluate the quality of drinking water of the morbi district. A total of six drinking water samples were collected from different sources like tube wells, well, lacks , taps in different place of morbi district. The sample were analyzed for microbiological parameters. To detect quality of drinking water Different microbiological test will be performed like SPC, presumptive test, confirmed test, completed test etc. Here we detect that from this six water sample how many samples cross the WHO guideline value. If the water sample is fecal contaminated or the sample contain other pathogenic organisms so that, this type of water sample is not potable to drink by people/humans. Because that kind of sample causes different types of water born diseases. Here we detect that from collected total of six water sample only well water sample is not potable.

#### AIM AND OBJECTIVE

To detect microbial analysis of drinking water by performing SPC, Presumptive test, Confirmed test and Completed test .

#### INTRODUCTION

Water contain many bacteria as ti is generally found in streams,lakes and river water.water becomes contaminated by intestinal pathogens such as coliform group of bacteria.According to report of the world health organization (WHO) about  $1.7 \times 10^6$  death per year occurs due to unsafe water supplies.The WHO indicates that about  $3.5 \times 10^6$  deaths annually caused by dangerous water borne enteric bacterial and pathogen. Keywords :- drinking water, public health, coliform, bacteria

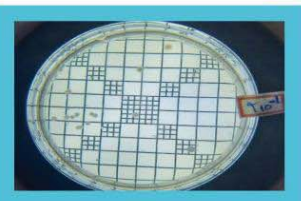
#### WATERBORN DISEASE

DISEASES	ORGANISMS
Gastroentritis(viral)	Rota virus
Gastroenteritis(bacterial)	Campylobacter jejuni
Dysentery	Shigellaspp
Cholera	Vibrio cholera

#### METHOD

##### 1. Standard plate count

TVC/ SPC is based on the assumption that each viable bacterium develops into a distinct colony. Hence, original number of microorganisms in the sample can be calculated from number of colonies and then multiplying it with aliquot factor.



##### 2. Presumptive test

It is based on the principle that coliforms if present in water, will ferment lactose to produce acid and gas within 24-48 hours. Production of acid is indicated by pH indicator and gas is collected in Durham's vid, both of which are present in the medium. Media used are highly sattheedis, for coliformes, which inhibit growth of gram-positive organisms. MacConkey's lactose bile broth (MLBB) or formate lactose glutamate medium or laurel tryptose broth or brilliant green lactose bile broth (BGLB) can be used for presumptive test.



##### 3. Confirmed test

This test is named so because, positive presumptive tubes having acid and gas are subjected to further confirmation that positive results were due to coliforms only. Test involves, streaking of eosin methylene blue (EMB) agar or Endo's agar plate and looking for the growth; of typical &/or atypical colonies of coliforms.



##### 4. Completed test

In this test the typical and /or atypical colonies growing on EMB agar plate are subjected to morphological and biochemical varification so as to prove that they are coliforms. This is determined by checking whether the organisms isolated from positive presumptive test (i.e. typical/atypical colonies ) are:Gram-negative non spore forming short rods, and Able to ferment lactose with production of acid and gas.Since this test completes and finishes the “presumptive test for coliforms” it is referred to as completed test.



#### RESULT

WATER SAMPLE	NO. OF COLONY IN 100 ml	ACID & GAS PRODUCTION	ATYPICAL / TYPICAL COLONY	COLIFORM
SAMPLE 1	<100	ABSENT	TYPICAL	ABSENT
SAMPLE 2	<100	ABSENT	TYPICAL	ABSENT
SAMPLE 3	<100	ABSENT	TYPICAL	ABSENT
SAMPLE 4	>300	PRESENT	ATYPICAL	PRESENT
SAMPLE 5	>300	PRESENT	TYPICAL	ABSENT
SAMPLE 6	<100	ABSENT	TYPICAL	ABSENT



Only positive results of biochemical test.

#### COCLUSION

By performing this analysis we concluded that from collected of total six water sample only well water sample is not potable as a drinking water because coliforms are observed in this water sample and in other five water samples coliforms are not observed.

REFERENCE : Experimental MicroBiology, Rakesh Patel 3rd Edition, Aditya Publishers