



Bacteriological testing of water

Adapted, with permission from: Cairncross & Feachem (1993) Environmental Health Engineering in the Tropics: an Introductory Text 2nd edition. London: John Wiley & Sons.

Indicator bacteria

Indicator bacteria are used to assess the quality of water. They are organisms that are easy to detect and count, and their presence indicates the presence of other, more harmful bacteria. The most commonly used indicator bacteria are coliforms, which include both aerobic and anaerobic species. The presence of coliforms in water is a sign of contamination by fecal matter, which may contain pathogenic bacteria. The most common method for detecting coliforms is the membrane filtration technique, which involves filtering a known volume of water through a membrane that traps bacteria. The membrane is then placed on a nutrient agar medium and incubated. The number of colonies that grow is a measure of the number of bacteria in the water.

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Chlorinated supplies

Chlorinated supplies are water supplies that have been treated with chlorine to kill bacteria. Chlorine is a powerful disinfectant that can kill most bacteria, including coliforms. The most common method for chlorinating water is the use of chlorine gas, which is added to the water. The chlorine gas reacts with the water to form hypochlorous acid, which is the active disinfectant. The amount of chlorine added to the water is measured in milligrams per liter (mg/L). The most common method for measuring the amount of chlorine in water is the orthotolidine method, which involves adding a small amount of orthotolidine to the water and measuring the color change. The color change is proportional to the amount of chlorine in the water.

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Untreated supplies

Untreated supplies are water supplies that have not been treated with chlorine. These supplies are more likely to contain bacteria, including coliforms. The most common method for detecting coliforms in untreated supplies is the membrane filtration technique, which involves filtering a known volume of water through a membrane that traps bacteria. The membrane is then placed on a nutrient agar medium and incubated. The number of colonies that grow is a measure of the number of bacteria in the water.

Conclusion

- ▶ The water supply system is a complex system that involves the interaction of various components, including the water source, treatment plant, distribution network, and end-user.
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