

Microbial Indicators and Pathogens in Water

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DESCRIPTIVE

Microorganisms that dwell in water or can be moved from one habitat to another are studied in water microbiology. Many different types of microorganisms can grow in water. This could be advantageous. Beer and bread, for example, are made possible by the chemical activity of certain yeast strains. In addition, the proliferation of some bacteria in contaminated water can aid in the digestion of the chemicals in the water. The presence of other disease-causing bacteria in water, on the other hand, is hazardous and even deadly. If faeces reach the water, bacteria including *Escherichia coli*, *Salmonella*, *Shigella*, and *Vibrio*, which dwell in the intestinal tracts of humans and other warm-blooded animals, can contaminate it. Contamination of drinking water with the O157:H7 strain of *Escherichia coli* can be lethal.

Fresh and saltwater include a wide variety of microorganisms. Bacteria, cyanobacteria, protozoa, algae, and small animals like rotifers are among them. These can play a vital role in the food chain that underpins aquatic life. Cyanobacteria, for example, may turn the sun's energy into the energy they require to survive. The abundance of these organisms serves as nourishment for other forms of life. Algae that flourish in water are also a vital source of food for other organisms. Warm-blooded animals' intestinal tracts also carry viruses that can contaminate water and cause sickness. Rotavirus, enteroviruses, and coxsackievirus are examples. Protozoa are another category of bacteria to be concerned about in water microbiology. The two protozoa that cause the most concern are *Giardia* and *Cryptosporidium*. They generally live in the intestines

of animals like beaver and deer. During their life cycles, *Giardia* and *Cryptosporidium* produce dormant and resilient cysts. The cyst forms are resistant to chlorine, the most common form of drinking water disinfection, and can pass through many water treatment plant filters. When absorbed through drinking water, they can cause debilitating and long-lasting diarrhoea in humans, and they can be fatal to those with compromised immune systems. The testing of water to determine that it is safe to drink is an important area of water microbiology, particularly for drinking water. Water quality testing can be accomplished in a variety of methods. The turbidity of the water is measured using one popular test. The amount of suspended material in the water is measured by turbidity. The amount of suspended material in the water is measured by turbidity. If there is substance in the water, such as soil, microbes are likely to be present. Water clarity can be harmed by the presence of particles as minuscule as bacteria and viruses. Turbidity is a quick indicator of whether water quality is degrading and, thus, whether action should be made to correct the problem. Water can also be a great way to move microorganisms from one location to another. Water carried in ship hulls to support the vessels during ocean trips, for example, is now understood to be a mechanism of transferring microorganisms around the world. *Vibrio cholerae*, a bacterium, is one of these organisms that cause life-threatening diarrhoea in humans. If there is substance in the water, such as soil, microbes are likely to be present. Water clarity can be harmed by the presence of particles as minuscule as bacteria and viruses. Developed countries are also affected by microbial waterborne illnesses.

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Received: December 8, 2021; **Accepted:** December 22, 2021; **Published:** December 29, 2021

Citation: Potempa J (2021) Microbial Indicators and Pathogens in Water. Appl Microbiol: Open Access. 7:217.

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