



THE BIOLOGY OF WATER

➤ Last month, we discussed the chemical components of water that affect the postharvest quality of cut flowers. In this article, we will focus on water's biological properties that play a key role in maintaining an uninterrupted supply of water to a cut flower.

What Are Microbes?

The biological property that most impacts the quality of cut flowers is the presence of microbes. Microbes are microscopic living organisms such as bacteria, viruses, fungi and algae. Microbes live in every environment, including in and on our bodies.

While some microbes benefit humans and plants, many can cause damage and disease. The microbes associated with cut flowers after harvest do more damage than good. Invisible to the naked eye, microbes are difficult to detect and thus are difficult to control.

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The microscopic size of these organisms makes it impossible to determine how many microbes are present in water. Microbes multiply very rapidly, and can reach damaging levels very quickly — if preventative measures are not taken.

Microbes and Cut Flowers

Bacteria and fungi (mostly yeast) are the most common types of microbes that affect the life of cut flowers. The number of these organisms in your water is more important than the type of microbe.

Scientific experiments have shown that, when the number of microbes in water (especially bacteria) grows beyond a certain threshold, they begin to populate the small vessels (called xylem) that carry water within the cut flower stem. When bacteria, both living and dead, block the xylem vessels, flowers cannot receive water and eventually die from dehydration.

How to Keep Water Clean

A few practical steps can prepare your water for cut flower processing and reduce the risk of microbial contamination. General cleanliness and routine sanitation of your facility is essential to maintain the quality of cut flowers. The goal of preparing a clean environment is not to have sterile water but to keep the microbes from reaching damaging levels.

First, start with a clean container to hold water. A clean bucket and clean tools will ensure that the initial microbe level is minimal. It's a good habit to routinely use a commercial cleaner and a disinfectant to sanitize containers.

Second, use an inexpensive test kit to check the microbe levels in your water. An example is the Sani-Check test kit for bacteria from Biosan Laboratories Inc. in Warren, Michigan (biosan.com, starting at around \$100). If you use municipal drinking water, the microbe levels are most likely low. Furthermore, using commercial treatments for cut flowers in proper dosages should keep water clean.

Vital Tasks

Remember, understanding the amount of microbes in your water is vital for getting the best postharvest quality of cut flowers. Routine checks and sanitation practices will help prevent the microbes in your water from reaching damaging levels. 🌿

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