

The Science of Bio- Augmentation Bacteria vs Enzymes

While enzyme products do work in certain applications, bacterial products are generally much more cost effective to use.

Many people use the terms bacteria and enzymes almost interchangeably and consider them basically the same thing. This perception is incorrect, and there is a big difference between bacteria and enzymes:

Enzymes are:

Biochemical catalysts - which mediate a variety of biochemical reactions.

Proteins - many of them produced by bacteria.

Not living - and hence, do not reproduce.

Specific - only metabolize certain substrates.

Not consumed in reactions they mediate - and hence, get washed out.

While enzymes do work to an extent, they are usually crude preparations of one or two enzymes that mediate only one step in a breakdown reaction. They quickly wash out of a system because they do not reproduce and are easily destroyed by heat, chemicals, etc

Bacteria are:

Living - so they reproduce and increase their numbers until they don't have enough food to keep growing.

Enzyme factories - producing the full complement of enzymes to completely metabolize most substrates in their environment.

Able to form "biofilms" - which help them stay in a system or line instead of washing out like enzymes.

Because of these characteristics, bacteria are often much less expensive to use than enzymes.