



Subject: The Importance of our BRe³™ Scientific Discoveries on Plants
From: BioRadiance Science Team led by our Ph.D. in Plant Physiology
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A WORKING UNDERSTANDING OF THE BRe³ SCIENCE

Understanding the patented and patent pending science that BioRadiance Grow Science ("BRGS") has developed to achieve its breakthrough results is very important. Here is an explanation, in layman's terms.

HOW WAS THE SCIENCE DISCOVERED?

After decades of research coupled with trial and error testing conducted by our co-founder and Ph.D. in plant physiology and his colleagues going back to the 1990's, a general discovery was made that validated that specific wavelengths adversely affected life forms, including bacteria and fungi. It was known that ultraviolet was very deadly to bacteria, fungi and plants, but also harmful to humans. The discovery identified totally different segments of the light spectrum, which are invisible to humans, that both accelerated the photosynthesis process and simultaneously killed bacteria and fungi. These elements were safe for humans and had more penetrating capacity than blue or violet light. These findings were not utilized much at the time because the only way to deliver them was with lasers and they were closely regulated and expensive.

About twenty years ago, our Ph.D. plant physiologist and a group of scientists discovered that very specific elements of this newly discovered light segment stimulate certain physiological and biochemical processes in plants (floral, fruits, vegetables) that were both living and already harvested making them (a) live longer, (b) stay fresher longer and (c) maintain their own microbial defenses longer. From this discovery, our scientist applied for and was awarded a patent that has become the foundation of the BioRadiance Grow Science that we call BRe³.

HOW DOES THE BRe³ TECHNOLOGY GET DELIVERED IN TODAY'S APPLICATION?

Our Ph.D. plant physiologist realized that with the invention and perfection of LED light emitters, there was now a realistic possibility of emitting the exact and unique combination of wavelengths that do multiple yet in balance actions (a) accelerate photosynthesis processes leading to increased ATP production, (b) increase the plant's growth rate and regulate some processes of their development like flower and fruit production and delay senescence of the plant's tissues and organs, (c) optimize cellular repair, and (d) cause the maximum amount of damage to microbes. With the refinement and added power output from specific proprietary emitters, BioRadiance Grow Science has been able to create customized combinations of specific wavelengths incorporated in our devices that produce strong enough power (radiant flux) delivered to the plant to be highly beneficial to plant growth and devastating to microbes – pathogenic bacteria and fungi/mold/mildew. Simply, we concurrently produce a balance of positive energy for growth and negative energy for pathogen destruction. BioRadiance Grow Science has branded these wavelength groupings as BRe³ and these combinations or formulae resemble the small, safe portions of the solar spectrum that work.

HOW DOES BRe³ OPTIMIZE GROWTH?

The Power to ³ in our brand (BRe³) simply highlights the three primary benefits of our science. We (1) stimulate the rate of photosynthetic activities of plants and their cellular respiration process, which increases production of Adenosine Triphosphate (ATP) in photosynthesis and oxidative phosphorylation. Photophosphorylation occurs during photosynthesis and oxidative phosphorylation during cellular respiration. These activities allow the plant to maintain its necessary dynamic and balance between photosynthetic processes and cellular respiration during the day and night cycles. These accelerated activities are especially related to carbon dioxide uptake, synthesis of secondary metabolites and the plant's hormones but at a much faster pace. Simply put, this means more nutrient uptake and healthy growth. (2) Working in concert within the plant's photosynthesis process are properly directed hormones and added ATP available for optimal cellular repair activity. The presence of BRe³ simply allows cells to live longer. And (3) a different cocktail of wavelengths of safe light attack and destroy pathogens like fungi/mold/mildew.

HOW DOES BRe³ KILL THE MICROBES?

BRe³ disables the ability of iron-dependent bacteria to synthesize iron so they cannot feed themselves and they die. For most other bacteria and fungi, the radiant power of our science excites electrons and makes lethal damages in the microbes until the cell wall or the mitochondria (the cell's powerhouse) ruptures, causing death. BioRadiance understands how these microbes differ when it comes to (a) what power level is needed and (b) what exposure time is necessary to best destroy them.

WILL BACTERIA AND FUNGI ADAPT TO OUR SCIENCE IN THE SHORT TERM?

It is very unlikely that microbes will adapt to our science in the short term. The manner in which they are killed will make adaptation very difficult. Let us not forget that we have based our science on something essential for all life---light from the sun. While pathogens like bacteria have become resistant to drugs, like antibiotics, in many cases this process has taken a few generations. Since the strong bacteria survive and mutate, any treatment over the long term could lose its effectiveness. We believe that since we have developed our technology on natural, basic elements of life---light from the sun --- we conclude that the ability of fungi and bacteria to adapt will be very difficult.

CONCLUSION

BRe³ is a FIRST OF A KIND SCIENCE. The products we design and manufacture are unique. We use safe forms of radiant energy that are instrumental in plant growth and detrimental to microbe proliferation. Our patented and patent pending scientific discoveries will allow all of us to build strong and sustainable businesses together.

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