

## WHAT IS IONIZED WATER?



- \* The most notable demonstration of ionized water is the formation of lightning.
- \* Storm winds cause water, ice and hail in the clouds to crash with such fierceness that the water molecules separate into charge particles called ions.
- \* That separation creates an electrical field. At a threshold point, the positive and negative ions seek to reunite causing an electrical discharge which is a flash of lightning. The accompanying sound is thunder.



## WHY IS IONIZED WATER IMPORTANT?

Ionized water, in particular negatively charged and alkaline (a PH of more than 7) has some useful applications and potentially important benefits.

## SO HOW DO WE GET IONIZED WATER WITHOUT TACKLING A LIGHTNING BOLT?

Engineer Nicholas Tesla's (1856-1943) understanding of the electrical fields that exists between the Atmosphere and the Earth and is the basis of the wireless technology known as Wi-Fi. .

Technology has now evolved to use that wireless, satellite-based electrical system to develop a tool to convert faucet water to ionized through a simple attachment.

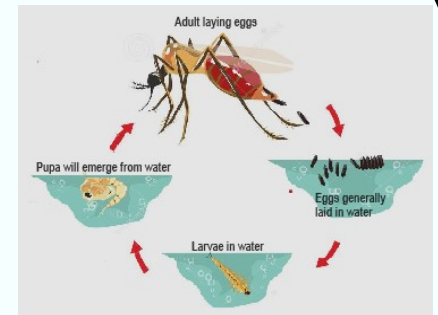
## IONIZED WATER & PEST CONTROL? FARMING? (BACK PANEL)

- ◇ Electrical fields have been shown to repel mosquitoes. Many creatures will change their behavior (Source: <https://academic.oup.com/>)

- ◇ A science called Electric Ecology examines the static electricity created when animals beat their wings or move over surface and pick up a charge. Often pests will be deterred from a surface where they sense a charge. (Sources: <https://academic.oup.com/jinsectscience/article/24/1/8/7606101>).

- ◇ Mosquito development is reported to be delayed in its larvae and pupa stages both by the mineral content (alkalinity) and electrical conductivity of ionized and can actually be toxic to mosquito larvae. Moreover, ionized water diminishes the amount of bacteria in the water, therefore there are less nutrients available for larvae to continue their growth. (Source: <https://academic.oup.com/jme/>)

- ◇ It is important to note that Insecticides can break down if exposed to alkaline water thereby reducing its effectiveness, including a common larvicide called BTI; higher temperatures can also impact their effectiveness. (Source: <https://hyg.ipm.illinois.edu/pastpest/200017b.html>)



## ESSENTIAL OILS AS A ADDITIVE

The essential oils extracted from the bark, seeds, leaves, petals, stems and roots) can add some additional deterrent to ionized water if encapsulated or infused into the water. These oils include citronella, eucalyptus or lemon eucalyptus, lavender, lemongrass, peppermint, rosemary, cinnamon, lemongrass, jojoba oil, garlic oil.



## ELECTROCULTURE FARMING

### USING ELECTRICAL FIELDS FOR SUSTAINABLE PLANTS & CROPS



- Accelerated Growth. Germination of seeds and propagation of seedlings
- Nutrient Absorption. Ionized water used in irrigation can help promote soil nitrification, making nitrogen more available for crops.
- Water Efficiency. Studies shows increased production and greater water use efficiency
- Sustainability in dry areas. Ionized brackish water (water with more salinity than fresh water) used with fertilizers can help solve crop production in arid areas where insufficient fresh water is available.
- Disease Resistance. Ionized water has antimicrobial properties that can help fight plant bacteria, fungi and virus.

#### Sources

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4. Effects of Activated Water: <https://link.springer.com/article/10.1007/s42106-022-00210-7?fromPaywallRec=true>
5. Irrigation with Ionized Brackish Water: <https://www.sciencedirect.com/science/article/abs/pii/S0926669021010098#:~:text=Ionized%20technology%20is%20an%20ecologically,and%20improved%20water%20use%20efficiency.>
6. Effects of Ionized Water Addition on Soil Nitrification: <https://www.mdpi.com/2073-4395/12/6/1399>



## EXPLORING THE POTENTIAL OF NEW SOLUTIONS RESEARCHING: IONIZED WATER REPELLENT PROPERTIES AGRICULTURAL/FARMING PRODUCTION



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