TECH OFFER

# Ultra-Low Frequency Technology: Reducing Oxidative Stress and Enhancing Metabolic Functions

## KEY INFORMATION

TECHNOLOGY CATEGORY:
Personal Care - Wellness & Spa
Personal Care - Nutrition & Health Supplements
Manufacturing - Chemical Processes
Foods - Processes

TECHNOLOGY READINESS LEVEL (TRL): TRL7
COUNTRY: SINGAPORE
ID NUMBER: TO175150

## OVERVIEW

Water plays a vital role in various biological and industrial processes, but its effectiveness can be enhanced by modifying its molecular structure. This Ultra-Low Frequency (ULF) platform technology leverages ULF electromagnetic waves to alter the properties of water, aiming to improve its performance in specific applications.

By applying low-frequency electromagnetic fields, this technology has been observed to affect water's oxidation-reduction potential (ORP), potentially increasing its antioxidative properties. Empirical data suggests that ULF-treated water may enhance cellular hydration and support metabolic functions in biological system. The technology's ability to alter water at the molecular level offers potential benefits for agriculture, health and wellness, and food and beverage (F&B) processing.

The technology owner is seeking potential collaborators:

- Companies or individuals, interested in integrating this breakthrough technology into their products or exploring new applications across industries such as agriculture, health and wellness, and the F&B sector.
- Companies or individuals who are looking to acquire the intellectual property (IP). The IP can be specifically carved out for various applications, allowing flexibility and tailored use across different sectors.

## TECHNOLOGY FEATURES & SPECIFICATIONS

**ULF Electromagnetic Wave Application:** The technology uses ULF electromagnetic waves to alter the properties of water by using time varying frequencies and a combination of pulsating AC wave currents along with a DC component of the generated field.

**Antioxidant Enhancement:** By reducing the ORP of water, the technology boosts its antioxidative properties without the need for additional chemicals or additives. Importantly, this process does not make the water more alkaline.

**No Consumables Required:** The device operates without the need for filters, chemicals, or other consumables, allowing for continuous, long-term use with minimal maintenance.

## POTENTIAL APPLICATIONS

The ULF electromagnetic wave technology demonstrates versatile potential across various sectors, with empirical evidence suggesting its applicability in areas such as health and wellness, agriculture, F&B, and industrial water treatment. It has the potential to

**Health and Wellness:**

- Antioxidative Benefits: The reduced ORP may enhance water's ability to neutralize free radicals, supporting general health in consumers.
- Metablic Support: The technology has the potential to enhance molecular energy dynamics to promote improved cellular health and overall metabolic function in the body.

**Agriculture:**

- Improved Plant Hydration and Growth: The enhanced capillary action of ULF-treated water allows for more efficient absorption and nutrient delivery in plants. This can optimize crop yield, making it useful for irrigation in agriculture. The improved water absorption can result in healthier plants, faster growth, and better nutrient uptake.

**Food and Beverage Industry:**

- Extended Shelf Life: The technology can be applied to extend the shelf life of beverages, such as juices, by maintaining their freshness and reducing the need for preservatives. This reduces waste and ensures better product quality over time.
- Improved Taste and Texture: ULF treatment can reduce bitterness, astringency, and harsh flavors in beverages like coffee, tea, juices, and spirits, enhancing the overall taste profile and consumer experience. It also accelerates the aging process in wines and liquors, producing smoother and more palatable beverages in less time.

**Cosmetics and Skincare:**

- Antioxidant-Rich Water: The water's enhanced antioxidative properties could be integrated into cosmetic products and skincare formulations, potentially improving the effectiveness of hydration-based products and promoting healthier skin by neutralizing oxidative stress.

## UNIQUE VALUE PROPOSITION

**Chemical-Free Enhancement:** This technology utilizes a pure physical treatment to boost the water's properties. Additionally, it enhances the taste and extends the shelf life of beverages without any added chemicals.

**Sustainable and Long-Term Use:** No filters or consumables are required for the long-term application of the technology, ensuring a sustainable and hassle-free solution.