
A Step Ahead



Bio-G-Active: An Innovative Solution for Extending Shelf Life and Enhancing Microbial Quality of Poultry

Introduction

Bio-G-Active is an advanced solution designed to extend the shelf life and improve the quality of poultry carcasses. It harnesses physiological substances naturally present in postmortem processes of carcasses to deliver effective antimicrobial action. It is easy to integrate into existing production systems. The Bio-G-Active powder is dissolved in tap water and activated by adding lactic acid in the same amount as the powder. The exact dosage depends on specific requirements, microbial load, and user preferences. The prepared solution can be applied in various ways, such as direct spraying on poultry carcasses or through existing equipment like a spin chiller, much like chlorine. Since no additional machinery or equipment is required, Bio-G-Active can be seamlessly incorporated into current processing setups, offering a practical and efficient alternative to traditional treatments such as chlorine.



Scientifically Proven Benefits of Bio-G-Active

1. Microbial Reduction and Enhanced Food Safety

Bio-G-Active has both **bacteriostatic** and **bactericidal** effects, setting it apart from chlorine and other conventional disinfectants. **Bacteriostatic** means that the growth of bacteria is inhibited, preventing further reproduction of pathogens on poultry. This is critical to halting the spread of contamination. **Bactericidal**, on the other hand, refers to the ability to kill bacteria outright. Bio-G-Active works by disrupting bacterial cell membranes, effectively destroying the bacteria and leading to their death.

This dual action—both inhibiting bacterial growth and killing bacteria—gives Bio-G-Active a significant advantage over chlorine, which primarily functions as a bactericide, killing bacteria but not effectively preventing the growth of new microorganisms. By offering both **bacteriostatic** and **bactericidal** effects, Bio-G-Active can significantly reduce the risk of bacterial regrowth after treatment. This makes it particularly effective in food processing, where prolonged shelf life and strict hygiene are essential.

In addition, Bio-G-Active has the unique ability to target persister cells, commonly known as "dormant" (*dormant*) bacteria, which have reduced metabolic activity and are more resistant to antimicrobial treatments.

The effectiveness of Bio-G-Active against dormant bacteria is primarily due to the inclusion of monosaccharides, which play a crucial role in reactivating these cells. Dormant bacteria uptake monosaccharides as an immediate energy source, reactivating their metabolic processes. Once reactivated, these bacteria become vulnerable to the antimicrobial components of Bio-G-Active, which can then inactivate or kill them. This mechanism makes Bio-G-Active especially effective against bacteria that resist conventional agents like chlorine, which often fail to eliminate inactive or slow-growing cells.

2. Significant Extension of Shelf Life

Studies have shown that Bio-G-Active significantly extends the shelf life of poultry. By slowing down natural spoilage processes, it preserves the freshness of poultry products for several additional days. This is particularly beneficial for the modern food industry, as extended shelf life reduces logistical challenges and ensures product quality reaches the end consumer. Compared to untreated or chlorine-treated samples, poultry treated with Bio-G-Active demonstrates superior microbiological stability and sensory quality over an extended period.

3. Improvement in Sensory Qualities

In addition to reducing microbial contamination, Bio-G-Active also enhances the sensory attributes of poultry. It promotes uniform browning of the meat during cooking, improving the product's visual appeal. Additionally, Bio-G-Active optimizes the texture and consistency of the meat, resulting in a better sensory experience for consumers. Studies have shown that consumers significantly prefer Bio-G-Active-treated poultry in terms of flavor, juiciness, and texture over chlorine-treated poultry.

4. Health Safety and Sustainability

Unlike chlorine, which can lead to the formation of potentially harmful by-products such as chloramines and trihalomethanes (THMs), Bio-G-Active poses no health risks. It leaves no toxic residues, ensuring the safety of both consumers and workers handling the products. Moreover, Bio-G-Active produces no harmful vapors or mist during application, making it completely safe for workers in food processing facilities. This stands in stark contrast to chlorine, which can release dangerous fumes that pose respiratory risks and require strict safety protocols. With Bio-G-Active, the absence of hazardous chemicals ensures that the working environment remains safe, minimizing health risks while maintaining high standards of hygiene.

5. Effectiveness Against Chlorine-Resistant Bacterial Strains

A growing challenge in the use of chlorine is the development of resistance mechanisms in certain microorganisms. Several specific bacterial strains found on poultry have developed increased tolerance to chlorine treatments:

- **Salmonella spp.:** Certain strains of *Salmonella* have shown resistance to chlorine, which has traditionally been used to combat these pathogenic bacteria. These strains can reside in hard-to-reach areas of poultry carcasses where chlorine is ineffective.
- **Campylobacter jejuni:** This pathogen, one of the leading causes of foodborne illness, has exhibited increased tolerance to chlorine, complicating its complete eradication from poultry.

- **Listeria monocytogenes:** Known for its high resistance, particularly in moist environments typical of poultry production, *Listeria* is often less responsive to chlorine treatments.
- **Pseudomonas spp.:** These spoilage bacteria, commonly found on poultry, have demonstrated chlorine resistance, making them a significant challenge in food processing.

Bio-G-Active, however, shows high efficacy against these chlorine-resistant bacterial strains. Its unique mechanism targets both active and "dormant" (*dormant*) microorganisms, providing a more comprehensive and reliable solution for reducing microbial contamination on poultry.

6. Environmental Friendliness and Sustainability

Bio-G-Active's environmental benefits are a significant advantage over chlorine. While chlorine treatments generate problematic waste products that contaminate water and damage ecosystems, Bio-G-Active contains no environmentally harmful substances. Its biodegradable components ensure that poultry treatment does not contribute to environmental degradation or cause long-term harm to ecosystems. This is particularly important in the context of stricter environmental regulations and the growing demand for sustainable food production practices.

Summary of Bio-G-Active's Advantages Over Chlorine

- **Health Safety:** No formation of toxic by-products like chloramines or THMs. Safe for workers with no harmful vapors or fumes.
- **Environmentally Friendly:** Bio-G-Active is biodegradable and does not harm the environment.
- **Increased Effectiveness:** Significant reduction of microorganisms, including resistant bacterial strains, with both bacteriostatic and bactericidal action.
- **Improved Sensory Qualities:** Enhanced browning, texture, and flavor of poultry.
- **Long-Term Shelf Life:** Extends the freshness and shelf life of poultry products.

Conclusion

Bio-G-Active represents an innovative and comprehensive solution for the food industry, significantly improving the safety and quality of poultry products. It offers superior antimicrobial action compared to chlorine, along with enhanced sustainability, environmental safety, and sensory quality. Its ability to combat "dormant" (*dormant*) bacteria, alongside its safe profile regarding toxic residues and worker safety, makes Bio-G-Active a forward-thinking and essential product for modern poultry processing.

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