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Boosting chicken health with tea extract: a natural shield against stress

In modern poultry farming, chickens often face stressful conditions such as overcrowding, poor air quality, and contaminated feed. These conditions can lead to oxidative stress, a state where an excess of reactive oxygen species (ROS) overwhelms the body's natural antioxidant defenses, causing damage to cells and tissues. To combat these effects, researchers have explored natural interventions, with tea extract emerging as a promising candidate.

A recent study conducted by researchers at Zhejiang University investigated the protective effects of tea extract granules (TEG) in chickens subjected to oxidative stress induced by a chemical called cyclophosphamide (Cy). The findings, published in *Poultry Science*, reveal that TEG can significantly improve the health and well-being of chickens by enhancing their antioxidant defenses.

What is Oxidative Stress?

Oxidative stress occurs when the balance between harmful ROS and the body's antioxidant defenses is disrupted. This imbalance can damage proteins, lipids, and DNA, leading to various health issues. In chickens, oxidative stress can reduce growth, weaken the immune system, and even increase mortality rates.

The Role of Tea Extract Granules (TEG)

Tea, especially green tea, is rich in polyphenols—natural antioxidants that help neutralize ROS and protect cells from damage. In this study, researchers used TEG, a concentrated form of tea extract, to assess its ability to counteract oxidative stress in poultry.

The Experiments

The study involved two experimental approaches. In the preventive experiment, chickens were given TEG in their drinking water for seven days before being exposed to Cy. In the therapeutic experiment, chickens were given TEG after being exposed to Cy. The researchers measured various key health indicators, including body weight, organ health, antioxidant enzyme levels, and ROS levels.

Key Findings

-Body Weight: Chickens treated with TEG showed significantly better weight gain compared to untreated controls. This suggests that TEG helps counteract the growth-suppressing effects of oxidative stress.

– Organ Health: The thymus, bursa, and spleen are crucial for a chicken's immune system. Exposure to Cy reduced the size and function of these organs, but TEG treatment helped restore them to near-normal levels.

-Antioxidant Enzymes: TEG increased the activity of key antioxidant enzymes, such as superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GSH-PX). These enzymes help neutralize ROS and protect cells from damage.

– Redox Products: TEG reduced harmful substances like malondialdehyde (MDA) and lipid peroxide (LPO), which are markers of oxidative damage.

– Intracellular ROS: TEG significantly lowered the levels of ROS in chicken cells, further confirming its antioxidant properties.

Why This Matters

Oxidative stress is a significant concern in poultry farming, affecting both animal health and farm productivity. The study demonstrates that TEG can be a natural and effective way to enhance the antioxidant defenses of chickens, promoting better growth and health. This is particularly important for farmers looking for sustainable and safe ways to improve poultry welfare and productivity.

The research highlights the potential of tea extract granules as a natural antioxidant for chickens. By reducing oxidative stress, TEG not only improves the health and growth of chickens but also aligns with the industry's shift toward more sustainable and welfare-focused farming practices. As the demand for natural and sustainable farming practices grows, TEG could become a valuable tool in the fight against oxidative stress in poultry. These findings open the door for further research into the use of natural antioxidants in animal husbandry, potentially leading to healthier and more productive poultry farming practices.

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