



# Effects of Stevia Leaf Powder on Growth Performance, Intestinal Fluid Viscosity and Jejunal Histology in Broiler Chickens

ZAINAB KHALIL IBRAHIM, MEASEM HASSAN ALI\*, NAMEER A. KHUDHAIR

*Public Health Branch, College of Veterinary Medicine, University of Basrah, Iraq.*

**Abstract** | Objective: this study aimed to assess the stevia leaf powder's impact on the efficiency, intestinal fluid viscosity, and histology of jejunal villi in broiler chickens. Materials and methods: Various quantities of Stevia leaf powder were administered to 240 Ross broiler chicks from December 21, 2023, to January 17, 2024. After 28 days of treatment. Four groups of chicks from Babylon's Modern Al-Bakri Hatchery were given various dose. The first group, which served as a control, had an ordinary diet. Groups 2, 3, and 4 were given meals supplemented with 10, 20, and 30 g/kg/diet of Stevia leaf powder, respectively. Dietary stevia, milled locally. Results: The first two weeks showed no notable changes. However, 10, 20, and 30g/kg/diet STV groups exhibited greater body weights, weight gain, and reduced feed consumption than the control group in the third and fourth weeks. Whereas had identical feed conversion ratios (FCR) and lowered FCRs in the subsequent weeks. The 20 and 30g/kg diet STV groups showed zero mortality and considerably greater production indexes. STV-treated groups had greater villus high although crypt depth did not change, led to a little higher villus/crypt ratio. The results also showed decreased in intestinal fluid viscosity. While, transverse jejunum sections showed longer villus length and lower crypt depth were seen in STV groups compared to controls. Conclusions: Stevia leaf powder at 20 and 30g/kg diet, improved development, feed efficiency, and intestinal health by the third and fourth weeks. These imply that Stevia supplementation may boost broiler production, especially at higher dosages.

**Keywords** | Stevia leaves powder, Broiler chickens, Growth performance, Intestinal fluid, Viscosity, Jejunal histology

Received | November 07, 2024; Accepted | January 01, 2025; Published | February 27, 2025

\*Correspondence | Measem Hassan Ali Alallawee, Public Health Branch, College of Veterinary Medicine, University of Basrah, Iraq; Email: measem.ali@uobasrah.edu.iq

Citation | Ibrahim ZK, Ali MH, Khudhair NA (2025). Effects of Stevia Leaf Powder on Growth Performance, Intestinal Fluid Viscosity and Jejunal Histology in Broiler Chickens. Adv. Anim. Vet. Sci. 13(4): 733-742.

DOI | <https://dx.doi.org/10.17582/journal.aavs/2025/13.4.733.742>

ISSN (Online) | 2307-8316; ISSN (Print) | 2309-3331



Copyright: 2025 by the authors. Licensee ResearchersLinks Ltd, England, UK.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## INTRODUCTION

The poultry industry has witnessed remarkable and rapid development in recent decades. The period of raising chicks until marketing as broilers has reached an unexpected level. This speed in the production cycle requires strict care and follow-up. Therefore, investors and farm owners have resorted to using several methods to reduce the period of raising and the cost of consumed feed in or-

der to achieve higher profits, especially with the increase in demand for poultry meat. Consequently, many countries have implemented regulations to restrict or prohibit the use of additives in animal feed like antibiotics (Casewell *et al.*, 2003). In response, researchers have turned to natural additives as alternative options to improve the growth and health of broiler chickens without contributing to antibiotic resistance or risk to public health (Windisch *et al.*, 2008). Various natural additives, including probiotics, prebiotics,