J I T A A
Journal of the Indonesian Tropical Animal Agriculture
Accredited by Ditjen Riset, Teknologi dan Pengabdian kepada Masyarakat No. 164/E/KPT/2021

J. Indonesian Trop. Anim. Agric.
pISSN 2087-8273 eISSN 2460-6278
http://ejournal.undip.ac.id/index.php/jitaa
51(1):60-71, March 2026
DOI: 10.14710/jitaa.51.1. 60-71

Effect of supplementation of *Typha domingensis* Pers. fruit powder and aqueous extract on productive performance and some physiological characteristics of broiler chickens

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Received November 06, 2025; Accepted February 02, 2026

ABSTRACT

This study evaluated the effects of dietary supplementation with *Typha domingensis* Pers. fruit flour (TDF) and its aqueous extract (TDE) on growth performance, physiological responses, and gut microbial balance in broiler chickens. A total of 216 one-day-old chicks were allocated at seven days of age into six treatment groups. Birds received either a basal diet (T1, control), TDE supplementation in drinking water at 5 or 15 mL/L (T2 and T3), TDF inclusion in feed at 5 or 15 g/kg (T4 and T5), or a combined supplementation of TDF and TDE at 7.5 units each (T6). Supplemented groups exhibited significant improvements ($p \leq 0.05$) in final body weight, body weight gain, feed conversion ratio, production index, performance index, and economic efficiency compared with the control group. Additionally, the relative weight of the bursa of Fabricius increased, whereas abdominal fat deposition decreased. Blood biochemical analysis revealed significant reductions in serum cholesterol, triglycerides, low-density lipoprotein (LDL), aspartate aminotransferase (AST), and alanine aminotransferase (ALT), accompanied by increased high-density lipoprotein (HDL) levels. Antioxidant status was enhanced, as indicated by elevated superoxide dismutase (SOD) and glutathione peroxidase (GSH-PX) activities. Microbiological assessment demonstrated reduced total bacterial counts and *Escherichia coli*, alongside increased populations of beneficial *Lactobacillus spp*. In conclusion, supplementation with TDF and TDE positively influenced growth performance, metabolic health, antioxidant capacity, and intestinal microbial balance in broiler chickens, suggesting their potential as natural feed additives to improve poultry productivity and health.

Keywords: Broilers, Ileal microbiota, Productive performance, Typha domingensis Pers. Fruit.

INTRODUCTION

Typha domingensis Pers. (cattail) is a globally widespread aquatic plant, also known as Bardy (papyrus). It is a perennial plant with lance-shaped leaves, fast growing, belonging to the Typhaceae family. There are over 500 species of Typha plants worldwide, along with approximately 104 genera, which can grow excessively in tropical wetlands, reaching lengths of up to 2-3 meters (Sorourian *et al.* 2020; Pandey *et al.,* 2022). In southern Iraq, particularly in various regions, particularly in various regions of Basrah province, *Typha domingensis* (Pers.) is widely distributed in marsh areas (Maki *et al.,* 2024). Its pollen is yellow and rich in nutrients, including vitamins, minerals, and flavonoids.The flavonoids present in the pollen are responsible for its yellow color Aljazy *et al.,* 2021), and have antioxidant properties that help protect against