

Effect of Jerusalem artichoke (*Helianthus tuberosus* L.) on histological parameters of small intestinal segments of broiler chickens

Authors:

**Abbas AM Al-Abboodi and
Hasan SA Jawad**

Institution:

Department of Animal
Production, Faculty of
Agriculture, University of
Baghdad,
Iraq.

Corresponding author:

Hasan SA Jawad

ABSTRACT:

A study was undertaken to examine the broiler growth performance effectiveness by daily supplementing *H. tuberosus* from 1 to 6 week of age. A total of 390 one-day-old broiler chicks were allocated to five treatments, with three replicates per treatment and 26 birds per replicate. Experimental treatments including 0% (T₁), 0.5% (T₂), 1% (T₃), 1.5% (T₄) and 2% (T₅) *H. tuberosus* powder were used. Three birds per treatment at week four and six (3 male and 3 female) at the marketing age were isolated based on the mean treatment weight and euthanized to perform the necropsy. The birds were slaughtered and the duodenum, jejunum and ilium cross sections were measured by an ocular micrometer after stained by Haematoxylin and Eosin stain. In comparison with the control group, supplementing 1% *H. tuberosus* caused greater (P<0.05) effect on the total duodenum wall thickness at week 4 of age. Same observation was shown in jejunum wall for T₃ and T₄. At week 6 of age, partnered significant effect was obtained in all the *H. tuberosus* treatments. The improvement percentage in the duodenum wall parameters were 7-16% in villi length, 8-15% in crypt depth and 6-15% in the total wall thickness. While in jejunum the improvement percentages were 16-25% in villi length, 1-17% in crypt depth and 12-23% in the total wall thickness. Similarly, in ilium the improvement percentages were, 4-33% in villi length, 11-26% in crypt depth and 5-31% in the total wall thickness. This study gives evidence that there is a positive relationship between the developments in the intestinal wall layers and increase the supplementation percentage of *H. tuberosus* in broiler diet.

Keywords:

Jerusalem artichoke, Inulin, Histological parameters, Small intestinal.