

## **ABSTRACT**

In this research, the detoxification effects of tryptophan (TRP) on performance, immunity, and microbial population of Japanese quails fed aflatoxin B1 (AFB1) were studied. Six experimental diets with 2 levels of TRP (i.e., 0.35 and 0.45% of diet) and 3 levels of AFB1 (i.e., 0, 2.5, and 5 mg/kg) in a completely randomized design and 2 × 3 factorial arrangement were fed to 240 quail chicks from 7 to 35 days of age. Dietary treatments significantly affected quail performance so that the highest feed intake was observed in birds received 0.25% TRP without AFB1 and lowest feed intake was observed in birds received 5 mg AFB1 per kg and 0.25% TRP ( $P < 0.05$ ). The birds received 5 mg AFB1 per kg and 0.25% TRP showed the lowest G ( $P < 0.05$ ) and lowest feed conversion ratio was attributed to the birds received 0.45% TRP ( $P < 0.05$ ). The birds fed 5 mg AFB1 per kg and 0.25% TRP had the lowest live weight, carcass percent, leg meat yield, and relative weight of bursa of Fabricius ( $P < 0.05$ ) while the highest relative weight of liver ( $P < 0.05$ ). The highest antibody production against sheep red blood cell antigen and skin thickness response to DNCB challenge were observed in birds received 0.45% TRP without AFB1 ( $P < 0.05$ ) while the lowest skin thickness response to DNCB challenge was attributed to the birds fed 0.25% TRP and 2.5 mg AFB1 per kg ( $P < 0.05$ ). The birds fed 0.45% TRP without AFB1 had the highest lactic acid bacteria population while the lowest lactic acid bacteria population was observed in birds received 0.25% TRP with 5 mg AFB1 per kg ( $P < 0.05$ ). However, the highest E.coli population and total microbial population were observed in birds fed 0.25% TRP and 5 mg AFB1 per kg while the lowest harmful bacteria was attributed to the birds received 0.45% TRP and 5 mg AFB1 per kg ( $P < 0.05$ ).

**Key words:** Japanese quail, Tryptophan, Immune system, Microflora, Aflatoxicosis



University of Zabol  
Graduate school  
Faculty of Agriculture  
Department of Animal Science

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**Supervisor:**

Dr. Mehran Mehri

**Advisers:**

Dr. Farzad Bagherzadeh Kasmani

Dr. Ali Maghsoudi

**By:**

Sousan khanipour

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