

# Histomorphometrical evaluation of Bursa of Fabricius and Immunohistochemistry Tracing of P53 and Caspase3 in broiler following physiological stress and protective effect of chromium supplement

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Received: 30.09.2017

Accepted: 17.04.2018

## Abstract

The purpose of present study was to examine the protective effect of chromium supplement against damages which is induced by physiological stress and evaluation of apoptosis in Bursa of Fabricius of broilers through Immunohistochemical tracing of p53 and caspase-3 proteins. In this experimental study, 320 male Ross broilers were used. This study was designed as a 2 x 4 factorial, with two stress levels (under stress and stress free) and four levels of chromium-methionine supplement (0, 1000, 2000 and 3000ppb) in diet, which distributed into 4 accidental repeated groups of 10 each. Stress was induced by adding dexamethasone to the diet, during 17 to 24 days of age. At the end, broilers in all groups were euthanized and the samples that include Bursa of Fabricius were obtained then pathological and immunohistochemical parameters were evaluated. Physiological stress caused significant changes in medulla and cortex in the lymphatic follicle of Bursa of Fabricius. Based on this study, Chromium-methionine supplementation could ameliorate the effects of Physiological stress in Bursa of Fabricius. Physiological stress caused significant increases in p53 and caspase-3 expression levels in Bursa of Fabricius. Chromium-methionine administration markedly reduced the expression levels of p53 and caspase-3 after inducing physiological stress.

**Keywords:** P53, Caspase3, Bursa of Fabricius, Physiologic Stress, Chromium

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