

Silymarin ameliorates acute liver toxicity in broiler chicks challenged by Aflatoxin B1

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Abstract

This study aimed to evaluate the effect of Silymarin on Aflatoxin B1-induced acute liver toxicity and to determine some serum biochemical parameters and oxidative stress in broiler chicks. A total of fifty 14-day old broiler chicks were used for this study. Chicks were divided into 5 groups each of 10 chicks. The first group was given Aflatoxin B1 at a dose of 3mg/kg b.wt. The second group was given Silymarin 600 mg/kg b wt + Aflatoxin B1 (3mg mg/kg b wt). The third group was given Aflatoxin only for 2 successive days then treated by Silymarin. The fourth group was given Silymarin only and the fifth group was left as control non-treated group. All doses were orally administered by gavages. Aflatoxin B1 was given for 2 successive days and Silymarin daily for 7 days. At the end of the experimental period, blood samples were collected from 5 chicks in each group for biochemical analysis and oxidative stress. Oral administration of Aflatoxin B1 for 2 successive days in a dose of 3 mg/kg b .wt induced acute liver toxicity as there was a significant increase in the leakage enzymes namely AST, ALT and ALP. While a significant decrease in the total protein and albumin synthesized by the liver plus increased levels of in cholesterol and triglyceride. Aflatoxin B1 induced oxidative stress as it significantly increased lipid peroxide MDA and caused a significant decrease in glutathione-s- transferase GST. Administration of Silymarin with or after Aflatoxin B1 improved serum biochemical parameters and oxidative stress. In conclusion Silymarin has beneficial hepatoprotective effects as it tends to dampen Aflatoxin B1 acute liver toxicity in broiler chicks.

INTRODUCTION

Aflatoxins (AF) are ubiquitous in corn-based animal feed and causes hepatotoxic and hepatocarcinogenic effects. The most important AF in terms of toxic potency and occurrence is Aflatoxin B1 (AFB1). Poultry are extremely sensitive to the toxic and carcinogenic action of AFB1, resulting in millions of dollars in annual losses to producers due to high mortality, reduced growth rate, increased susceptibility to disease, reduced egg production and other adverse effects. The