ABSTRACT

EVALUATION OF VARIOUS MYCOTOXIN CONTAMINATION IN COMMERCIAL BROILER FEED IN THE DISTRICT OF SLEMAN, YOGYAKARTA AND ITS EFFECTS ON LYMPHOID ORGANS (BURSA OF FABRICIUS, THYMUS AND LIEN) AND OTHER MYCOTOXIN ASSOCIATED ORGANS

Michelle Anusha Turnwald

This study was designed to evaluate various mycotoxin contamination in commercial broiler feed in the district of Sleman, Yogyakarta, Indonesia and its effects on lymphoid organs (bursa of Fabricius, thymus and spleen).

Feed samples were collected from three different farms and analysed using high performance liquid chromatography technique coupled with multiple stage mass spectrometry (HPLC-MSn) to allow identification and simultaneous determination of a wide range of mycotoxicoses. This procedure was carried out at Romer Labs Singapore. Four chickens 31 days of age from each of the three farms respectively (in total 12 chickens), were killed by air embolism technique, and followed by necropsy for pathological examination. Various organs were also examined to correlate the effects of mycotoxins and the gross lesions found on specific organs such as the gizzard, proventriculus, liver, lymphoid organs, kidney, bone marrow and pigmentation of shank. Physical changes and body condition of broilers before necropsy were also observed to study the changes related to growth performance, weight gain, and dermal effects as in impaired feathering and paleness of mucous membrane and shank. However, in this study only the lymphoid organs were taken into consideration as samples of study. These samples were then collected and sent for further processing in accordance to the haematoxylin and eosin (H&E) staining method for microscopic examination. The necropsy and staining procedures were carried out in the Department of Pathology, Faculty of Veterinary Medicine, Gadjah Mada University.

Results found a wide range of mycotoxins occurring in poultry feed collected from all three farms tested including aflatoxin B1, B2 and G1, deoxynivalenol, fumonisin B1, fumonisin B2, fumonisin B3, HT-2 toxin, ocharatoxin A and zearalenone. It was found that, the bursa of Fabrisius, thymus and lien undergone atrophy and microscopic examination showed severe depletion of lymphocytes proving immunosuppression in broilers. Incidence of mycotoxicosies in broilers examined were further supported with gross lesions in mycotoxin primary target organs such as liver, proventriculus and ventriculus.. Broilers also showed decreased performance, impaired feathering and pale bird syndrome.