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Deoxynivalenol Induces Immunosuppression Via Apoptosis of Thymus Other Than Spleen in B6C3F1 Mice

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Deoxynivalenol(DON) alters host resistance, which may be affected by apoptosis occurred in lymphoid organs. We investigated the changes of organ weights, histopatholgical findings and bax/bcl-2 gene expression of lymphoid organs, spleen and thymus, and serum content of immunoglobulins in B6C3F1 male mice after oral administration of 0.83, 2.5 and 7.5 mg/kg bw DON for 8 days. The absolute or relative thymus weight was dose-dependently reduced and lymphocytes was depleted at cortex area of thymus in all DON-treatment groups but spleen showed no changes in organ weight and histopathological findings. The ratio of Bax/bcl-2 genes isolated from thymus was increased at 7.5 mg/kg DON. However, no changes of the gene ratio were found in spleen. Serum IgG was reduced in a dose-dependent manner and IgA, IgE and IgM showed significant reduction at high dose DON. These results indicate that DON suppresses immune functions as reduction of immunoblobulins and which are highly related with atrophy and apoptosis of thymus other than spleen.

Keyword: Deoxynivalenol, Thymus, Spleen, Apoptosis, Immunoglobulin