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VII-Summary

Examination of Ration samples:

A total of 80 ration samples were collected from different farms in both Giza and Kaliobia governorates. These samples were subjected to mycological examination for isolation and identification of different mould species as well as total mould colony count.

The total mould count is higher in Giza ration samples than in Minufiya samples as it was 2.7 x 10^2 cfu /g in Giza samples and was 1.6 x10^2 cfu /g in Kaliobia samples. The most frequently isolated mould species from both Giza and Kaliobia ration samples was Aspergillus species with incidence of 56% in Giza samples and 52% in Kaliobia samples.

The most isolated Aspergillus species in ration samples in both governorates samples were A.flavus (60%), (47%) was the most isolated Aspergillus spp. followed by A.niger (24%), (38%), A.terreus (12%), (9%), A.candidus (2%), (2%) and A.Jumigatus (2%), (2%). It is showed that F.poae (43%) was the most isolated Fusarium spp. followed by Fusarium verticilloides (27%), F.solani (15%) and F.subglutinans (15%) in Kaliobia ration samples while F.poae was the only fusarium species detected in Giza ration samples. It was obvious that the predominant Penicillium species isolated from Kaliobia ration samples were P.oxalicum (32%) followed by P.camemberti, P.corylophilum and P.Purpurogenum (17%) while P.corylophilum and P.Purpurogenum were the isolated fusarium species detected in Giza ration samples.

The residues of aflatoxin B1 in examined poultry feed samples were determined by thin layer chromatography and can be detected in seven ration samples from Giza and in 13 ration samples from Kaliobia. Aflatoxin B1 is quantitavely estimated with a mean of 18.9 µg / kg in Giza samples and 23.57 µg / kg in Kaliobia samples.

Experimental protocol:

After two weeks of acclimatization, fifty adult male albino rats were randomly allocated into five groups: each of 10. Group (1): rats fed on standard ration during period of experiment, group (2): rats fed on ration contaminated with aflatoxin (50 ppm of feed) for 30 day, group (3): rats fed on ration contaminated with aflatoxin at as same dose and duration of group (2) and fed on 0.6 gm/kg BW of fe_3o_4 nanoparticles daily for 30 day, group (4): rats fed on ration contaminated with aflatoxin at as same dose and duration of group (2) and fed on 0.3 gm/kg BW of fe_2o_3 nanoparticles daily for 30 day and rats fed on ration contaminated with aflatoxin at as same dose and duration of group (2) and fed on 0.04 gm/kg BW of MgO nanoparticles daily for 30 day**.**

At the end of experiment, all rats were sacrificed and blood was taken for biochemical examinations and liver and kidney tissue were used for histopathological examination. **The results were summarized as follow:**

I- Effect of Aflatoxin on blood picture, liver enzymes, serum creatinine level, albumin and total protein concentration.

Rats fed on ration contaminated with aflatoxin (50 ppm of feed) for 30 day showed a significant decrease in Hgb, RBCs count**,** hematocrit level, MCV, MCH Plt, Albumin, Total protein concentration and Lymphocytes count while showed non-significant decrease in MCHC compared with control negative group.

Aflatoxin administrated rats showed a significant increase in WBCs, Neutrophil, Monocytes count, Creatinine level and ALT and AST activity compared with control negative group.

II- Effect of Fe_3O_4 NPs, Fe_2O_3 NPs and MgO NPs on blood picture, liver enzymes, serum creatinine level, albumin and total protein concentration.

Rats fed on fe_3o_4 NPs in a dose of 0.6 gm/kg BW or fe_2o_3 NPs in a dose of 0.3 gm/kg BW or MgO NPs in a dose of 0.04 gm/kg BW daily for 30 day showed significant increase in Hgb, RBCs count**,** hematocrit level, MCV, Lymphocytes count, Albumin and Total protein concentration while showed non-significant decrease in MCHC compared with control positive group.

Rats fed on fe_3o_4 NPs or fe_2o_3 NPs showed non-significant increase in MCH and Plt compared with control positive group while Rats fed on MgO NPs showed significant increase in MCH and Plt compared with control positive group.

Rats fed on fe_3o_4 NPs or or MgO showed significant decrease in WBCs, Neutrophils monocytes count, ALT and AST activity and Creatinine level compared with control positive group.

III- Histopathological examination of liver and kidney tissue.

Histopathological examination of liver tissue in Aflatoxin administrated group showed severe congestion of the central vein with marked vacuolation of the surrounding hepatic cells and kidney tissue showed shrunken cortical glomeruli with cystic dilatation of the surrounding renal tubules.

Histopathological examination of liver tissue in Fe_3o_4 NPs administrated group showed congested hepatic blood vessels with infiltration of the portal area with mononuclear cells mainly lymphocytes and macrophages and kidney showed severe vacuolation of the surrounding cells and marked cystic dilation of the cortical renal tubules with normal structures of the glomerular tuft.

Histopathological examination of liver tissue in Fe_2o_3 NPs administrated group showed focal aggregation of lymphocytes and macrophages with moderate vacuolation of the surrounding hepatocytes and kidney showed

moderate cystic dilation of the cortical renal tubules with normal structures of the surrounding glomeruli.

Histopathological examination of liver tissue in MgO NPs administrated group showed normal histological structures of the hepatic parenchyma with the exception of few vacuolated hepatocytes and lack of inflammatory reaction in the portal area and kidney showed normal histological structures and architectures of the renal parenchyma with mild cystic dilation of few renal tubules.