



Copper (I)-Nicotinate Complex Exhibits More Prophylactic Effect than Butylated hydroxytoluene Against Nephrotoxicity in Chronically Aflatoxicosed Rats

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Abstract:

This submitted work was designed in order to evaluate the prophylactic efficacy of the synthetic copper (I)- nicotinate complex against nephrotoxicity by aflatoxin B1 (AFB1) with regard to the highly accepted antioxidant agent butylated hydroxytoluene (BHT). Aflatoxin B1 fraction was obtained by growing *Aspergillus flavus* in potato dextrose agar (PDB) liquid medium. Healthy young males albino rats (n=45) were exposed to AFB1 day after day for five weeks (20 µg/kg body weight). One third of them was co-treated with BHT (0.05 g/kg body weight) and the second third by the copper complex (400 µg/kg body weight) while the third was considered as only intoxicated control group. Such intoxication resulted into the histopathological (light and electron transmission) characteristic features of nephrotoxicity. The sever degenerative changes swelling of the cells even rupture of the membrane and cellular organelles in the tubular lumen as well as fibrocytic reaction and congestion of the vasculature in addition to glomerular reaction manifested by atrophy of both vesiral (podocyte) and parital shirked cells. The co-treated BHT group did not eliminate all such features of degenerative characters in intoxicated tissue kidney while the co-treated copper complex group mostly appeared normal. The enzyme level of phase II of body detoxifying GST was significantly increased than that improved by BHT. Conclusively, the food additive probable use of the copper nicotinate complex could be a promising agent against nephrotoxicosis.

Keywords:

Aflatoxin B1, copper (I)-nicotinate complex, Butylated hydroxytoluene, Nephrotoxicity, Antioxidant, Food additive.

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