

POTENTIAL PROTECTIVE EFFECT OF FERMENTED CAMEL MILK CONTAINING PROBIOTIC, PREBIOTIC AND SYNBIOTIC AGAINST LEAD AND CADMIUM - INTOXICATED MALE RATS

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ABSTRACT

Potential protective effect of fermented camel milk containing probiotic, prebiotic and Synbiotic against lead and cadmium was studied in intoxicated male rats. The contents of the biologically active ingredients were investigated first and was found that the highest phenolic contents were recorded when the fermented camel milk was mixed with extracts of dandelion & spirulina (18.02 mg GAE/g), followed by Spirulina extract and then fermented camel milk with spirulina extract but no phenolic compounds were detected in fermented camel milk. The scavenging activity (%) of the experimental materials followed the same trend of the levels of the total phenolics except that analysis of fermented camel milk alone indicated a high scavenging activity (84.03 %) and this scavenging activity was further improved by addition of extract of dandelion & spirulina (98.32 %).

Treatment with lead acetate or Cd-chloride resulted in variable changes in body weight, liver and kidneys weight; the positive control groups scored the lowest gain in body weight and weight of organs. Activities of ALP, AST and ALT increased significantly following treatment with lead or cadmium. Administration of experimental preparations decreased significantly the elevated activities of these enzymes.

Administration of lead and cadmium elevated significantly the levels of both urea and creatinine. Administration of fermented camel milk with spirulina or preparation of fermented camel milk with spirulina and dandelion reduced significantly the concentration of urea and creatinine to almost normal values. Livers of rats treated with lead or cadmium showed subacute portal inflammatory reaction while the kidneys showed focal sub-acute interstitial nephritis. These Alterations are more severe in liver and kidneys of rats that received lead when compared with that received cadmium. All these histopathological alterations observed were improved by the treatments especially in the groups that received fermented camel milk with spirulina extract and the group on fermented camel milk with spirulina extract and dandelion.

KEYWORDS: Pro, Pre and Syn-biotic, Lead, Cadmium, Hepatotoxicity, Nephrotoxicity, Histopathology, Rats