

Protective Effect of Curcumin and Chlorophyllin against DNA Mutation Induced by Cyclophosphamide or Benzo[a]pyrene

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The current study was carried out to evaluate the potency of curcumin and chlorophyllin as natural antioxidants to reduce the oxidative stress markers induced by cyclophosphamide (CP) and benzo[a]pyrene [B(a)P] which were used as free radical inducers.

For this purpose, 126 male albino rats were used. The animals were assigned into 4 main groups: negative control group; oxidant-treated group (subdivided into two subgroups: cyclophosphamide-treated group and benzo[a]pyrene-treated group); curcumin-treated group; and chlorophyllin-treated group. Liver samples were collected after two days post the oxidant inoculation and at the end of the experimental period (10 weeks).

These samples were examined for determination of liver microsomal malondialdehyde (MDA), DNA fragmentation, restriction fragment length polymorphism (RFLP) and 8-hydroxy deoxyguanosine (8-OHdG) concentration.

Both CP and B(a)P caused increments in DNA fragmentation percentages, liver microsomal MDA, concentration of 8-OHdG and induced point mutation. Treatment of rats with either curcumin or chlorophyllin revealed lower DNA fragmentation percentages, liver microsomal MDA concentration, concentration of 8-OHdG and prevented induction of mutations, *i. e.*, reversed the oxidative stress induced by CP and B(a)P and proved that they were capable of protecting rats against the oxidative damage evoked by these oxidants.

Key words: Antioxidants, Mutation, DNA Fragmentation