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Chemopreventive effect of anovel nanoomposite against Benzo[a]pyrene induced lung carcinogenesis

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Benzo[a]pyrene induced lung cancer by mechanism which interact with DNA and cause genetic changes; this mechanism accelerates the cell cycle progression and induces the abnormal cell proliferation. Selenium, N Acetyl cysteine and curcumin in nanocomposite have been shown to confer various biological effects, anticancer, enhance immune system and antioxidant properties. The present study was undertaken to evaluate the chemopreventive effect of nano (selenium ,acetyl cysteine ,curcumin) (NSACC) and possess ability of SNACC with dose 4mg\ kg.b.w against Benzo[a]pyrene carcinogenesis with dose 200mg/kg.bw divided at two doses the first at the 1st week of the experiment the second after 20 week from the time of the experiment. The results indicated that B[a]p induced lung cancer in mice's histopathologically and cause significant decrease of SOD, GSH, CAT values and significant increase of NOx, LP over expression of p53, cas3 and cas9. While, treating with (NSACC) causes significant increase of SOD, GSH, GPx, and significant decrease of CAT, LP, Nox, induction of p53, cas 3, cas 9 gradually then decrease to normal control values. From the obtained results, it could be concluded that inhibition of peroxidation and oxidative stress markers, enhanced antioxidant status, induction of p53 expression , caspase3 and 9 gene in mice lung tissue by NSACC suggest the potential efficacy of NSACC as an addition chemo preventive agent in treatment of lung carcinogenesis. These data provide direct evidence for the role of NSACC as very strong chemo preventive and treating drug for lung cancer induced by B[a]P.

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