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## Toxicological assessment of *Pyrethrum* based mosquito coil smoke on rats

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The study was carried out to investigate the effect of *Pyrethrum* based mosquito coil smoke on the biochemistry and histomorphology of the Wister albino rats. The experiment involved two groups of rats (experimental group and control group, n=10), weighing between 150 to 200 gms. Before exposure to *Pyrethrum* coil, blood samples were collected from the femoral vein. After that the experimental rats were exposed to the smoke of *Pyrethrum* for a continuous duration of 8 hours daily in 27m<sup>3</sup> (3x3x3) well ventilated room for 10 weeks. Thereafter, the blood samples were taken through cardiac puncture and comparison was made with those in the control group. Apart from that different organs were collected after intracardial perfusion technique under ketamine (80mg/kg) and diazepam (2.5mg/kg) using 10% phosphate buffer formalin. The smoke from the coils induce significant increase ( $p \leq 0.05$ ) in the levels of WBC, RBC, Hb and significant decrease ( $p \leq 0.05$ ) in platelets, blood urea nitrogen (BUN) and total protein in biochemical study. The elevated levels of hepatic enzymes were found in the serum of the rats exposed to smoke. This indicated that the enzymes were released from the damaged tissues into the bloodstream. Similarly, smoke induced histopathological changes, including inflammation of the tracheal epithelium, congestion of lung parenchyma with foci of pneumonia. Likewise, dilatation of sinusoids, pericentral vein and periportal tract inflammation and necrosis of hepatocytes were observed. In kidney patchy perivascular and interstitial inflammatory cells were seen whereas glomeruli and tubules appeared unremarkable. In conclusion, prolonged exposure to *Pyrethrum* coil and mat can lead to deleterious effect on health affecting mainly pulmonary, liver and kidney functions apart from allergic reactions and risk of pyrethroid poisoning.

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